

Systemwalker Runbook Automation



Reference Guide

Windows/Linux

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Preface

Purpose of this Document

This document describes the commands and configuration files of Systemwalker Runbook Automation V15.1.1.

Intended Readers

This document is intended for people who operate and manage systems using Systemwalker Runbook Automation.

This document assumes that readers already have a general understanding of basic operating system and GUI operations as well as basic knowledge of XML.

Abbreviations and Generic Terms Used

- The term "Windows(R) 8" refers to the following products:
 - Windows(R) 8 Pro(x86)
 - Windows(R) 8 Enterprise(x86)
 - Windows(R) 8 Pro(x64)
 - Windows(R) 8 Enterprise(x64)
- The term "Windows(R) 7" refers to the following products:
 - Windows(R) 7 Home Premium(x86)
 - Windows(R) 7 Professional(x86)
 - Windows(R) 7 Ultimate(x86)
 - Windows(R) 7 Enterprise(x86)
 - Windows(R) 7 Home Premium(x64)
 - Windows(R) 7 Professional(x64)
 - Windows(R) 7 Ultimate(x64)
 - Windows(R) 7 Enterprise(x64)
- The term "Windows Vista (R)" refers to the following products:
 - Windows Vista(R) Home Basic(x86)
 - Windows Vista(R) Home Premium(x86)
 - Windows Vista(R) Business(x86)
 - Windows Vista(R) Ultimate(x86)
 - Windows Vista(R) Enterprise(x86)
 - Windows Vista(R) Business(x64)
 - Windows Vista(R) Ultimate(x64)
- The term "Windows(R) XP" refers to the following products:
 - Microsoft(R) Windows(R) XP Professional x64 Edition
 - Microsoft(R) Windows(R) XP Professional
 - Microsoft(R) Windows(R) XP Home Edition

- The term "Windows Server 2012" refers to the following products:
 - Microsoft(R) Windows Server(R) 2012 Standard(x64)
 - Microsoft(R) Windows Server(R) 2012 Datacenter(x64)
- The term "Windows Server 2008" refers to the following products:
 - Microsoft(R) Windows Server(R) 2008 R2 Standard(x64)
 - Microsoft(R) Windows Server(R) 2008 R2 Enterprise(x64)
 - Microsoft(R) Windows Server(R) 2008 R2 Datacenter(x64)
 - Microsoft(R) Windows Server(R) 2008 Standard(x86)
 - Microsoft(R) Windows Server(R) 2008 Enterprise(x86)
 - Microsoft(R) Windows Server(R) 2008 Standard(x64)
 - Microsoft(R) Windows Server(R) 2008 Enterprise(x64)
 - Microsoft(R) Windows Server(R) 2008 Datacenter(x64)
 - Microsoft(R) Windows Server(R) 2008 Standard without Hyper-V(x86)
 - Microsoft(R) Windows Server(R) 2008 Enterprise without Hyper-V(x86)
 - Microsoft(R) Windows Server(R) 2008 Datacenter without Hyper-V(x64)
- The term "Windows Server 2003" refers to the following products:
 - Microsoft(R) Windows Server(R) 2003, Standard Edition
 - Microsoft(R) Windows Server(R) 2003, Enterprise Edition
 - Microsoft(R) Windows Server(R) 2003, Standard x64 Edition
 - Microsoft(R) Windows Server(R) 2003, Enterprise x64 Edition
 - Microsoft(R) Windows Server(R) 2003 R2, Standard Edition
 - Microsoft(R) Windows Server(R) 2003 R2, Enterprise Edition
 - Microsoft(R) Windows Server(R) 2003 R2, Standard x64 Edition
 - Microsoft(R) Windows Server(R) 2003 R2, Enterprise x64 Edition
- The Oracle Solaris Operating System may be referred to as Solaris, Solaris Operating System or Solaris OS.
- Microsoft (R) Cluster Server and Microsoft (R) Cluster Service are referred to as MSCS.
- The versions of Systemwalker Runbook Automation that run on Windows systems are referred to as the Windows version.
- Items relating to Systemwalker Runbook Automation that runs on Windows compatible with 64-bit architecture other than Itanium are referred to as Windows x64.
- The versions of Systemwalker Runbook Automation that run on Linux systems are referred to as the Linux version.

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This guide uses screenshots in accordance with Microsoft Corporation's guidelines.

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Chapter 1 Command Reference

The required items for each command are explained in the order shown below:

- **Environment Definition Commands**

These are used when installing Systemwalker Runbook Automation, and when configuring environment definitions.

- **Start/Stop Commands**

These are used when starting and stopping Systemwalker Runbook Automation.

- **Operation Commands**

These are used depending on the operation, for example manipulating various process information.

- **Maintenance Commands**

These are used for investigation data collection when errors occur, and at the time of various maintenance operations, for example data backup and restoration.



Note

Character encoding of command execution environment

When executing commands provided by Systemwalker Runbook Automation, always ensure that the character encoding of command execution environments such as terminals and consoles match the character encoding of the system.

1.1 List of Commands

The list of commands provided in Systemwalker Runbook Automation is shown below:

| Type | Function Name | Command Name |
|---------------------------------|--|---|
| Environment Definition Commands | Setup/Setup Cancellation Command | 1.2.1 swrba_setup (Setup/Setup Cancellation Command) |
| | Interstage Single Sign-on Setup command | 1.2.2 ssoclsetup (Interstage Single Sign-on Setup Command) |
| | Interstage Single Sign-on Setup Cancellation Command | 1.2.3 ssoclunsetup (Interstage Single Sign-on Setup Cancellation Command) |
| | CMDB Environment Setup Command | 1.2.4 cmdbsetupenv (CMDB Environment Setup Command) |
| | CMDB Environment Setup Cancellation Command | 1.2.5 cmdbunsetupenv (CMDB Environment Setup Cancellation Command) |
| | CMDB Agent Cluster Setup Command | 1.2.6 cmdbagentclset (CMDB Agent Cluster Setup Command) |
| Startup/Stop Commands | Startup Command | 1.3.1 swrba_start (Startup Command) |
| | Stop Command | 1.3.2 swrba_stop (Stop Command) |
| | Execution Status Verification Command | 1.3.3 swrba_status (Execution Status Verification Command) |
| | Interstage Single Sign-On Start and Stop Command | 1.3.4 ssoclservicectl (Interstage Single Sign-On Start and Stop Command) |
| | CMDB Startup Command | 1.3.5 cmdbstart (CMDB Startup Command) |
| | CMDB Stop Command | 1.3.6 cmdbstop (CMDB Stop Command) |
| | CMDB Startup Status Display Command | 1.3.7 cmdbstatus (CMDB Startup Status Display Command) |
| | Agent Control Command | 1.3.8 swncctrl (Agent Control Command) |

| Type | Function Name | Command Name |
|----------------------|--|---|
| Operation Commands | Administration Command | 1.4.1 swrba_admin (Administration command) |
| | User Information Import Command | 1.4.2 swrba_uaimport (User Information Import Command) |
| | User Information Import Command | 1.4.3 swrba_ualexport (User Information Export Command) |
| | Event Notification Command | 1.4.4 swrba_notifyevent (Event Notification Command) |
| | Password Registration | 1.4.5 swrba_regist_password (Password Registration) |
| | Change of Database User Password | 1.4.6 swrba_db_change_password (Change of Database User Password) |
| | Observed Record Collection Request Command | 1.4.7 cmdbrefresh (Observed Record Collection Request Command) |
| | Agent Management Command | 1.4.8 mdradmin (Agent Management Command) |
| | Configuration Item Import Command | 1.4.9 ciimport (Configuration Item Import Command) |
| | Configuration Item Export Command | 1.4.10 ciexport (Configuration Item Export Command) |
| | Configuration Item Deletion Command | 1.4.11 cidelete (Configuration Item Deletion Command) |
| | IPMI Information Import Command | 1.4.12 swrba_ipmiimport (IPMI Information Import Command) |
| | IPMI Information Export Command | 1.4.13 swrba_ipmiexport (IPMI Information Export Command) |
| | Process Instance Audit Information Acquisition Command | 1.4.14 swrba_audit (Process Instance Audit Information Acquisition Command) |
| | Holiday Calendar Information Import Command | 1.4.15 swrba_holimport (Holiday Calendar Information Import Command) |
| | Holiday Calendar Information Export Command | 1.4.16 swrba_holexport (Holiday Calendar Information Export Command) |
| | Day Change Time Setup Command | 1.4.17 swrba_change_systemtime (Day Change Time Setup Command) |
| | Schedule Pattern Import Command | 1.4.18 swrba_patternimport (Schedule Pattern Import Command) |
| | Schedule Pattern Export Command | 1.4.19 swrba_patternexport (Schedule Pattern Export Command) |
| | Schedule Definition Import Command | 1.4.20 swrba_scheduleimport (Schedule Definition Import Command) |
| | Schedule Definition Export Command | 1.4.21 swrba_scheduleexport (Schedule Definition Export Command) |
| Maintenance Commands | Host Name/IP Address Preprocess Command | 1.5.1 swrba_pre_chghostinf (Host Name/IP Address Preprocess Command) |
| | Host Name/IP Address Postprocess Command | 1.5.2 swrba_post_chghostinf (Host Name/IP Address Postprocess Command) |
| | Backup Command | 1.5.3 swrba_backup (Backup Command) |
| | Restore Command | 1.5.4 swrba_restore (Restore Command) |
| | Error Investigation Data Collection Command | 1.5.5 swrba_collectinfo (Error Investigation Data Collection Command) |
| | Agent Error Investigation Data Collection Command | 1.5.6 swrba_collectinfo_agent (Agent Error Investigation Data Collection Command) |
| | Interstage Single Sign-On Backup Command | 1.5.7 ssoelbackup (Interstage Single Sign-On Backup Command) |

| Type | Function Name | Command Name |
|------|--|---|
| | Interstage Single Sign-On Restore Command | 1.5.8 ssocrestore (Interstage Single Sign-On Restore Command) |
| | CMDB Backup Command | 1.5.9 cmdbackup (CMDB Backup Command) |
| | CMDB Restore Command | 1.5.10 cmdbrestore (CMDB Restore Command) |
| | CMDB Error Investigation Data Collection Command | 1.5.11 cmdbgetinfo (CMDB Error Investigation Data Collection Command) |
| | Process Instance Recovery Command | 1.5.12 swrba_recoverprocess (Process Instance Recovery Command) |
| | Setup Information Export Command | 1.5.13 swrbaexport (Setup Information Export Command) |
| | Setup Information Import Command | 1.5.14 swrbaimport (Setup Information Import Command) |
| | Maintenance Data Collection Command | 1.5.15 swrbacolinf (Maintenance Data Collection Command) |

1.2 Environment Definition Commands

This section explains the Systemwalker Runbook Automation environment definition commands.

1.2.1 swrba_setup (Setup/Setup Cancellation Command)

Description

This command is used on a Management Server to perform the following tasks:

- Build the Systemwalker Runbook Automation environment
- Delete Systemwalker Runbook Automation environment

Refer to the *Systemwalker Runbook Automation Installation Guide* for the setup and setup cancellation procedures.

Synopsis

[Windows]

```
swrba_setup {-s | -u}
```

[Linux]

```
swrba_setup {-s | -u}
```

Options (Windows)

{-s | -u}

Specifies the function to be executed.

-s

Executes the setup process.

-u

Executes the setup process.

Options (Linux)

{-s | -u}

Specifies the function to be executed.

-s

Executes the setup process.

-u

Executes the setup cancellation process.

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

<Systemwalker Runbook Automation installation directory>\bin
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM

[Linux]

/opt/FJSVswrbam/bin

Privilege Required/Execution Environment

[Windows]

- The administrator authority is necessary. Execute this command as an administrator when use OS is Windows Server 2008 or later.
- This command can be executed on a Management Server.

[Linux]

- This command can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server.

Example

- To set up Systemwalker Runbook Automation:

```
swrba_setup -s
```

- To cancel a Systemwalker Runbook Automation installation.

```
swrba_setup -u
```


Execution Result/Output Format at

- When setting up:

Creating an environment for Systemwalker Runbook Automation on the Management Server has completed.

- When canceling setup:

The environment for Systemwalker Runbook Automation has been deleted from the Management Server.

1.2.2 ssocsetup (Interstage Single Sign-on Setup Command)

Description

This command is used to build Interstage Single Sign-on.

- The following Interstage Single Sign-on servers are built or added on one server.
 - Repository server (update type)
 - Authentication server
 - Business server

The command builds the repository server (update type) and the authentication server on the same Web server (Interstage HTTP Server).

Synopsis

```
ssocsetup FQDN SSLConfName [-rn RepositoryName] [-lp LDAPPort]
```

Options

FQDN

Specify FQDN (Host name + Domain name) of the server that executes this command. FQDN can't be specified by the following forms.

- Host name Only
- IP Address

FQDN can be specified by alphanumeric character from 1 to 255 and the following signs.

- Period "."
- Hyphen "-"

When you specify FQDN, Note the following rules.

- The signs can't be used the head and the end of FQDN and Period.
- The numerical value can't be specified at the head of top level domain.

SSLConfName

Specify the SSL definitions to be used by the Web server (Interstage HTTP Server) where the repository server (update type) and the authentication server are built. The SSL definitions must be created in advance. The specification cannot be omitted.

To specify the SSL definitions, use 32 or less alphanumeric characters and the following symbols:

- Hyphen "-"
- Round bracket "()"
- Square bracket "[]"
- Underscore "_"

-rn RepositoryName

Specify the repository name of the SSO repository. If this option is omitted, "rep001" will be specified.

To specify a repository name, use 8 or less alphanumeric characters and underscore "_".

When specifying a repository name, take note of the following:

- Only an alphanumeric character can be specified as the first character.
- An upper case character will be treated as a lower case character if specified.

This command creates a new SSO repository using the repository name specified. Do not specify in this option a name of a repository that has already been created.

-lp LDAPPort

Specify the port number of the SSO repository to be built. If this option is omitted, "389" will be specified.

Return Values

0:

Successful completion

2:

Abnormal ending

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\sso\bin
```

Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM

[Linux]

```
/opt/FJSVswrbam/sso/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.

[Linux]

- This command requires system administrator (superuser) privileges.
- This command can be executed on a Management Server.

Note

- When this command is executed, the ID service file is updated. When the ID service file is updated, the message that has the prefix sso00204 appears in the event log. If the OS is Linux, the event log means the system log.
- When you discontinue this command while this command is operating, the environment of the single sign-on system is constructed with the setup not normally completed. For this case, execute this command again after executing the ssoclunsetup command.

Example

[Windows]

When FQDN of the server is ssoSERVER.fujitsu.com, and SSL definition is AuthSSL:

```
ssoc1setup ssoSERVER.example.com AuthSSL
Please input SSO Repository administrator DN password
Password:
Retype:
IREP: INFO: irep10815: Password file was created.
file=C:\INTERS~3\F3FMss\soatcsv\conf\tmp_passwdfile
checking the repository configuration... (1/4)
initializing the repository... (2/4)
creating the public directory. (3/4)
updating the repository management list... (4/4)
IREP: INFO: irep70001: Repository environment configured. [rep001]
IHS: INFO: ihs01000: The command terminated normally.
IHS: INFO: ihs01000: The command terminated normally.
IHS: INFO: ihs01000: The command terminated normally.
IREP: INFO: irep70000: Repository environment setup updated. [rep001]
IHS: INFO: ihs01000: The command terminated normally.
```

[Linux]

When FQDN of the server is ssoSERVER.fujitsu.com, and SSL definition is AuthSSL:

```
# /opt/FJSVswrbam/sso/bin/ssoc1setup ssoSERVER.fujitsu.com AuthSSL
Please input SSO Repository administrator DN password
Password:
Retype:
UX:IREP: INFO: irep10815: Password file was created. file=/etc/opt/FJSVssosv/conf/ tmp_passwdfile
checking the repository configuration... (1/4)
initializing the repository... (2/4)
creating the public directory. (3/4)
updating the repository management list... (4/4)
UX:IREP: INFO: irep70001: Repository environment configured. [rep001]
UX:IREP: INFO: irep10000: Repository started. [rep001]
UX:IHS: INFO: ihs01000: The command terminated normally.
UX:IHS: INFO: ihs01000: The command terminated normally.
UX:IHS: INFO: ihs01000: The command terminated normally.
UX:IREP: INFO: irep70000: Repository environment setup updated. [rep001]
UX:IREP: INFO: irep10000: Repository started. [rep001]
UX:IHS: INFO: ihs01000: The command terminated normally.
```

1.2.3 ssoc1unsetup (Interstage Single Sign-on Setup Cancellation Command)

Description

This command deletes Interstage Single Sign-on.

The following resources will be deleted:

- The following Interstage Single Sign-on servers
 - Repository server (update type)
 - Authentication server
 - Business server (*1)
- SSO repository referenced by the repository server (update type)
- Web server that built the repository server (update type) and the authentication server (*2)

*1: The ssoclunsetup command deletes all Business Servers for Interstage Single Sign-on built on the machine where it is executed. Note, however, that the Web server itself will not be deleted.

*2: Only the Web server (Web server name: SSOauth) that built the repository server (update type) and the authentication server will be deleted. Other Web servers will not be deleted.

Synopsis

```
ssoclsetup
```

Options

When this command is executed, the confirming message whether to execute the deletion is displayed. Input yes when deleting it. When character strings other than yes are input, this command displays Command canceled. and doesn't execute the deletion.

Return Values

0:

Normal termination

2:

Abnormal termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\sso\bin  
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVswrbam/sso/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.

[Linux]

- This command requires system administrator (superuser) privileges.
- This command can be executed on a Management Server.

Note

- This command does not backup resource before deletion of the Interstage Single Sign-on system. So, backup resource before deletion if you need.
- This command stops first the servers belong to the Interstage Single Sign-on system and the SSO repository that is referred by the repository server (Update System), and deletes the Interstage Single Sign-on system afterwards. Moreover, this command doesn't start the Web server (Interstage HTTP Server) that constructs the Business server.

- The command ends normally even if this command is executed with the deleted resource doesn't exist. However, because the deleted resource doesn't exist, the resource is not deleted.
- After executing this command, it might become impossible to delete the Web server (Interstage HTTP Server) that constructs the Business server of the Interstage Single Sign-on system. For this case, execute ihsdelete command with -c option to delete Web server. Refer to explanation about ihsdelete in *Interstage Application Server Reference Guide (Command Edition)*, "Web Server Operation Edition", "Interstage HTTP Server Operation Commands".

Example

[Windows]

```
ssoclunsetup
Repository Server      : Exist
Authentication Server  : Exist
Business Server        : Exist
Web Server (SSOauth)   : Exist
SSO Repository (rep001) : Exist
Are you sure to delete the Single Sign-on system? (yes/no) yes
IHS: INFO: ihs01000: The command terminated normally.
IREP: INFO: irep70002: Repository environment deleted. [rep001]
```

[Linux]

```
/opt/FJSVswrbam/sso/bin/ssoclunsetup
Repository Server      : Exist
Authentication Server  : Exist
Business Server        : Exist
Web Server (SSOauth)   : Exist
SSO Repository (rep001) : Exist
Are you sure to delete the Single Sign-on system? (yes/no) yes
UX : IHS: INFO : ihs01000: The command terminated normally
UX : IREP: INFO : irep70002: Repository environment deleted. [rep001]
```

Displayed items and these meaning are shown below.

| Displayed Tem | Meaning |
|----------------------------------|---|
| Repository Server | Repository server (Update System) |
| Authentication Server | Authentication Server |
| Business Server | Business Server |
| Web Server (Web server name) | The Web server that constructs the repository server (Update System) and Authentication server. Note: Web server name has been limited to SSOauth. |
| SSO Repository (repository name) | The SSO repository that referred by the repository server (Update System). |

Displayed states and these meaning are shown below.

| Status | Meaning |
|-----------|-----------|
| Exist | Exist |
| Not exist | Not exist |

1.2.4 cmdbsetupenv (CMDDB Environment Setup Command)

Description

This command sets up the environment of an agent.

Synopsis

[Windows]

```
cmdbsetupenv.bat -k type of agent
```

[Linux]

```
cmdbsetupenv.sh -k type of agent
```

Options

-k *type of agent*

Specifies the type of agent for which the environment is to be set up. The following types can be specified:

- AGT_CENTINV
An agent that collects Systemwalker Centric Manager inventory information
- AGT_CENTREP
An agent that collects Systemwalker Centric Manager node information
- AGT_INV
An agent that automatically collects inventory information about the servers connected to the network
- AGT_ADSC
An agent that detects node automatically and collects node information

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

```
%SWCMDB_INSTALL_PATH%\FJSVcmdba\bin
```

Note: The installation destination of the CMDB agent included in the agent of Systemwalker Runbook Automation is set to environment variable %SWCMDB_INSTALL_PATH%.

[Linux]

```
/opt/FJSVcmdba/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Linked Server.

[Linux]

- This command requires system administrator (superuser) privileges.
- This command can be executed on a Linked Server.

1.2.5 cmdbunsetupenv (CMDB Environment Setup Cancellation Command)

Description

This command cancels the environment settings on an agent.

Synopsis

[Windows]

```
cmdbunsetupenv.bat -k type of agent
```

[Linux]

```
cmdbunsetupenv.sh -k type of agent
```

Options

-k *type of agent*

Specifies the type of agent for which the environment is to be set up. Types that can be specified are shown below:

- AGT_CENTINV
An agent that collects Systemwalker Centric Manager inventory information
- AGT_CENTREP
An agent that collects Systemwalker Centric Manager node information
- AGT_INV
An agent that automatically collects inventory information about the servers connected to the network
- AGT_ADSC
An agent that detects node automatically and collects node information
- ALL
This means all agents.

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

```
%SWCMDB_INSTALL_PATH%\FJSVcmdba\bin
```

Note: The installation destination of the CMDB agent included in the agent of Systemwalker Runbook Automation is set to environment variable %SWCMDB_INSTALL_PATH%.

[Linux]

```
/opt/FJSVcmdba/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Linked Server.

[Linux]

- This command requires system administrator (superuser) privileges.
- This command can be executed on a Linked Server.

1.2.6 cmdbagentclset (CMDB Agent Cluster Setup Command)

Description

This command configures the settings for linkage with Systemwalker Centric Manager that uses cluster operations.

Synopsis

[Windows]

```
cmdbagentclset.bat -t { cluster operation type } {-d shared directory -a logical IP address | -r }
```

[Linux]

```
cmdbagentclset.sh -t { cluster operation type } {-d shared directory -a logical IP address | -r }
```

Options

-t *cluster operation type*

The cluster operation types are specified as ACT (Active/Primary) or STB (Standby/Secondary).

- ACT

This is specified when the cluster is active.

- STB

This is specified when the cluster is standby.

-d *shared director*

Specifies the directory on the shared disk that is used in the cluster operation using the full path. This cannot be specified at the same time as the -r option.

-a *logical IP address*

Specifies the logical IP address that is used in the cluster operation. This cannot be specified at the same time as the -r option.

-r

This is used for the setup cancellation of the CMDB Agent cluster.

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

```
%SWCMDB_INSTALL_PATH%\FJSVcmdba\bin
```

Note: The installation destination of the CMDB agent included in the agent of Systemwalker Runbook Automation is set to environment variable %SWCMDB_INSTALL_PATH%.

[Linux]

```
/opt/FJSVcmdba/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- The CMDB environment must be set up using the cmdbsetupenv command before this command is executed.
- This command can be executed on a Linked Server.

[Linux]

- This command requires system administrator (superuser) privileges.
- The CMDB environment must be set up using the cmdbsetupenv command before this command is executed.
- This command can be executed on a Linked Server.

Example

Example

[Windows]

```
cmdbagentclset.bat -t ACT -d F:\CMDB -a 192.168.0.3
```

[Linux]

```
cmdbagentclset.sh -t ACT -d F:\CMDB -a 192.168.0.3
```

1.3 Startup/Stop Commands

This section explains the Systemwalker Runbook Automation startup/stop commands.

1.3.1 swrba_start (Startup Command)

Description

This command runs Systemwalker Runbook Automation on a Management Server.

Synopsis

```
swrba_start
```

Options

None

Return Values

0:

Normal termination

1:

Abnormal termination

Undefined:

Forced termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\bin  
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVswrbam/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server.

Note

If the startup command terminates abnormally, execute it again. If it terminates abnormally a second time, take appropriate action based on the messages that are output.

1.3.2 swrba_stop (Stop Command)

Description

This command stops Systemwalker Runbook Automation on a Management Server.

Synopsis

```
swrba_stop
```

Options

None

Return Values

- 0:
Normal termination
- 1:
Abnormal termination
- Undefined:
Forced termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\bin  
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVswrbam/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.

- This command can be executed on a Management Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server.

Note

If the stop command terminates abnormally, execute it again. If it terminates abnormally a second time, take appropriate action based on the messages that are output.

1.3.3 swrba_status (Execution Status Verification Command)

Description

This command checks the execution status of Systemwalker Runbook Automation on a Management Server.

Synopsis

```
swrba_status
```

Options

None

Return Values

0:
Normal termination

Value other than 0:
Abnormal termination

If this command terminates normally, one of the following messages indicating the execution status of the Systemwalker Runbook Automation processes is displayed.

- When all of the processes necessary for Systemwalker Runbook Automation to run have started

```
Systemwalker Runbook Automation is working normally.
```

- When Systemwalker Runbook Automation was stopped using swrba_stop (stop command)

```
Systemwalker Runbook Automation is not running.
```

- When some or all of the processes necessary for Systemwalker Runbook Automation to run have stopped with an error

```
Processes required for Systemwalker Runbook Automation are not running.
```

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\bin  
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVswrbam/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server.

1.3.4 ssoclservicectl (Interstage Single Sign-On Start and Stop Command)

Description

The following services of Interstage single sign-on are started and stopped on a Management Server.

- Interstage Management Console
- Interstage HTTP Server (Note 1)
- The repository of Interstage Directory Service (Note 2)

Note 1) All Web servers that are configured on the machine are affected.

Note 2) Only SSO repository can be operated. Check the SSO repository by the repository name in [Repository server detailed setting] of [environment setting tab] of **Security >> Single sign-on >> Authentication base >> Repository server** in Interstage Management console. However, when Interstage management console is stopped, it can't be checked. Therefore, check it while Interstage Management Console is started.

Synopsis

```
ssoclservicectl {start|stop}
```

Options

start

Specify to start the service. It can't be specified at the same time when stop option is specified.

stop

Specify to stop the service. It can't be specified at the same time when start option is specified.

Return Values

0:

Normal termination

2:

Abnormal termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\sso\bin  
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVswrbam/sso/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server.

Note

- Do not execute this command multiple times simultaneously.
- Execute this command in the environment created by [1.2.2 ssocsetup \(Interstage Single Sign-on Setup Command\)](#).
- When the service is stopped by this command, Interstage management console is also stopped
- When there are any services which failed to start or stop after this command was executed, solve the problem by checking the message or the message output in the log of the system. Then, execute the command again.
- When the services started by the command are already started, the message that it has been started is output.
- When the services stopped by the command is already stopped, the message that it has been stopped is output.

1.3.5 cmdbstart (CMDB Startup Command)

Description

This command runs CMDB managers.

Synopsis

[Windows]

```
cmdbstart.bat
```

[Linux]

```
cmdbstart.sh
```

Options

None

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\CMDB\FJSVcmdbm\bin  
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVcmdbm/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server.

Note

When the swrba_start command is executed, CMDB Manager will also start. If the swrba_start command has already been executed, there is no need to execute this command.

1.3.6 cmdbstop (CMDB Stop Command)

Description

This command stops CMDB managers.

Synopsis

[Windows]

```
cmdbstop.bat
```

[Linux]

```
cmdbstop.sh
```

Options

None

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

<*Systemwalker Runbook Automation installation directory*>\CMDB\FJSVcmdbm\bin
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM

[Linux]

/opt/FJSVcmdbm/bin

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.

[Linux]

- This command can be executed on a Management Server.
- This can only be executed by a system administrator (superuser).

Note

When the swrba_stop command is executed, CMDB Manager will also stop. If the swrba_stop command has already been executed, there is no need to execute this command.

1.3.7 cmdbstatus (CMDB Startup Status Display Command)

Description

This command displays the CMDB Manager/Agent startup status.

Synopsis

[Windows]

```
cmdbstatus.exe -q [server=host name]
```

[Linux]

```
cmdbstatus.sh -q [server=host name]
```


Options

-q server=host name

Specifies the host name of the display target Linked Server. Specify the value that was entered for the host name used by the CMDB Agent at the time of the Agent installation. If this option is omitted, all Linked Servers will be display targets. The display items are shown below:

- Server Name

The host name is displayed. For a Linked Server, the host name that was specified at the time of the installation is displayed. For CMDB Manager, this will be localhost.

- Service Name

The CMDB Manager/Agent name is displayed. For CMDB Manager, this will be displayed as Fserv/MgrMDR.

- Status

The CMDB Manager/Agent status is displayed. If it is running, then this will be RUNNING. If it cannot be connected to from CMDB Manager, for example because it has been stopped, then this will be UNKNOWN.

- DBStatus

The linked products status is displayed. If it is running, then this will be RUNNING. If it cannot connect, or the status cannot be obtained, then this will be UNKNOWN.

- Update

The last modified date and time is displayed.

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

<Systemwalker Runbook Automation installation directory>\CMDB\FJSVcmdbm\bin

Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM

[Linux]

/opt/FJSVcmdbm/bin

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.

[Linux]

- This can only be executed by a system administrator (superuser).

- This command can be executed on a Management Server.

Execution Result/Output Format

```
# /opt/FJSVcmdbm/bin/cmdbstatus.sh -q
Server Name Service Name Status DBStatus Update
-----
localhost Fserv RUNNING RUNNING 2010/12/07 16:15:35
localhost MgrMDR RUNNING RUNNING 2010/12/07 16:15:35
localhost SQC RUNNING RUNNING 2010/12/07 04:02:54
yyy.yyy.yyy.yyy ADSC RUNNING RUNNING 2010/11/25 11:29:16
zzz.zzz.zzz.zzz ADSC UNKNOWN UNKNOWN
zzz.zzz.zzz.zzz INV RUNNING RUNNING 2010/12/07 16:06:50
```

yyy.yyy.yyy.yyy and zzz.zzz.zzz.zzz are IP addresses that belong to a Linked Server that doesn't exist on localhost.

1.3.8 swncctrl (Agent Control Command)

Description

This command starts/stops the Agent.

Synopsis

[Windows]

```
swncctrl {start | stop | restart}
```

[Linux]

```
swncctrl {start | [-e] stop | restart}
```

Options

start

This option starts the Agent.

stop

This option stops the Agent.

-e

This option stops the Agent forcibly when it is specified together with the stop option. It can only be specified in Linux.

restart

This option restarts the Agent.

Return Values

0:

Normal termination

128:

Invalid parameter specified

130:

Executed by a user without execution privileges

255:

Abnormal termination

Command Location

[Windows]

```
%F4AN_INSTALL_PATH%\F4ANswnc\bin
```

Note: The installation destination of the communications infrastructure included in the agent of Systemwalker Runbook Automation is set to environment variable %F4AN_INSTALL_PATH%.

[Linux]

```
/opt/FJSVswnc/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Linked Server.

[Linux]

- This command requires system administrator (superuser) privileges.
- This command can be executed on a Linked Server.

1.4 Operation commands

This section explains the Systemwalker Runbook Automation operation commands.

1.4.1 swrba_admin (Administration command)

Description

This command enables an administrator to operate following operations without using Web console.

- Registration and update of Automated Operation Process Group
- Registration and update of Process Definition
- Retrieval and display of Process Definition
- Publishing the Process Definition
- Start of process
- Retrieval of process instance
- Collection of detailed information of process instance
- Deletion of process instance

Synopsis

When you register Automated Operation Process Group:

```
swrba_admin app-add -user User ID -file Bar file
```

When you update Automated Operation Process Group:

```
swrba_admin app-update -user User ID -file Bar file
```

When you register Process Definition:

```
swrba_admin pd-add -user User ID -file Process definition file -appid Automated Operation Process Group ID
```

When you update process definition:

```
swrba_admin pd-update -user User ID -file Process definition file -appid Automated Operation Process Group ID
```

When you publish Process Definition:

```
swrba_admin pd-publish -user User ID -appid Automated Operation Process Group ID -pdname Process definition name [-version Version of Process Definition]
```

When you retrieval Process Definition:

```
swrba_admin pd-list -user User ID [-state {draft|published|obsolete}] [-appid Automated Operation Process Group ID] [-pdname Process definition name,... [-namematch {forward|backward}]]
```

When you start process:

```
swrba_admin pi-start -user User ID -appid Automated Operation Process Group ID -pdname Process definition name [-version Version of Process Definition] [-paramfile Parameter file]
```

When you retrieval process instance:

```
swrba_admin pi-list -user User ID [-startedafter yyyy-mm-dd] [-startedbefore yyyy-mm-dd] [-state {running|closed|suspended|aborted|created|error}] [-piid Process instance ID] [-pdname Process definition name,... [-namematch {forward|backward}]] [-initiator User ID that started process] [-appid Automated Operation Process Group ID]
```

When you collect detailed information of process instance:

```
swrba_admin pi-get -user User ID -d Output directory [-startedafter yyyy-mm-dd] [-startedbefore yyyy-mm-dd] [-state {running|closed|suspended|aborted|created|error}] [-piid Process instance ID] [-pdname Process definition name,... [-namematch {forward|backward}]] [-initiator User ID for starting] [-appid Automated Operation Process Group ID]
```

When you delete process instance:

```
swrba_admin pi-delete -user User ID { [-startedafter yyyy-mm-dd] [-startedbefore yyyy-mm-dd] [-state {running|closed|suspended|aborted|created|error}] [-piid Process instance ID] [-pdname Process definition name,... [-namematch {forward|backward}]] [-initiator User ID for starting] [-appid Automated Operation Process Group ID]
```

It is also possible to set the password as a parameter by specifying `-password`. When the password is not set to the parameter, password input is required after execution of this command.

Options

The following options can't be specified at the same time.

app-add

This option registers Automated Operation Process Group.

-file *Bar file*

Specify the path of the Bar file that is registered. When same name Automated Operation Process Group is exist, this command outputs error. When registration succeeds, Automated Operation Process Group becomes online automatically.

app-update

This option updates Automated Operation Process Group.

-file *Bar file*

Specify the path of the Bar file that is updated. When the specified Automated Operation Process Group doesn't exist, this command outputs an error.

When the Automated Operation Process Group has been updated, the Automated Operation Process Group becomes off-line, and it becomes impossible to refer to the Process Definition besides the Automated Operation Process Group owner. When the update finished, the automatic process group becomes on-line automatically.

pd-add

This option registers Process Definition.

-file *Process definition file*

This option registers Process Definition. When the same name Process Definition exists in the Automated Operation Process Group or the Automated Operation Process Group it doesn't exist, this command outputs an error. Moreover, when you don't specify the automatic process group ID, this command outputs an error.

-appid *Automated Operation Process Group ID*

Specify the Automated Operation Process Group ID that stores the Process Definition. When the specified Automated Operation Process Group doesn't exist, this command outputs an error.

pd-update

This command updates Process Definition.

-file *Process definition file*

This command updates Process Definition. When the specified Process Definition doesn't exist, this command outputs an error. The Process Definition is registered with state of draft.

Moreover, even if the update of the Process Definition is completed, the update is not reflected in the process instance that has already started. The update becomes effective from the process started after the publication of the updated Process Definition.

-appid *Automated Operation Process Group ID*

Specify the Automated Operation Process Group ID that stores the Process Definition. When the specified Automated Operation Process Group doesn't exist, this command outputs an error.

pd-publish

This option publishes the Process Definition.

-appid *Automated Operation Process Group ID*

Specify the Automated Operation Process Group ID. When the specified Automated Operation Process Group doesn't exist, this command outputs an error.

-pdname *Process definition name*

Specify the process definition name. When the Process Definition doesn't exist, this command outputs an error.

-version *Version of Process Definition*

Specify the version of Process Definition. When the version of Process Definition doesn't exist, this command outputs an error.

When you omit this option, this command publishes the latest version. When you specified the published version, this command outputs an error.

pd-list

This option retrieves Process Definition and displays it as a list form. When you don't specify any parameter, this command retrieves all Process Definition. The parameters that can be specified are show below.

-state *State of Process Definition*

Specify state of the Process Definition. When you omit this option, this command retrieves all state. The states that can be specified are shown below.

- draft : draft state
- published : published state
- obsolete : obsolete state

When you specify two or more options, specify it by comma (,) delimitation.

-appid *Automated Operation Process Group ID*

Specify the Automated Operation Process Group ID.

-pdname *Process definition name*

Specify the process definition name.

-namematch *forward|backward*

Specify the retrieval pattern of the process definition name. Select forward agreement or backward agreement. When you specify none, this command retrieves with perfect matching.

pi-start

This option starts process.

-appid *Automated Operation Process Group ID*

Specify the Automated Operation Process Group ID. When the specified Automated Operation Process Group doesn't exist, this command outputs an error.

-pdname *Process definition name*

Specify the process definition name. When the Process Definition doesn't exist, this command outputs an error.

-version *Version of Process Definition*

Specify the version of Process Definition. When the version of Process Definition doesn't exist, this command outputs an error.

When you omit this option, this command publishes the latest version. When you specified the published version, this command outputs an error.

-paramfile *Parameter file*

Specify the file name in which the parameter necessary for the starting process is described. Describe the following content in the file.

```
UDA name =value
...
```

The description form of the file is a general property file form of Java.

Specify the value for UDA and start the process. When the specified UDA doesn't exist, this command outputs an error. Moreover, The form of the value that can be used is only STRING type. When character-code of the specified file is not UTF-8, this command outputs an error.

You can start the published Process Definition and the Process Definition that belong to the user who executed this command.

pi-list

This option retrieves the process instance and displays it by the list form. When you specified none, this command retrieves all process instances. You can specify the parameters that are shown below.

-startedafter *Start date*

Specify the start date of the period when the process was started. Specify it in the form of the following.

- yyyy-mm-dd

-startedbefore *End date*

Specify the end date of the period when the process was started. Specify it in the form of the following.

- yyyy-mm-dd

When you only specified -startedafter, this command retrieves the period from the specified date to now. When you specified this command outputs the error when the option is specified by a form other than the above and when the relation between the start date and the end date is illegal.

-piid *Process instance ID*

Specify the process instance ID.

-state *State of Process Definition*

Specify the state of Process Definition. When you don't specify none option, this command retrieves all Process Definition. The states that can be specified are shown below.

- running
- closed
- suspended
- aborted
- created
- error

When you specify two or more options, specify it by comma (,) delimitation.

-pdname *Process definition name*

Specify the process definition name. When you specify two or more options, specify it by comma (,) delimitation.

Moreover, you can set the detailed condition by using the following parameter.

-namematch forward|backward

Specify the retrieval pattern of the process definition name. Select forward agreement or backward agreement. When you specify none, this command retrieves with perfect matching.

-appid *Automated Operation Process Group ID*

Specify the Automated Operation Process Group ID. When the specified Automated Operation Process Group doesn't exist, this command outputs an error.

-initiator *User ID that started process*

Specify the user ID that started the process. When you specify two or more options, specify it by comma (,) delimitation.

pi-get

This option retrieves the process instance and collects detailed information. When you don't specify parameter, this command retrieves all process instances. The parameters that you can specify are shown below.

-d *Output directory*

Specify the output directory. The structure and output contents are shown below.

```
- Automated Operation Process Group ID
  - process instance ID
    - process instance ID.xml : The file that has the detailed information of process
instance
    - attachmentsfiles directory : The directory that stores the files appended to process
instance
```

For more information about the detailed information file for process instance, refer to [2.4 Detailed Information File for Process Instance](#).

-startedafter *Start date*

Specify the start date of the period when the process was started. Specify it in the form of the following.

yyyy-mm-dd

-startedbefore *End date*

Specify the end date of the period when the process was started. Specify it in the form of the following.

yyyy-mm-dd

When you only specified -startedafter, this command retrieves the period from the specified date to now. When you specified this command outputs the error when the option is specified by a form other than the above and when the relation between the start date and the end date is illegal.

-piid *Process instance ID*

Specify the process instance ID.

-state *State of Process Definition*

Specify the state of Process Definition. When you don't specify none option, this command retrieves all Process Definition. The states that can be specified are shown below.

- running
- closed
- suspended
- aborted
- created
- error

When you specify two or more options, specify it by comma (,) delimitation.

-pdname *Process definition name*

Specify the process definition name. When you specify two or more options, specify it by comma (,) delimitation. Moreover, you can set the detailed condition by using the following parameter.

-namematch forward|backward

Specify the retrieval pattern of the process definition name. Select forward agreement or backward agreement. When you specify none, this command retrieves with perfect matching.

-appid *Automated Operation Process Group ID*

Specify the Automated Operation Process Group ID. When the specified Automated Operation Process Group doesn't exist, this command outputs an error.

-initiator *User ID that started process*

Specify the user ID that started the process. When you specify two or more options, specify it by comma (,) delimitation.

pi-delete

This option deletes the process instance.

-startedafter *Start date*

Specify the start date of the period when the process was started. Specify it in the form of the following.

yyyy-mm-dd

-startedbefore *End date*

Specify the end date of the period when the process was started. Specify it in the form of the following.

yyyy-mm-dd

When you only specified `-startedafter`, this command retrieves the period from the specified date to now. When you specified this command outputs the error when the option is specified by a form other than the above and when the relation between the start date and the end date is illegal.

-state *State of Process Definition*

Specify the state of Process Definition. When you don't specify none option, this command retrieves all Process Definition. The states that can be specified are shown below.

- running
- closed
- suspended
- aborted
- created
- error

When you specify two or more options, specify it by comma (,) delimitation.

-piid *Process instance ID*

Specify the process instance ID.

-pdname *Process definition name*

Specify the process definition name. When you specify two or more options, specify it by comma (,) delimitation. Moreover, you can set the detailed condition by using the following parameter.

-namematch *forward|backward*

Specify the retrieval pattern of the process definition name. Select forward agreement or backward agreement. When you specify none, this command retrieves with perfect matching.

-appid *Automated Operation Process Group ID*

Specify the Automated Operation Process Group ID. When the specified Automated Operation Process Group doesn't exist, this command outputs an error.

-initiator *User ID that started process*

Specify the user ID that started the process. When you specify two or more options, specify it by comma (,) delimitation.

Return Values

| Return Value | Meaning |
|--------------|-------------------------|
| 0 | Normal termination |
| 1 | Parameter error |
| 2 | Attestation error |
| 3 | Error on Manager server |
| 4 | Internal error |
| 5 | Authority error |
| 6 | I/O error |
| Irregularity | Forced ending |

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\bin  
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVswrbam/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.
- This command can be executed by the user who has the authority to log in to Web console.
- When you operate the following operation, you need the authority to log in to the Web console and the manager authority.
 - Registration and update of the Automated Operation Process Group
 - Deletion of the process instance
 - Publication of the Process Definition.

Moreover, if you have above authorities, you can retrieve all Process Definition and process instance.

[Linux]

- This can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server.
- This command can be executed by the user who has the authority to log in to Web console.
- When you operate the following operation, you need the authority to log in to the Web console and the manager authority.
 - Registration and update of the Automated Operation Process Group
 - Deletion of the process instance
 - Publication of the Process Definition.

Moreover, if you have above authorities, you can retrieve all Process Definition and process instance.

Note

- About Bar file

The Bar file must be the file that was exported from Systemwalker Runbook Automation Studio or Web console and have extension .bar. When you specify the file that doesn't satisfy the condition, this command outputs an error.

- About process definition file

The process definition file must be the file that was exported from Systemwalker Runbook Automation Studio or Web console and have extension .xpd. When you use the process definition file that was exported from the Web console, use the file that have XPDL2.0 format. This command doesn't support XPDL1.0 format and BPEL format.

- About process definition name

You can use space for the process definition name. When you use space for the process definition name, enclose the process definition name with a double quart (").

Execution Result/Output Format

When you newly register the Process Definition:

```
FSP_SW/RB-A_BASE: INFO: 02001: pd-add has finished. Option: pd-add file sample0001.xpd appid app001 Code:0
```

When you retrieve the Process Definition:

```
FSP_SW/RB-A_BASE: INFO: 02000: pd-list is starting. Option:pd-list
ApplicationID ProcessID ProcessDifinitionName VersionStatusOwner
sample001 0001 sample process0011.0published rba_user1
sample002 0002 sample process0021.0published rba_user1
sample002 0001 sample process0031.0published rba_user1
FSP_SW/RB-A_BASE: INFO: 02001: pd-list has finished. Option:pd-list Code:0
```

When you retrieve the process instance:

```
FSP_SW/RB-A_BASE: INFO: 02000: pd-list is starting. Option:pd-list
ProcessInstanceID ProcessInstanceNameStatusInitiator
2889PROCESS_cl_1closedibpm_server1
2890PROCESS_cl_1runningibpm_server1
2891PROCESS_cl_1erroribpm_server1
FSP_SW/RB-A_BASE: INFO: 02001: pd-list has finished. Option:pd-list Code:0
```

1.4.2 swrba_uaimport (User Information Import Command)

Description

This command imports user account information of servers to CMDB. The input file format is CSV format.

Used in combination with swrba_ualexport (user information export command), user account information that has already been registered can be extracted from CMDB, edited, and re-imported, and the user account information can then be updated/added.

Synopsis

```
swrba_uaimport -f input file name [-e input file character code]
```

Options

-f *input file name*

Specifies the input file (CSV format) in which user account information of the registration target server has been defined.

Input file examples are shown below.

```
"192.168.0.1","OS","user001","xe3539caeb","true","false","Comment A"
"192.168.0.1","OS","user002","ex3535akft","false","true","Comment B"
"192.168.0.2","OS","user001","xe359jsg35","true","false","Comment C"
"192.168.0.2","OS","user002","djh847wag4","false","true","Comment D"
```

The CSV format spec is shown below.

- Columns are separated using commas (,).
- If the data contains commas (,) and double-quotes ("), then all the data that is specified in the column is enclosed in double-quotes ("). Additionally, if the data contains double-quotes ("), then the double-quotes (") are described twice in succession. By describing a double-quote (") twice in succession, it will be represented as one double-quote (").

Example 1: When a comma (,) is specified (In this example, a comma (,) is contained in last column as Comment,D.)

"192.168.0.2","OS","user002","djh847wag4","false","true",," Comment,D"

Example 2: When a double-quote (") is specified (In this example, a double-quote (") is contained in the last column as CommentD.)

"192.168.0.2","OS","user002","djh847wag4"," false","true",,"CommentD """"

- To describe a default value, specify an empty character string using one of the formats shown below.

Example 1: Nothing is described between the separator character commas (.). (In this example, the default value is specified in the last two columns)

"192.168.0.2","OS","user002","djh847wag4","false","true",,

Example 2: Nothing is described between the enclosed character double-quotes ("). ((In this example, the default value is specified in the last two columns)

"192.168.0.2","OS","user002","djh847wag4","false","true",,",""

- Line feed characters cannot be entered in the column data.

The CSV format column positions are shown below.

| | Column 1 | Column 2 | Column 3 | Column 4 | Column 5 | Column 6 | Column 7 | Column 8 |
|---------|-------------------|---------------------------------|----------|------------|--------------------|------------------------|------------------------------------|-----------|
| Item | Server IP address | Authentication destination type | User | Password | Administrator user | Server connection user | Connection destination information | Comment |
| Example | 192.168.0.1 | OS | user001 | xe3539caeb | true | False | | Comment A |

The definition rules for each column are shown below.

| Column | Item | Can omit or not | Default Value | Input Content | Content that is Checked | Conditions |
|--------|---------------------------------|-----------------|---------------|---|--|---|
| 1 | IP address | Not possible | - | Specify the server IP address. | Number of characters that can be entered | Between 1 and 255 characters |
| | | | | | Character set | Letters of the alphabet (case-sensitivity is used), numbers, symbols |
| | | | | | Content | If the specified IP address LogicalServer-CI has not been registered in CMDB, an error will occur |
| 2 | Authentication destination type | Not possible | - | Specify the authentication destination type. OS must be specified. Nothing else can be specified except OS. | Number of characters that can be entered | Between 1 and 255 characters |
| | | | | | Character set | Letters of the alphabet (case-sensitivity is used), numbers |
| 3 | User | Not possible | - | Specify the user account for the authentication destination. | Number of characters that can be entered | Between 1 and 255 characters |

| Column | Item | Can omit or not | Default Value | Input Content | Content that is Checked | Conditions |
|--------|------------------------------------|-----------------|---------------|--|--|---|
| | | | | | Character set | - Letters of the alphabet - Blank spaces cannot be specified |
| | | | | | Uniqueness | The same user cannot be registered more than once in the corresponding server |
| 4 | Password | Possible | - | Specify the password character string for the user. If the password character string is omitted, the behavior will be as shown below. - When new user account information is registered: This item cannot be omitted. Registration of the user account information will fail. - When registered user account information is updated: The password is not changed. | Number of characters that can be entered | Between 1 and 255 characters |
| 5 | Administrator user | Not possible | - | Administrator user: true All other cases: false | Uniqueness | Multiple users cannot be registered as the administrator user in the corresponding server |
| | | | | | Character set | Letters of the alphabet (case-sensitivity is not used) |
| | | | | | Content | Any character string except true/false will result in an error |
| 6 | Server connection user | Not possible | - | User that connects to the server: true All other cases: false | Uniqueness | Multiple users cannot be registered as the server connection user in the corresponding server |
| | | | | | Character set | Letters of the alphabet (case-sensitivity is not used) |
| | | | | | Content | Any character string except true/false will result in an error |
| 7 | Connection destination information | Possible | Empty | Only default values can be specified Any value except a default value that is | Number of characters that can be entered | See Input content. |
| | | | | | Character set | See Input content. |

| Column | Item | Can omit or not | Default Value | Input Content | Content that is Checked | Conditions |
|--------|---------|-----------------|---------------|------------------------------------|--|------------------------------|
| | | | | specified will result in an error. | | |
| 8 | Comment | Possible | Empty | None | Number of characters that can be entered | Between 0 and 255 characters |
| | | | | | Character set | The content is not checked |

Point

- If the user account information entered in the input file contains an error, the user account information with the error fails to be imported. All other user account information is imported.
- When the configuration information is automatically collected, the IP address of the LogicalServer-CI of the IPv6 environment is stored in the RFC 5952 format. In this case, the IP address specified in the input file should also be written in the RFC 5952 format. For all other cases, use the same format as registered in the CMDB.
- Refer to "Settings for Automatically Collecting Configuration Information" in the *Systemwalker Runbook Automation Installation Guide* for details.

-e Input file character code

Specifies the input file character code. The following character codes can be specified:

- UTF-8
- SJIS
- EUC

If this option is omitted, the character code of the input file will be as follows:

[Windows]

SJIS

[Linux]

The character code specified in the LANG environment variable

If the LANG environment variable has not been set, or LANG variable has been set other than ja_JP.euc or ja_JP.UTF-8 or ja_JP.SJIS or ja_JP.WINDOWS-31J, then UTF-8 will be used.

Return Values

0:

Normal termination

1:

Termination following a warning

- There is user account information for which the import failed

2:

Parameter error

3:

An error other than the above 1 or 2

Error Content Notification

If the imported information contains an error, the error content is notified in standard error output.

Refer to the error information that was output in standard error output to correct the input data for the user account information for which the import failed, and then re-execute the command to import the user account information.

Example: If the error occurs on multiple lines, then these multiple lines will be notified.

```
> swrba_uaimport -f importcsv.txt
Error: Failed to register the user. Detail=The registration destination LogicalServer[192.168.0.1] cannot be found.
Error: Failed to register the user. Detail=The registration destination LogicalServer[192.168.0.2] cannot be found.
User was successfully registered. LogicalServer=192.168.10.10 User=user001
User was successfully registered. LogicalServer=192.168.10.10 User=user002
Failed to execute all or part of the processing.
```

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\bin
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVswrbam/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server.

Note

- The user account information of the imported input file will always be valid.
If the user account information to import has already been registered in CMDB, this command will replace the user account information registered in CMDB with the user account information described in the input file.
- This command sequentially processes user account information specified for the input file.
Therefore, when same two or more user account information as one input file exists, user account information described in the end becomes effective. Moreover, when two or more manager users have been described to the same server in the input file, the user described in the end becomes a manager user. Information is not updated to the server that has not been described to the input file.
- The user account information for the server connection user and administrator user can be registered for only one user in one server. Accordingly, when the user account information for the second user is imported for the server connection user or administrator user, processing will be as follows:
 - The user account for the second user is registered as the true attribute.
 - The user account attributes that have already been registered change to false.
- swrba_uexport and swrba_uaimport cannot run at the same time. For this reason, an error will occur if one command is executed while the other command is already under execution.

- Execute this command when Systemwalker Runbook Automation is running.
- If this command is used before Systemwalker Runbook Automation has started up, it will fail because of the following error:

```
Error: Failed to register the user. Detail=com.ctc.wstx.exc.WstxUnexpectedCharException: Unexpected character ""
(code 34) in DOCTYPE declaration; expected a space between public and system identifiers
at [row,col {unknown-source}]: [1,50]
```

- If the character code that was specified in this command and the character code that was specified in the input file are different, then the behavior cannot be guaranteed. Enter the character code so that it matches.

1.4.3 swrba_uexport (User Information Export Command)

Description

This command exports user account information of servers that have already been registered from CMDB. The extracted user account information is output to the specified file or displayed to standard output.

The extracted information can be edited and re-imported, and the user account information can then be updated/added.

Of the user account information that can be obtained using this command, the default value will be output for password. When the password is changed, enter the new password so that it can be imported. If the default value is being used for password in the user account information, then the password is not changed.

Synopsis

```
swrba_uexport [-f output file name] [-e output file character code]
```

Options

-f Output file name

Specifies a name of the file to which the user account information is to be output.

If this option is omitted, the user account information will be output to standard output.

The output format is CSV format.

For more information about CSV file format, refer to [1.4.2 swrba_uaimport \(User Information Import Command\)](#).

--e Input file character code

Specifies the input file character code. The following character codes can be specified:

- UTF-8
- SJIS
- EUC

If this option is omitted, the character code of the input file will be as follows:

[Windows]

SJIS

[Linux]

The character code specified in the LANG environment variable

If the LANG environment variable has not been set, or LANG variable has been set other than ja_JP.euc or ja_JP.UTF-8 or ja_JP.SJIS or ja_JP.WINDOWS-31J, then UTF-8 will be used.

Return Values

0:

Normal termination

1:

Termination following a warning

- User information does not exist

2:

Parameter error

3:

An error other than the above 1 or 2

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\bin  
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVswrbam/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server.

Note

- swrba_uaexport and swrba_uaimport cannot run at the same time. For this reason, an error will occur if one command is executed while the other command is already under execution.
- Execute this command when Systemwalker Runbook Automation is running.
- If this command is used before Systemwalker Runbook Automation has started ups, it will fail because of the following error:

```
Error: Failed to output the user account information. Detail=com.ctc.wstx.exc.WstxUnexpectedCharException:  
Unexpected character "'" (code 34) in DOCTYPE declaration; expected a space between public and system identifiers  
at [row,col {unknown-source}]: [1,50]
```

- If the user information has not been registered because swrba_uaimport is not executed, then the information will not be output.

1.4.4 swrba_notifyevent (Event Notification Command)

Description

This command notifies an asynchronous event to the Management Server of Systemwalker Runbook Automation.

Synopsis

```
swrba_notifyevent -msgID Message ID -host Host name -comment Comment -key Access key
```

Options

-msgID *Message ID*

Specify the message ID of occurring event. Specify it form 1 to 250 characters.

-host *Host name*

Specify the host name of occurring event. Specify it form 1 to 250 characters.

-comment *Comment*

Specify the comment about occurring event. For instance, specify the message ID or the information that is needed to start the automated operation process. Specify it form 1 to 300 characters.

-key *Access key*

Specify the access key that is needed to specify the automated operation process. Acquire the access key according to the following procedures.

1. Click [System Administration]-[Process Group Settings] in the Web console.
The list of the Automated Operation Process Group is displayed.
2. Select the Automated Operation Process Group that includes the automated operation process that you want to start.
3. Click [Access Key] in [Details] tab of selected Automated Operation Process Group.

Return Values

| Return Value | Meaning |
|--------------|-------------------------|
| 0 | Normal termination |
| 1 | Command execution error |
| 2 | Parameter error |
| 6 | I/O error |
| Irregularity | Forced ending |

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\bin  
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVswrbam/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server.

Example

```
/opt/FJSVswrbam/bin/swrba_notifyevent -msgID 0001 -host test -comment database error -key **BEGIN_KEY--  
{ {ezsGjLOinOQpHzfVu9I2JcHCRTII2OzFNy7CVqexSKAwiKb/veZCJIx66nTr2rJsoG7wr8jKoeY3BQYWWh70ORstQa/  
wbqOl87S7RsSeojQPDGbxrUG8LyTpiIL15WEDSAjzqpC+xprE6sX45GZF5mnPlkw23QYPI } }--END_KEY**
```

Execution Result/Output Format

```
FSP_SW/RB-A_BASE: INFO: 02040: The event notify command has completed normally.
```

1.4.5 swrba_regist_password (Password Registration)

Description

This command registers new passwords for the following Systemwalker Runbook Automation (SWRBA) users after their LDAP password has been changed:

- Process control users who control SWRBA processes
- Schedule Startup users who start SWRBA schedules
- Manager DN of LDAP who updates information on the LDAP

Synopsis

```
swrba_regist_password
```

Options

None

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\bin  
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVswrbam/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.

- This command can be executed on a Management Server.
- Execute this command after stopping the Manager server.

[Linux]

- This can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server.
- Execute this command after stopping the Manager server.

Execution Result/Output Format

```

Register the new user password used by Systemwalker Runbook Automation.
Select the user whose new password is to be registered.

1. Process control user
2. User for Schedule Startup
3. LDAP administrator DN
x. Exit

Enter.=>1

Change the process control user password.
Current user name: swrbaadmin
Specify a new password.
=>
Specify the new password again.
=>

Register the password.
Are you sure? (y/n) =>y

Checking LDAP server authentication...
LDAP server authentication was successful.
The process control user password has been registered in Systemwalker Runbook Automation.
The password was successfully registered.

```

1.4.6 swrba_db_change_password (Change of Database User Password)

Description

This command changes user's password that is needed for management of process by Systemwalker Runbook Automation.

Synopsis

```
swrba_db_change_password
```

Options

None

Return Values

0:
Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

<Systemwalker Runbook Automation installation directory>\bin
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM

[Linux]

/opt/FJSVswrbam/bin

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.
- Execute this command after stopping the Manager server.

[Linux]

- This can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server.
- Execute this command after stopping the Manager server.

Execution Result/Output Format

Change the user password used by Systemwalker Runbook Automation registered in the process management database.

Select the user that will be modified.

1. User that will access the process management database
- x. Exit

Enter.=>1

Changes the password of the user that will access the process management database.

Current user name: swrbadb

Specify the current password.

=>

Specify a new password.

=>

Specify the new password again.

=>

Change the password.

Are you sure? (y/n) =>y

The process control user password has been changed.

The password was successfully changed.

Note

- The character that can be specified for the password is an alphanumeric character within 18 characters, a blank, exclamation mark (!), double quotation ("), number sign (#), dollar sign(\$), percent sign (%), ampersand (&), left parentheses((), right parentheses()), equal sign (=), tilde (~), caret (^), hyphen (-), left bracket ([), right bracket (]), colon (:), semicolon (;), slash (/), period (.), comma (,), question mark (?), underscore (_), plus sign (+), asterisk (*), left brace ({), right brace (}).

1.4.7 cmdbrefresh (Observed Record Collection Request Command)

Description

This command outputs update requests to the Agent, and updates the observed records that are managed in CMDB. There are two types of update: a full update and a differential update. A full update collects all information from scratch, regardless of whether it has already been collected up to that point. A differential update collects information that differs from previously collected information.

If all observed records are specified for update, the update may not be reflected in deleted observed records (the observed records might remain in CMDB), therefore all records should only be updated in the following cases:

- when re-creating CMDB
- when configuration items were deleted from the Configuration Management window by mistake

This command can be executed in both the Manager and the Linked Server.

Synopsis

[Windows]

```
cmdbrefresh.exe [-a] -q [server=Host name | type=Agent type]
```

[Linux]

```
cmdbrefresh.sh [-a] -q [server=Host name | type=Agent type]
```

Options

-a

This option updates all observed records (update all). If this option is omitted, update differences will apply. In normal cases, omit this option so that update differences will apply.

-q server=*Host name*

To execute this option on the Manager, specify the host name of the update target Linked Server. At the time of the Agent installation, specify the value that was entered for the host name used by the CMDB Agent.

If this option is omitted, all Linked Server recognized by the Manager will be update targets.

-q type=*Agent type*

This option specifies the type of update target Agent when this command is executed on the Agent. The Agent types that can be specified are shown below. Specify an Agent type that has already been set up. If this option is omitted, all Agents that have been set up will be updated.

- AGT_CENTINV

An agent that collects the Systemwalker Centric Manager inventory information.

- AGT_CENTREP

An agent that collects the Systemwalker Centric Manager node information.

- AGT_INV

An agent that automatically collects inventory information about the servers connected to the network.

- AGT_ADSC

An agent that detects node automatically and collects node information

Combining options

The options that can be combined are different for the Manager and the Linked Server, as shown below:

- Management Server

`cmdbrefresh.[exe|sh] -q`

`cmdbrefresh.[exe|sh] -q server=Host name`

`cmdbrefresh.[exe|sh] -q type=Agent type`

`cmdbrefresh.[exe|sh] -a -q`

`cmdbrefresh.[exe|sh] -a -q server=Host name`

`cmdbrefresh.[exe|sh] -a -q type=Agent type`

- Linked Server

`cmdbrefresh.[exe|sh] -q`

`cmdbrefresh.[exe|sh] -q type=Agent type`

`cmdbrefresh.[exe|sh] -a -q`

`cmdbrefresh.[exe|sh] -a -q type=Agent type`

Additionally, when this command is executed on the Manager, the agents that can be specified in `server=host name` are those that have a record of having notified the Manager at least once about the information that was collected. The reason for this is that the Manager can recognize the existence of the Agents in the first notification of information.

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

- Management Server

[Windows]

`<Systemwalker Runbook Automation installation directory>\CMDB\FJSCmdbm\bin`
Note: The default location is `C:\Fujitsu\Systemwalker\SWRBAM`

[Linux]

`/opt/FJSCmdbm/bin`

- Linked Server

[Windows]

`%SWCMDB_INSTALL_PATH%\FJSCmdba\bin`

Note: The installation destination of the CMDB agent included in the agent of Systemwalker Runbook Automation is set to environment variable %SWCMDB_INSTALL_PATH%.

[Linux]

```
/opt/FJSVcmdba/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server and Linked Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server and Linked Server.

Note

This command and the update process on the target server are performed asynchronously. For this reason, the update process may be running on the agent side even after this command returns. Refer to event log and system log message on the Agent side to check for the completion of update processing.

1.4.8 mdradmin (Agent Management Command)

Description

This command provides functions that display/delete agents managed by the CMDB Manager, and activate/inactivate automatic collection processing.

Synopsis

[Windows]

```
mdradmin.exe -l  
mdradmin.exe -R Agent ID  
mdradmin.exe -c {activate|inactivate} Agent type
```

[Linux]

```
mdradmin.sh -l  
mdradmin.sh -R Agent ID  
mdradmin.sh -c {activate|inactivate} Agent type
```

Options

-l

This option displays the information for the Agents recognized by the Manager (Agent ID and name, and endpoint references).

-R Agent ID

This option deletes the Agent from the Manager. The Agent ID is the MDR-ID part in the output result of the '-l' option in this command.

-c {activate|inactivate} Agent type

Specify either activate or inactivate.

- AGT_CENTINV

An agent that collects the Systemwalker Centric Manager inventory information.

- AGT_CENTREP

An agent that collects the Systemwalker Centric Manager node information.

- AGT_INV

An agent that automatically collects inventory information about the servers connected to the network.

- AGT_ADSC

An agent that detects node automatically and collects node information

Combining Options

The options that can be combined are different for the Manager and the Linked Server, as shown below:

- Management Server

```
mdradmin.[exe|sh] -l
```

```
mdradmin.[exe|sh] -R Agent ID
```

- Linked Server

```
mdradmin.[exe|sh] -c {activate|inactivate} Agent type
```

Additionally, when this command is executed on the Manager, the Agents that can be displayed in -l are those that have a record of having notified the Manager at least once about the information that was collected. The reason for this is that the Manager can recognize the existence of the Agents in the first notification of information.

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

- Management Server

[Windows]

```
<Systemwalker Runbook Automation installation directory>\CMDB\FJSVcmdbm\bin  
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVcmdbm/bin
```

- Linked Server

[Windows]

```
%SWCMDB_INSTALL_PATH%\FJSVcmdba\bin
```

Note: The installation destination of the CMDB agent included in the agent of Systemwalker Runbook Automation is set to environment variable %SWCMDB_INSTALL_PATH%.

[Linux]

```
/opt/FJSVcmdba/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server and Linked Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server and Linked Server.

1.4.9 ciimport (Configuration Item Import Command)

Description

This command imports configuration items encoded in a file into the CMDB. The format of the input file can be either XML or CSV.

By combining this command with the export command as explained in the following section, it becomes possible to update or add configuration items by exporting existing configuration items from the CMDB and then importing them again after they have been edited.

Synopsis

[Windows]

```
ciimport.exe -x XML file
```

```
ciimport.exe -c CSV file -r conversion rule file [-o output file]
```

```
ciimport.exe -i
```

[Linux]

```
ciimport.sh -x XML file
```

```
ciimport.sh -c CSV file -r conversion rule file [-o output file]
```

```
ciimport.sh -i
```

Options

-x *XML file*

Specifies the XML file containing the configuration items to be added. The example shown below adds a configuration item type called LogicalServer:

```

<?xml version="1.0" encoding="UTF-8"?>
<entities>
  <cmdb:item id="Server0001" type="LogicalServer" xmlns:ns0="urn:xmlns-fujitsu-com:
rcxml2004-05" xmlns:cmdb="http://federation.service.cmdb.fujitsu.com/xsd" >
    <cmdb:record type="observed">
      <!-- CI START -->
        <ns0:LogicalServer id="ls001" hostname="192.168.0.1" name="" nickname="LServer1"
vendorID="">
          <ns0:LogicalServerConfiguration>
            <ns0:LogicalIPSU option=""/>
            <ns0:LAN description="Fujitsu PCI Fast Ethernet Adapter (Generic)" id=
"lan001" index="0" ipAddress="192.168.0.1" macAddress="00:00:00:00:00:01" netmask=
"255.255.255.0" netmaskAddress="192.168.0.0" speed="0"/>
          </ns0:LogicalServerConfiguration>
          <ns0:SystemSettings>
            <ns0:Network gateway="192.168.0.254" hostname="0.0.0.0" subnetAddress=
"192.168.0.0" subnetMask="0.0.0.0"/>
            <ns0:OSSetting codeSet="" name="Windows XP Professional"/>
            <ns0:DHCP flag="0"/>
            <ns0:NTDomain name="WORKGROUP"/>
            <ns0:SNMP certifyProtocol="" community="public" description=""
encryptionProtocol="" securityLevel="" securityModel="v2c" userName=""/>
          </ns0:SystemSettings>
        </ns0:LogicalServer>
      <!-- CI END -->
    </cmdb:record>
  </cmdb:item>
</entities>

```

Point

- <entities> is defined as shown in the above example.
- Specify the target configuration item type in the item type shown in the above example. Define the namespace (xmlns) exactly as shown. (There are two in the above example.) Refer to "[Chapter 6 Configuration Item Format](#)" for more details on configuration item types.
- record type is set as expected in the case of expected records and set as observed in the case of observed records.
- The section between CI START and CI END comments defines the configuration item. Refer to "[Chapter 6 Configuration Item Format](#)" for more details on configuration item definitions.

-c CSV file

Specifies the CSV file containing the configuration items to be added.
An example of a CSV file is provided below.

| |
|---|
| LogicalServer,expected,192.168.0.1,cmdb-manager,192.168.0.1, NIC1, CPU1 |
| LogicalServer,expected,192.168.0.2,cmdb-agent,192.168.0.2, NIC2, CPU2 |

-r conversion rule file

When a CSV file is added, it is necessary to specify a conversion rule file.

The following example shows the above CSV file mapped to the configuration item type LogicalServer:

```
xmlns:cmdb=http://federation.service.cmdb.fujitsu.com/xsd
xmlns:ns=urn:xmlns-fujitsu-com:rxml2004-05
xpath=/entities/cmdb:item[@id=#3]/@type=#1
xpath=/entities/cmdb:item[@id=#3]/cmdb:record/@type=#2
xpath=/entities/cmdb:item[@id=#3]/cmdb:record/ns:LogicalServer[@id=#3]/@hostname=#4,@ipAddress=#5
xpath=/entities/cmdb:item[@id=#3]/cmdb:record/ns:LogicalServer[@id=#3]/ns:LogicalServerConfiguration/
ns:LogicalNIC/@name=#6
xpath=/entities/cmdb:item[@id=#3]/cmdb:record/ns:LogicalServer[@id=#3]/ns:LogicalServerConfiguration/
ns:LogicalCPU/@name=#7
```

 **Point**

- The namespaces (xmlns) in lines 1 and 2 are defined as shown in the above example.
- Line 3 and thereafter are defined as the correspondence between the CSV data column position and the configuration item format. For example, the information on line 5 in the CSV corresponds to the configuration item format ipAddress attribute. Refer to "[Chapter 6 Configuration Item Format](#)" for more details on configuration item definitions.

-o output file

Specifies the file that outputs the result of the conversion of the specified CSV format file to XML format using the specified conversion rule file. If this option is omitted, the XML format content after conversion will be imported.

-i

Generates and imports an expected record based on the information on the observed record that has been registered with CMDB.

Return Values

- 0:
Normal termination
- Value other than 0:
Abnormal termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\CMDB\FJSVcmdbm\bin
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVcmdbm/bin
```

Privilege Required/Execution Environment

[Windows]

- The Administrator authority is necessary. Execute this command as an administrator when use OS is Windows Server 2008 or later.

- This command can be executed on a Management Server.

[Linux]

- This command can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server.

Note

- No file formats other than CSV and XML can be used.
- It is not possible to specify more than one input file.

1.4.10 ciexport (Configuration Item Export Command)

Description

This command exports configuration items from the CMDB. The results are sent to a specified file or to standard output in XML format.

Synopsis

[Windows]

```
ciexport.exe -q xpath=condition specified [-x output file]
```

[Linux]

```
ciexport.sh -q xpath=condition specified [-x output file]
```

Options

-q xpath=*condition specified*

Specifies the output conditions in XPath format. XPath is a language used to specify particular components of an XML document. It can be specified as follows:

- To search for all logical servers:
`/%LogicalServer`
- To search for a logical server that has the name svr001:
`/%LogicalServer[./#observed/rc:LogicalServer/@name = 'svr001']`
- To search for a logical server that has Systemwalker Centric Manager installed:
`/%InstalledSoftware[./#observed/rc:InstalledSoftware/@productName = 'Systemwalker Centric Manager Enterprise Edition V13.2.0']/&GRelation/%LogicalServer`



-
- CMDB-specific extensions that use '%', '&', and '#' are added to the normal XPath axis.
 - '%' indicates the configuration item. Specify the type name for the configuration item after %. For example, '%LogicalServer' indicates the configuration item 'LogicalServer'.
 - '&' indicates the relation. Specify the type name for the relation after &. In normal cases, specify '&GRelation'.

- By defining `/%LogicalServer/&GRelation/%InstalledSoftware`, it is possible to search `InstalledSoftware` that is related to `LogicalServer` (the search result will be `InstalledSoftware`).
- '#' indicates the record. '#expected' indicates the expected record, and '#observed' indicates the observed record.
- Refer to "[Chapter 6 Configuration Item Format](#)" for more details on configuration item definitions.



-x Output file

Specifies a name for the file that outputs the results. If this is omitted, the results will be displayed to standard output.

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\CMDB\FJSVcmdbm\bin
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVcmdbm/bin
```

Privilege Required/Execution Environment

[Windows]

- The Administrator authority is necessary. Execute this command as an administrator when use OS is Windows Server 2008 or later.
- This command can be executed on a Management Server.

[Linux]

- This command can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server.

1.4.11 cidelete (Configuration Item Deletion Command)

Description

This command deletes configuration items that satisfy specified conditions from the CMDB.

Synopsis

[Windows]

```
cidelete.exe -q xpath=condition specified [record=observed|expected|cataloged|all]
```

```
cidelete.exe -a
```

[Linux]

```
cidelete.sh -q xpath=condition specified [record=observed|expected|cataloged|all]  
cidelete.sh -a
```

Options

-q xpath=*condition specified*

Specifies the conditions of the configuration items to be deleted. Conditions can be specified as follows:

- To delete all logical servers:
 /%LogicalServer
- To delete the logical server that has the name svr001:
 /%LogicalServer[./#observed/rc:LogicalServer/@name = 'svr001']



See

Refer to Options in [1.4.10 ciexport \(Configuration Item Export Command\)](#) for information on the conditions that are specified.

-q record=observed|expected|cataloged|all

Specifies the records to be deleted. If this option is omitted, it is assumed that all has been specified.

- observed
 Deletes observed records
- expected
 Deletes expected records
- cataloged
 Deletes cataloged records
- all
 Deletes all records

-a

Deletes all configuration items.

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\CMDB\FJSCmdbm\bin  
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSCmdbm/bin
```

Privilege Required/Execution Environment

[Windows]

- The Administrator authority is necessary. Execute this command as an administrator when use OS is Windows Server 2008 or later.
- This command can be executed on a Management Server.

[Linux]

- This command can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server.

Note

- The Configuration Item Operation window can be used to check whether the specified configuration items have been deleted.
- This command deletes registered configuration items from CMDB Manager. Configuration items that were registered from the Agent cannot be deleted from CMDB Manager.

1.4.12 swrba_ipmiimport (IPMI Information Import Command)

Description

CMDB imports IPMI information about managed servers by this command. File format for input is CSV.

You can update and add IPMI information by editing IPMI information that was exported by `swrba_ipmiexport` and importing IPMI information by using `swrba_ipmiimport`.

Synopsis

```
swrba_ipmiimport -f Input file [-e Character code of Input file]
```

Options

`-f Input file`

Specify the file for input that has IPMI information of server that is registration object. File format for input is CSV.

The example of the input file is shows below.

```
192.168.0.1,192.168.1.1,user001,xe3539caeb  
192.168.0.2,192.168.1.2,user002,ex3535akft  
192.168.0.3,192.168.1.3,user001,xe359jsg35  
192.168.0.4,192.168.1.4,user002,djh847wag4
```


The specifications of CSV are shown below.

- Delimit column by comma (,).
- You can't input linefeed character in the column data.

The positions of column in CSV are shown below.

| | 1 column | 2 column | 3 column | 4 column |
|---------|----------------------|--------------------|----------|------------|
| Item | IP address of server | IP address of IPMI | User | Password |
| example | 192.168.0.1 | 192.168.1.1 | user001 | xe3539caeb |

The definition rule of each column is shown below.

| column | item | Omission | Omission Value | Inputted Contents | Check Contents | Condition |
|--------|------------|----------|----------------|--|----------------------------|---|
| 1 | IP address | NG | - | Specify the IP address of server. | Number of input characters | From 1 to 255 characters |
| | | | | | Type of characters | Normal-width alphabetic character (It distinguishes capital letter and small letter), the normal-width figure, and the normal-width sign. |
| | | | | | Contents | When LogicalServer-CI of specified Internet Protocol address is not registered in CMDB, an error is displayed. |
| 2 | IP address | NG | - | Specify the IPMI IP address | Number of input characters | From 1 to 255 characters |
| | | | | | Type of characters | Normal-width alphabetic character (It distinguishes capital letter and small letter), the normal-width figure, and the normal-width sign. |
| 3 | User | NG | - | Specify the user account for the authentication server. | Number of input characters | From 1 to 255 characters |
| | | | | | Type of characters | The one-byte character and the em-size character can be used. The blank cannot be used. |
| | | | | | uniqueness | Two or more same users cannot be registered in a server concerned. |
| 4 | Password | OK | - | Specify the password for the user. When you omit password, this command operates as follows. - When you newly register user account information, the | Number of input characters | From 1 to 255 characters |

| column | item | Omission | Omission Value | Inputted Contents | Check Contents | Condition |
|--------|------|----------|----------------|--|----------------|-----------|
| | | | | <p>omission is improper. the registration of user account information fails.</p> <p>- When you update registered user account information, this command doesn't change the password.</p> | | |

 **Point**

- If the IPMI information entered in the input file contains an error, the IPMI information with the error fails to be imported. All other IPMI information is imported.
- When the configuration information is automatically collected, the IP address of the LogicalServer-CI of the IPv6 environment is stored in the RFC 5952 format. In this case, the IP address specified in the input file should also be written in the RFC 5952 format. For all other cases, use the same format as registered in the CMDB.
- Refer to "Settings for Automatically Collecting Configuration Information" in the *Systemwalker Runbook Automation Installation Guide* for details.

-e Character code of Input file

Specify the character code of the inputted file. The following character-codes can be specified.

- UTF-8
- SJIS
- EUC

If this option is omitted, the character code of the input file will be as follows:

[Windows]

SJIS

[Linux]

The character code specified in the LANG environment variable

If the LANG environment variable has not been set, or character code cannot be recognized, then UTF-8 will be used.

Return Values

- 0:
Normal termination
- 1:
Warning termination
 - IPMI information that fails in import exists.
- 2:
Parameter error

3:

Errors other than 1 and 2

Notification of Error Information

When there is an error in information to be imported, error information is notified to the standard error output.

Correct IPMI information on the input file referring to error information output to the standard error output, and do the import again by this command.

Example: If the error occurs on multiple lines, then these multiple lines will be notified.

```
> swrba_ipmiimport -f importcsv.txt
Error: Failed to register the IPMI information. Detail=The registration destination LogicalServer[192.168.0.1] cannot be found.
Error: Failed to register the IPMI information. Detail=The registration destination LogicalServer[192.168.0.2] cannot be found.
IPMI information was successfully registered. LogicalServer=192.168.0.3 IPAddress=192.168.1.3 User=user001
IPMI information was successfully registered. LogicalServer=192.168.0.4 IPAddress=192.168.1.4 User=user002
Failed to execute all or part of the processing.
```

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\bin
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVswrbam/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server.

Note

- As for IPMI information, information on the input file becomes effective.
When IPMI information has already been registered on CMDB, this command replaces IPMI information registered on CMDB by IPMI information described in the input file.
- swrba_ipmiexport and swrba_ipmiimport cannot run at the same time. For this reason, an error will occur if one command is executed while the other command is already under execution.
- Execute this command when Systemwalker Runbook Automation is running.
- If this command is used before the setup (swrba_setup) is complete, it will fail because of the following error:

```
Error: An internal error occurred. Detail=com.fujitsu.cmdb.CMDBUncheckedException: Property file not found.
```

- If this command is used before Systemwalker Runbook Automation has started up, it will fail because of the following error:

```
Error: Failed to register the IPMI information. Detail=com.ctc.wstx.exc.WstxUnexpectedCharException: Unexpected character "'" (code 34) in DOCTYPE declaration; expected a space between public and system identifiers at [row,col {unknown-source}]: [1,50]
```

- If the character code that was specified in this command and the character code that was specified in the input file are different, then the behavior cannot be guaranteed. Enter the character code so that it matches.

1.4.13 swrba_ipmiexport (IPMI Information Export Command)

Description

This command exports IPMI information about the registered server from CMDB. IPMI information is output in specified file or standard output.

You can update and add IPMI information by editing IPMI information that was exported by `swrba_ipmiexport` and importing IPMI information by using `swrba_ipmiimport`.

The default value is output about the password among IPMI information that can be acquired by this command. Describe a new password and import the file when you change the password. As for the password of IPMI information whose password is a default value, the change is not done.

Synopsis

```
swrba_ipmiexport [-f output file] [-e Character code of output file]
```

Options

-f output file

Specify the file name for output.

When you omit this option, the information is displayed in a standard output.

The output form is CSV.

For more information about CSV file format, Refer to [1.4.12 swrba_ipmiimport \(IPMI Information Import Command\)](#).

-e Character code of Input file

Specify the character code of the inputted file. The following character-codes can be specified.

- UTF-8
- SJIS
- EUC

If this option is omitted, the character code of the input file will be as follows:

[Windows]

SJIS

[Linux]

The character code specified in the LANG environment variable

If the LANG environment variable has not been set, or character code cannot be recognized, then UTF-8 will be used.

Return Values

0:

Normal termination

1:

Warning termination

- User information doesn't exist.

2:

Parameter error

3:

Errors other than 1 and 2

Command Location

[Windows]

<Systemwalker Runbook Automation installation directory>\bin
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM

[Linux]

/opt/FJSVswrbam/bin

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server.

Note

- swrba_ipmiexport and swrba_ipmiimport cannot run at the same time. For this reason, an error will occur if one command is executed while the other command is already under execution.
- Execute this command when Systemwalker Runbook Automation is running.
- If this command is used before the setup (swrba_setup) is complete, it will fail because of the following error:

Error: An internal error occurred. Detail=com.fujitsu.cmdb.CMDBUncheckedException: Property file not found.

- If this command is used before Systemwalker Runbook Automation has started up, it will fail because of the following error:

Error: Failed to register the IPMI information. Detail=com.ctc.wstx.exc.WstxUnexpectedCharException: Unexpected character "'" (code 34) in DOCTYPE declaration; expected a space between public and system identifiers at [row,col {unknown-source}]: [1,50]

- When IPMI information is not registered, information is not output.

1.4.14 swrba_audit (Process Instance Audit Information Acquisition Command)

Description

This command is used to obtain process instance audit information. It obtains information on process instances that have ended. Refer to "[2.6 Process Instance Audit Information File](#)" for information on the information that is obtained.

Synopsis

```
swrba_audit [-closedafter yyyy-mm-dd] [-closedbefore yyyy-mm-dd]
```

Options

Specify the date when to obtain audit information.

These options are not required if the swrba_audit command is executed regularly.

-closedafter *search start date*

Specify the date when the process ended. The search target will be restricted to process instances that ended on or after the date specified. Specify the date using the following format:

- yyyy-mm-dd

-closedbefore *search end date*

Specify the date when the process ended. The search target will be restricted to process instances that ended on or before the date specified. Specify the date using the following format:

- yyyy-mm-dd

If only the "-closedafter" option is specified, the search will apply to all process instances that ended in the period between the specified date and the present. If only the "-closedbefore" option is specified, the search will apply to all process instances that ended in the period up to the specified date. An error will occur if the date is specified using a format other than the format above, or if the relationship between these two dates is invalid.

If the "-closedbefore" and "-closedafter" options are not specified, the command will obtain information for process instances that have ended since the last time the command was executed without specifying these options.

If the "-closedafter" or "-closedbefore" option has been specified, the command will obtain information for process instances that ended during the period specified by the option, regardless of the run results of the audit log acquisition command.

Return Values

| Return Value | Meaning |
|---------------|----------------------|
| 0 | Normal termination |
| 1 | Parameter error |
| 2 | Authentication error |
| 3 | BPM access error |
| 4 | Internal error |
| 5 | Privilege error |
| 6 | File I/O error |
| Indeterminate | Forced termination |

Command Location

[Windows]

```
<Systemwalker Runbook Automation Management Server installation directory>\bin
```

Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM.

[Linux]

```
/opt/FJSVswrbam/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using a Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.

[Linux]

- This command requires system administrator (superuser) privileges.
- This command can be executed on a Management Server.

Note

- If the process instances executed during any particular period have been deleted using the `swrba_admin` command, it will no longer be possible to obtain information for these process instances that have been deleted.

1.4.15 `swrba_holimport` (Holiday Calendar Information Import Command)

Description

This command registers, changes, and deletes holiday calendar information.

Synopsis

[To register or change information]

```
swrba_holimport -ent definition file
```

[To delete information]

```
swrba_holimport -del holiday calendar name
```

Options

`-ent definition file`

Specify the name of the file that stores the holiday information control statement.

Refer to "[Holiday Information Control Statement](#)" for details.

`-del holiday calendar name`

Specify the name of the holiday calendar (other than the system calendar "SYSTEM_CALENDAR") to be deleted.

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation Management Server installation directory>\bin
```

Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM.

[Linux]

```
/opt/FJSVswrbam/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using a Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.

[Linux]

- This command requires system administrator (superuser) privileges.
- This command can be executed on a Management Server.

Holiday Information Control Statement

- The holiday information control statement is used to set up holiday information.

Synopsis

```
HOL ----- (1)
calendarname holiday calendar name ----- (2) (*) (*1)
yearset year setting ----- (3) (*)
monthset month setting ----- (4) (*)
dayset day setting ----- (5) (**)
weekset day of the week setting ----- (6) (**)
daycancel days for which settings are canceled----- (7)
;
```

*1: Specify the calendarname operand immediately after the HOL keyword.

(*): Ensure these operands are specified.

(**): For operands marked (**), specify either or both operands.

Explanation of This Control Statement

(1) HOL

This is a keyword that indicates the start of the holiday information control statement.

(2) *holiday calendar name*

Specify the name of the holiday calendar (either the system calendar "SYSTEM_CALENDAR" or another holiday calendar) using no more than 24 bytes.

Spaces, user-defined characters, and the following characters (/ ? * ; , \ " < > | :) cannot be specified: If the name of an already existing holiday calendar is specified then the previous settings will be overwritten.

(3) *year setting*

Specify the years for which holidays are being set up, using four-digit numbers.

Up to three years' worth of holidays can be specified (for the current year, the next year, and the year after next). To specify holidays with the same pattern every year, specify "EVERY".

Specification example for year settings

If the current year is 2011, the following example shows how to specify this year and next year.

```
yearset 2011,2012
```

(4) *month setting*

Specify the months for which holidays are being set up, using numbers. Specify multiple months using the following format: "3,5,10,...".

To specify holidays with the same pattern every year, specify "EVERY".

(5) day setting

Specify the dates for which holidays are being set up, using numbers. Specify multiple dates using the following format: "1,2,15,...".

(6) day of the week setting

Specify the holiday in terms of "day of the week" units. Specify days of the week using the first three letters of the name of the day of the week. Specify multiple days of the week using the following format: "SUN,MON,TUE,WED,THU,FRI,SAT".

(7) days for which settings are canceled

Specify this operand to cancel the holiday settings for only specific days. Specify dates using the following format: "YYYY,MM,DD(,DD)". "EVERY" cannot be specified to cancel day settings.

Specification example for day settings cancellation

Specification examples are shown below.

To cancel the holiday settings for October 1, 2011

```
daycancel 2011,10,01
```

To cancel the holiday settings for October 1 and 15, 2011

```
daycancel 2011,10,01,15
```

To cancel the holiday settings for October 1 and November 20, 2011

```
daycancel 2011,10,01  
daycancel 2011,11,20
```

To cancel the holiday settings for October 8, 2011 and November 25, 2012

```
daycancel 2011,10,08  
daycancel 2012,11,25
```

Specification example for the holiday information control statement

The following example shows how to set up the following dates as holidays.

- October 1, 2011
- November 25, 2011

```
HOL  
calendarname HeadOfficeCalendar  
yearset 2011  
monthset 10  
dayset 1  
yearset 2011  
monthset 11  
dayset 25  
;
```

Note

- The holidays for a calendar can be registered, changed, or deleted only by system administrators (superusers or users that belong to the "Administrators" group).
- Specify the "month settings" after the "year settings".
- Specify the "day settings" and the "day of the week settings" after the "month settings".

- To specify multiple holiday patterns, consider each combination of "year settings" and "month settings" to be a single holiday pattern, and then specify as many such combinations as required.
- It is not possible to delete a calendar that the Schedule Definition is referring to.
- This command recreates the holidays for a calendar by overwriting the existing settings. This means that information for holidays that have been set up will not take over. If necessary, set up these holidays in control statement again.
- If a holiday calendar that the Schedule Definition is referring to is changed, the startup days for the Schedule Definition will be reset based on the modified holiday calendar. After changing a holiday calendar, check and correct the startup days for the Schedule Definition (the settings for specific days). ***To FJ: The following sentence may need to be deleted as it does not appear in the latest J manual*** Even if a reflection start date has been specified, the startup days for the Schedule Definition will be reset based on the modified calendar, regardless of the specified reflection start date.
- This command simply makes a request to the server to change the holiday calendar. Even if the command finishes executing, there is no guarantee that the changes to the startup days for each Schedule Definition will have been reflected on the server. This means that the changes may not be reflected to the startup days for each Schedule Definition until some time after the command has finished.
- If this command is used to register a holiday calendar with the same name as an already registered holiday calendar, the holiday calendar will be recreated by overwriting the existing holiday calendar. This means that the holiday calendar that has already been registered will be as specified by the newly created calendar control statement.

1.4.16 swrba_holexport (Holiday Calendar Information Export Command)

Description

This command exports holiday calendar information that has already been registered with the scheduler. If the system calendar is exported, the day change time will be output at the same time. The holiday calendar information that is extracted will be output to the standard output.

Synopsis

| |
|--|
| swrba_holexport -r <i>calendar name</i> |
| swrba_holexport -rh <i>calendar name</i> |

Options

-h *holiday calendar name*

Specify the name of a holiday calendar or "SYSTEM_CALENDAR" that has been registered.

Holiday calendar information over a three year period will be output, starting from the current year.

-rh *holiday calendar name*

Specify the name of a holiday calendar or "SYSTEM_CALENDAR" that has been registered.

If the "-rh" option is specified, the holiday calendar information will be output using the format for the definition file specified by the swrba_holimport command.

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

<Systemwalker Runbook Automation Management Server installation directory>\bin
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM.

[Linux]

/opt/FJSVswrbam/bin

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using a Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.

[Linux]

- This command requires system administrator (superuser) privileges.
- This command can be executed on a Management Server.

Output Format

An example of the output format is shown below. Note that holidays are indicated by asterisks "*".

Example output for the "-h" option

- Calendar Name
Indicate the name of the holiday calendar.
- Day Change Time
Indicate the day change time.
- "*"
Indicates the holiday.

```
FSP_SW/RB-A_BASE: INFO: 02000: /opt/FJSVswrbam/bin/swrba_holexport is starting. Option: -h

Job Net Holiday List date: 03/07/2012 time: 14:19

Calendar Name : HeadOfficeCalendar

Day Change Time: 00:00

01/2012

Sun Mon Tue Wed Thu Fri Sat

1 2 3 4 5 6 7

8 9 10 11 12 13 14

15 16 17 18 19 20 21

22 23 24 25 26 27 28

29 30 31
```

Example output for the "-rh" option

```
HOL
calendarname Sunday
yearset 2011
monthset 1
dayset 2,9,16,23,30
yearset 2011
monthset 2
dayset 6,13,20,27
yearset 2011
monthset 3
dayset 6,13,20,27
yearset 2011
monthset 4
dayset 3,10,17,24
yearset 2011
monthset 5
dayset 1,8,15,22,29
yearset 2011
monthset 6
dayset 5,12,19,26
yearset 2011
monthset 7
dayset 3,10,17,24,31
yearset 2011
```

Note

None

1.4.17 swrba_change_systime (Day Change Time Setup Command)

Description

This command is used to change the day change time.

Synopsis

```
swrba_change_systime day change time
```

Options

day change time

Specify the day change time using a four-digit number in "hhmm" format. For this format, "hh" specifies the hour (a value between 00 and 23) and "mm" specifies the minute (a value between 00 and 59).

Specification example

```
swrba_change_systime 0905
```

Return Values

- 0:
Normal termination
- Value other than 0:
Abnormal termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation Management Server installation directory>\bin
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM.
```

[Linux]

```
/opt/FJSVswrbam/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using a Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.

[Linux]

- This command requires system administrator (superuser) privileges.
- This command can be executed on a Management Server.

Note

None

1.4.18 swrba_patternimport (Schedule Pattern Import Command)

Description

This command registers, changes, and deletes Schedule Pattern information.

In addition, for the Schedule Pattern registered by this command, "*" is displayed in the top of name of Schedule Pattern in the following windows.

- **Create Schedule Definition** wizards (**Confirm**) window
- Detail window of **Schedule Definitions (Definition Information)**
- List window of **Schedule Definitions**

Synopsis

[To register or change information]

```
swrba_patternimport -ent definition file
```

[To delete information]

```
swrba_patternimport -del Schedule Pattern name
```

Options

-ent *definition file*

Specify the name of the definition file that contains the Schedule Pattern information control statement.

Refer to "[Schedule Pattern Information Control Statement](#)" for details.

-del *Schedule Pattern name*

Specify the name of the Schedule Pattern to be deleted.

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\bin  
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM.
```

[Linux]

```
/opt/FJSVswrbam/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using a Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.

[Linux]

- This command requires system administrator (superuser) privileges.
- This command can be executed on a Management Server.

Schedule Pattern Information Control Statement

The Schedule Pattern information control statement is used to set up Schedule Pattern information.

Synopsis

```
CAL ----- (1)  
execpatname Schedule Pattern name ----- (2) (*) (*1)  
monthset month setting ----- (3) (**)  
dayset day setting ----- (4) (**)  
weekset day of the week setting ----- (5) (**)  
daycancel days for which settings are canceled ----- (6) (**)  
monthlyday specification for a date in every month ----- (7) (**)  
monthlyweek specification for a day of the week in every month ----- (8) (**)  
bnsmode selection criteria for business days ----- (9) (**)  
bnsbase the first business day of the fiscal month ----- (10)(**)  
bnsday business day ----- (11)(**)  
bnslimit limit startup days to business days within the fiscal month ----- (12)(**)  
;
```

*1: Specify the execpatname operand immediately after the CAL keyword.

(*) : Ensure that these operands are specified.

(**): Specify using one of the combinations below (a: yearly standard; b: monthly standard; or c: business day standard).

- a. monthset, dayset, weekset, daycancel (The "monthset" specification is mandatory. Specify either "dayset" or "weekset" or both. The "daycancel" operand can be specified only if "dayset" has been specified.)
- b. A combination of "monthlyday" and "monthlyweek" (either or both)
- c. bnsmode, bnsbase, bnsday, bnslimit ("bnsmode" and "bnsbase" are mandatory when this operand group is specified)

Explanation of This Control Statement

(1) CAL

A keyword that indicates the start of the Schedule Pattern information control statement.

(2) Schedule Pattern name

Specify the name of the Schedule Pattern, using no more than 24 bytes. Spaces and user-defined characters cannot be included in the Schedule Pattern name. If the name of an already existing Schedule Pattern is specified then the previous settings will be erased.

(3) month setting

To define Schedule Pattern information using a yearly standard, specify the number for the month for which the Schedule Pattern is to be set. Ensure that this operand is specified. To specify multiple months, specify months using the following format: "3,5,10,...". To specify startup days with the same pattern every month, specify "EVERY".

(4) day setting

To define Schedule Pattern information using a yearly standard, specify the number for the date for which the Schedule Pattern is to be set. Specify multiple days using the following format: "1,2,15,21,...".

(5) day of the week setting

To define Schedule Pattern information using a yearly standard, specify the Schedule Pattern in terms of "day of the week" units. Specify days of the week using the first three letters of the name of the day of the week. Specify multiple days of the week using the following format: "SUN,MON,TUE,WED,THU,FRI,SAT".

(6) days for which settings are canceled

To define Schedule Pattern information using a yearly standard, specify specific days for which the Schedule Pattern settings are to be canceled. Specify the month and date for the day for which the schedule is to be canceled using two digits for each part in an "MMDD" format.

Specification examples for day settings cancellation

Specification examples are shown below.

Canceling the Schedule Pattern that has been set up for January 1

```
daycancel 0101
```

Canceling the Schedule Pattern that has been set up for January 1 and 10, and February 10

```
daycancel 0101,0110,0210
```

(7) monthly date specification

To define Schedule Pattern information using a monthly standard, specify the dates when monthly Process Definitions are to be started. To set up a particular date ("DD") of every month as a startup day, specify "DD". Multiple startup days can be set up in this way. To make the last day of the month a startup day, specify "LAST".

(8) monthly day-of-the-week specification

To define Schedule Pattern information using a monthly standard, specify the days of every week when monthly Process Definitions are to be started. Only one instance of this operand can be used to set up one week. To set up multiple weeks, specify this operand multiple times. The specification format is a number between 0 and 6 indicating the week (where the numbers 1 to 5 indicate the first, second, third, fourth, and fifth weeks of the month, 0 indicates "every week" and 6 indicates "the last week of the month") followed by three letters indicating the day of the week. An example specification format is "5,SUN,MON,TUE,WED,THU,FRI,SAT".

(9) business day selection standard

To define Schedule Pattern information using a business day standard, specify which of the business day standards is to be used (the beginning of the fiscal month or the end of the fiscal month).

START

Business days are counted from the beginning of the fiscal month.

END

Business days are counted backward from the end of the fiscal month.

(10) first business day of the month

To define Schedule Pattern information using a business day standard, specify which day is the beginning of the fiscal month. "0" cannot be specified.

1 to 28

These values indicate the 1st day of the calendar month through to the 28th day of the calendar month.

LAST

This value indicates the last day of the calendar month.

(11) *business day*

To define Schedule Pattern information using a business day standard, specify business days. To specify multiple days, separate each day by a comma (","). "0" cannot be specified.

1 to 31

These values indicate the ordinal position of the business day, counting from the first business day (the beginning of the fiscal month). These values cannot be specified if "END" has been specified for the bnsmode operand.

-1 to -31

These values indicate the ordinal position of the business day, counting backward from the last business day (the end of the fiscal month). These values cannot be specified if "START" has been specified for the bnsmode operand.

(12) *limit startup days to business days within the fiscal month*

If Schedule Pattern information is defined using the business day standard, this operand specifies whether to "limit startup days to business days within the fiscal month" (ON or OFF). If the bnsmode operand has been specified, the default value is "ON".

ON

Limits startup days to business days within the fiscal month.

OFF

Does not limit startup days to business days within the fiscal month.

Specification example for the Schedule Pattern information control statement

The following example shows how to set up a Schedule Pattern with the following dates as startup days.

- January 1
- February 10

```
CAL
execpatname sample
monthset 1
dayset 1
monthset 2
dayset 10
;
```

Note

- This control statement requires system administrator privileges (either a superuser or a user that belongs to the "Administrators" group).
- Specify the "day settings" and the "day of the week settings" after the "month settings".
- If multiple patterns are specified for "date settings" and "day of the week settings", a "month setting" is required each time.
- If a registered Schedule Pattern is changed, the startup days for Schedule Definitions that specify that pattern will be reset. Check and correct the startup days after making the changes.
- Even if this command has finished executing, it does not guarantee that the requested processing has completed. This means that even if the command finishes executing, it may take some time before the results are reflected to the startup days for the Schedule Definitions on the server.
- If this command is used to register a Schedule Pattern with the same name as an already registered Schedule Pattern, the Schedule Pattern will be recreated by overwriting the existing Schedule Pattern. This means that the Schedule Pattern that has already been registered will be as specified by the newly created Schedule Pattern control statement.

1.4.19 swrba_patternexport (Schedule Pattern Export Command)

Description

This command exports Schedule Pattern information that has already been registered. The Schedule Pattern information that is extracted will be output to the standard output.

Synopsis

```
swrba_patternexport -rsp Schedule Pattern name
```

Options

-rsp *Schedule Pattern name*

Specify the name of a Schedule Pattern that has been registered.

Schedule Pattern information is output using the format for the definition file specified by the swrba_patternimport command.

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation Management Server installation directory>\bin
```

Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM.

[Linux]

```
/opt/FJSVswrbam/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using a Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.

[Linux]

- This command requires system administrator (superuser) privileges.
- This command can be executed on a Management Server.

Output Format

An example of the output format is shown below. Refer to "[Schedule Pattern Information Control Statement](#)" for information on the output items.

```
CAL
execpatname sample
monthset 1
dayset 1,5,10,15,20
weekset MON,FRI
```

```
monthset 2
dayset 1,4,8,12,16
weekset MON,THU
monthset 5
dayset 1,10,20,30
weekset TUE,THU
monthset 11
dayset 1,11,22,30
weekset WED,THU
;
```

Note

None

1.4.20 swrba_scheduleimport (Schedule Definition Import Command)

Description

This command imports Schedule Patterns and Schedule Definitions that are common to all process groups. It can import only data that has been exported by the swrba_scheduleexport command.

Synopsis

```
swrba_scheduleimport [-user user ID] [-u] -d directory where the data to be imported is stored
```

Options

-user *user ID*

Specify the user ID of the user that will become the owner of the Schedule Definitions to be imported. An error will occur if a user ID that does not exist or a user ID that does not have privileges to run the Process Definitions is specified.

If this option is specified, the user that has been specified in the import data beforehand will become the Schedule Definition owner.

-u

Specifying this option overwrites any Schedule Definitions or Schedule Patterns in the process group that have the same names as the Schedule Definitions or Schedule Patterns being imported.

This option can be omitted. If this option is omitted, an error will occur when a Schedule Definition or Schedule Pattern with the same names as the Schedule Definition or Schedule Pattern being imported already exists in the process group.

-d *directory where the data to be imported is stored*

Specify the directory where the data to be imported is stored. This option cannot be omitted.

Specify the directory where definitions exported using the Schedule Definition export command have been stored. It is not possible to change the Process Definition or process group for which the Schedule Definitions and Schedule Patterns stored in the specified directory have been defined. Prepare a Process Definition and process group that are the same as the Process Definition and process group for the Schedule Definitions and Schedule Patterns that have been exported.

If there are multiple Schedule Definitions in the specified directory, all of the Schedule Definitions will be imported. If there are multiple Schedule Definitions and an error occurs midway through importing them, the subsequent processing will still continue.

Note that the status of the imported Process Definitions is "disabled". Enable the imported Process Definitions after preparing the resources required to use the schedule function, such as Process Definitions and holiday calendars.

The following table explains the differences in the various definition information before and after the Process Definitions are exported and then imported.

Table 1.1 Differences in the settings information before and after Process Definitions are exported and then imported

| Item name | Differences before and after Process Definitions are exported and then imported | Difference |
|---|---|---|
| Schedule ID | Yes | New IDs are assigned at the import destination. |
| Schedule Definition Name | None | - |
| State | Yes | Process Definitions are registered as "disabled". |
| Owner | Yes | The user specified by the "-user" option is set. |
| Last Start Date | Yes | This date is cleared. |
| Next Startup Date | Yes | A new Next Startup Date is set in accordance with the imported definitions. |
| Process Definition | None | - |
| Scheduled Execution Time | None | - |
| Execute multiple processes at a time | None | - |
| Memo | None | - |
| User Defined Attributes | None | - |
| Startup Days Settings information | None | - |
| Startup Time Settings information | None | - |

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation Management Server installation directory>\bin
```

Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM

[Linux]

```
/opt/FJSVswrbam/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.

- This command can be executed on a Process Management Server

[Linux]

- This command can only be executed by a system administrator (superuser).
- This command can be executed on a Process Management Server

Note

- Do not edit the exported Schedule Definitions or Schedule Patterns. Schedule Definitions and Schedule Patterns that have been edited cannot be imported correctly.

Example

The following command imports Schedule Definitions and Schedule Patterns that have been exported and stored in "C:\work", while overwriting existing definitions with the same names.

```
swrba_scheduleimport -d C:\work -user rbauser -u
```

Execution Result/Output Format

```
FSP_SW/RB-A_BASE: INFO: 04201: Schedule definition/schedule pattern import is about to start.
FSP_SW/RB-A_BASE: INFO: 04207: The schedule definition/schedule pattern was imported. Process group ID:System
Number imported:3
FSP_SW/RB-A_BASE: INFO: 04207: The schedule definition/schedule pattern was imported. Process group ID:System
Number imported:2
FSP_SW/RB-A_BASE: INFO: 04207: The schedule definition/schedule pattern was imported. Process group ID:System
Number imported:5
FSP_SW/RB-A_BASE: INFO: 04203: Schedule definition/schedule pattern import has finished.
```

1.4.21 swrba_scheduleexport (Schedule Definition Export Command)

Description

This command exports Schedule Definitions and Schedule Patterns common to all process groups.

Synopsis

```
swrba_scheduleexport [-pg process group ID [-sd Schedule Definition name] [-sp Schedule Pattern name]] -d export directory
```

Options

-pg *process group ID*

Specify the process group ID for which Schedule Definitions and Schedule Patterns common to all process groups are to be exported. An error will occur if the specified process group does not exist. Nothing will be output if there are no Schedule Definitions or Schedule Patterns in the specified process group. If this option is omitted, all of the Schedule Definitions and Schedule Patterns that have been defined on the Systemwalker Runbook Automation Management Server will be exported.

-sd *Schedule Definition name*

Specify the name of the Schedule Definition to be exported. Specify a Schedule Definition that exists in the process group specified by the "-pg" option. An error will occur if the Process Definition specified by this option does not exist in the process group specified by the "-pg" option. Similarly, an error will occur if this option is specified without specifying the "-pg" option.

-sp *Schedule Pattern name*

Specify the name of the Schedule Pattern to be exported. Specify a Schedule Pattern that exists in the process group specified by the "-pg" option. An error will occur if the process pattern specified by this option does not exist in the process group specified by the "-pg" option. Similarly, an error will occur if this option is specified without specifying the "-pg" option.

If the "-pg" option is specified when the "-sd" and "-sp" options are omitted, all of the Schedule Definitions and Schedule Patterns defined in the process group specified by the "-pg" option will be exported.

-d export directory

Specify the directory to which the Schedule Definition and Schedule Pattern are to be exported. The Schedule Definitions and Schedule Patterns will be output to the directory specified by this option, in the following structure. This option cannot be omitted.

```
- Export directory
- Process group ID
  - Schedule Definition name
    - Schedule Definition
  - - Schedule Pattern name
    - Schedule Pattern
```

Return Values

0:

Normal termination

Other than 0:

Abnormal termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation Management Server installation directory>\bin
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVswrbam/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Process Management Server

[Linux]

- This command can only be executed by a system administrator (superuser).
- This command can be executed on a Process Management Server

Note

- Do not edit the exported Schedule Definitions or Schedule Patterns. Schedule Definitions and Schedule Patterns that have been edited cannot be imported correctly.

Example

The following command exports all of the Schedule Definitions and Schedule Patterns in the "sample0001" process group to the "C:\work" directory.

```
swrba_scheduleexport -pg sample0001 -d C:\work
```

Execution Result/Output Format

```
FSP_SW/RB-A_BASE: INFO: 04200: Schedule definition/schedule pattern export is about to start.
FSP_SW/RB-A_BASE: INFO: 04206: The schedule definition/schedule pattern was exported. Process group
ID:CTRESUME_01 Number exported:0
FSP_SW/RB-A_BASE: INFO: 04206: The schedule definition/schedule pattern was exported. Process group
ID:System Number exported:2
FSP_SW/RB-A_BASE: INFO: 04202: Schedule definition/schedule pattern export has finished.
```

1.5 Maintenance Commands

This section explains the Systemwalker Runbook Automation maintenance commands.

1.5.1 swrba_pre_chghostinf (Host Name/IP Address Preprocess Command)

Description

Use this command when changing the host name/IP address of the server that is running the Management Server.

Execute this command before changing the host data of the server running the Management Server. Afterwards, use the host name/IP address postprocess command to complete the process.

Synopsis

```
swrba_pre_chghostinf -i <IP address> -d <work area>
```

Options

-i <IP address>

Specify the IP address to be changed in the IPv4 format. If the IP address need not be changed, use the IP address of one of the servers running the Management Server.

-d <work area>

The empty directory which used as work area is specified by the absolute path within 25 alphanumeric characters.

You can not delete work area until swrba_post_chghostinf (Host Name/IP Address Postprocess Command) has been completed.

The rough amount of space for work area is as follows.

```
The requisite amount of work area =
```

```
Total amount of under install directory of Interstage Application Server (*1) x 1.2
```

*1: The install directory of Interstage Application Server is as below.

[Windows]

- It is any of the following directories.
- If standard install
C:\Fujitsu\Systemwalker\IAPS
- If custom install
[The directory specified as install direction]\IAPS

[Linux]

It is total amount of the following directory

/var/opt/FJSVejb

/var/opt/FJSVena

/var/opt/FJSVes

| | | |
|--------------------|--------------------|--------------------|
| /var/opt/FJSVextp | /var/opt/FJSVihs | /var/opt/FJSVisas |
| /var/opt/FJSVisgui | /var/opt/FJSVisjee | /var/opt/FJSVisjmx |
| /var/opt/FJSVisscs | /var/opt/FJSVj2ee | /var/opt/FJSVjms |
| /var/opt/FJSVjs2su | /var/opt/FJSVjs5 | /var/opt/FJSVod |
| /var/opt/FJSVots | /var/opt/FJSVporb | /var/opt/FJSVshs |
| /var/opt/FJSVssoac | /var/opt/FJSVssoaz | /var/opt/FJSVssocm |
| /var/opt/FJSVssofs | /var/opt/FJSVssosv | /var/opt/FJSVtd |
| /etc/opt/FJSVejb | /etc/opt/FJSVes | /etc/opt/FJSVextp |
| /etc/opt/FJSVihs | /etc/opt/FJSVisas | /etc/opt/FJSVisgui |
| /etc/opt/FJSVisjee | /etc/opt/FJSVisjmx | /etc/opt/FJSVisscs |
| /etc/opt/FJSVj2ee | /etc/opt/FJSVjms | /etc/opt/FJSVjs2su |
| /etc/opt/FJSVjs5 | /etc/opt/FJSVod | /etc/opt/FJSVots |
| /etc/opt/FJSVporb | /etc/opt/FJSVsclr | /etc/opt/FJSVshs |
| /etc/opt/FJSVssoac | /etc/opt/FJSVssoaz | /etc/opt/FJSVssofs |
| /etc/opt/FJSVssosv | /etc/opt/FJSVtd | |

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

<Systemwalker Runbook Automation Management Server installation directory>\bin

Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM

[Linux]

/opt/FJSVswrbam/bin

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.
- Management Server must be stopped.

[Linux]

- This can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server.
- Management Server must be stopped.

Example

[Windows]

```
swrba_pre_chghostinf -i 192.0.2.1 -d D:\Work
```

[Linux]

```
swrba_pre_chghostinf -i 192.0.2.1 -d /Work
```

1.5.2 swrba_post_chghostinf (Host Name/IP Address Postprocess Command)

Description

Use this command when changing the host name/IP address of the server that is running the Management Server.

Execute this command after changing the host data of the server running the Management Server. Before changing host data, use the host name/IP address preprocess command.

Synopsis

If changing IP address

```
swrba_post_chghostinf -i <IP address>
```

If changing host name

```
swrba_post_chghostinf -h <host name>
```

If changing both host name and IP address

```
swrba_post_chghostinf -h <host name> -i <IP address>
```

Options

-h *host name*

Specifies the host name after the change.

-i *IP address*

Specify the IP address after the change in the IPv4 format. Specify when changing the IP address.

Return Values

0:

Normal termination

Other than 0:

Abnormal termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation Management Server installation directory>\bin
```


Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM

[Linux]

/opt/FJSVswrbam/bin

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server
- Management Server must be stopped.

[Linux]

- This can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server.
- Management Server must be stopped.

Example

Change host name to SWRBA and IP address to "192.0.2.10":

```
swrba_post_chghostinf -h SWRBA -i 192.0.2.10
```

1.5.3 swrba_backup (Backup Command)

Description

This command backs up Systemwalker Runbook Automation resources on a Management Server to a specified backup destination directory.

Synopsis

```
swrba_backup Backup destination directory
```

Options

Backup destination directory

- Specifies the full pathname of the directory that will become the backup destination.
- If the backup destination directory already exists, it must not contain any files or subdirectories.
- If the backup destination directory does not exist, it is created.
- Only alphanumeric characters can be specified. The directory path cannot include symbols or spaces.
- The maximum length of a path is 32 characters.

Return Values

- 0:
Normal termination
- 1:
Abnormal termination

Undefined:

Forced termination

Command Location

[Windows]

<Systemwalker Runbook Automation installation directory>\bin
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM

[Linux]

/opt/FJSVswrbam/bin

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- Systemwalker Runbook Automation must have stopped.
- This command can be executed on a Management Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- Systemwalker Runbook Automation must have stopped.
- This command can be executed on a Management Server.

Note

- Back up the resources according to the procedure described in "*Backing up Systemwalker Runbook Automation*" on the *Systemwalker Runbook Automation Installation Guide*.
- Execute this command as part of the process of backing up Systemwalker Operation Manager. If Systemwalker Runbook Automation is running in conjunction with Systemwalker Operation Manager, execute this command at the same time as backing up Systemwalker Operation Manager.
- Check that Systemwalker Runbook Automation has been set up.
- Before executing this command, check the following:
 - that write to the backup destination directory is possible.
 - that the backup destination directory is an empty directory, or a directory that does not already exist.
 - that the available disk capacity of the backup destination is large enough to back up the user resources.

[Linux]

- For the backup directory, specify the full path to a location that the oms user can look up.

Example

[Windows]

The resources are backed up to C:\backup:

```
swrba_backup C:\backup
```

[Linux]

The resources are backed up to /usr/backup:

```
/opt/FJSVswrbam/bin/swrba_backup /usr/backup
```

1.5.4 swrba_restore (Restore Command)

Description

This command restores Systemwalker Runbook Automation resources that have been backed up to the backup destination directory.

Synopsis

```
swrba_restore Backup destination directory
```

Options

Backup destination directory

Specifies the full pathname of the directory containing the backup data.

Only alphanumeric characters can be specified. The directory path cannot include symbols or spaces.

The maximum length of a path is 32 characters.

Return Values

0:

Normal termination

1:

Abnormal termination

Undefined:

Forced termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\bin  
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVswrbam/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.

- Systemwalker Runbook Automation must have stopped.
- This command can be executed on a Management Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- Systemwalker Runbook Automation must have stopped.
- This command can be executed on a Management Server.

Note

- Restore the resources according to the procedure described in "*Restoring Systemwalker Runbook Automation*" in the *Systemwalker Runbook Automation Installation Guide*.
- Execute this command as part of the process of restoring Systemwalker Operation Manager. If Systemwalker Runbook Automation is running in conjunction with Systemwalker Operation Manager, execute this command at the same time as restoring Systemwalker Operation Manager.
- Before executing this command, you must check whether the backup destination directory and Systemwalker Runbook Automation installation directory can be accessed.
- Before executing this command, you must check that there is sufficient capacity available in the Systemwalker Runbook Automation installation directory on the restore destination machine.
- The only resources that can be restored are those that were backed up using the backup command of this version.
- Operation system types, installation types, Systemwalker Runbook Automation installation directories and code types used on the backup source machine and restore destination machine must be the same.

[Linux]

- For the backup directory, specify the full path to a location that the oms user can look up.

Example

[Windows]

The following command restores the resources that have been backed up to C:\backup:

```
swrba_restore C:\backup
```

[Linux]

The following command restores the resources that have been backed up to /usr/backup:

```
/opt/FJSVswrbam/bin/swrba_restore /usr/backup
```

1.5.5 swrba_collectinfo (Error Investigation Data Collection Command)

Description

This command collects information for investigating Systemwalker Runbook Automation into a specified data collection directory on a Management Server.

Synopsis

```
swrba_collectinfo Data collection directory
```

Options

Data collection directory

Specifies the directory where Systemwalker Runbook Automation investigation data is stored.

It is necessary to specify an existing directory. The specified directory must also not contain any files or subdirectories.

It is not possible to specify a directory name that contains spaces.

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\bin  
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVswrbam/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- This command can be executed on a Management Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- This command can be executed on a Management Server.

Example

[Windows]

```
swrba_collectinfo c:\temp
```

[Linux]

```
/opt/FJSVswrbam/bin/swrba_collectinfo /tmp/pminfo
```

Note

- Specify the data collection directory with up to 50 bytes for. If it is larger than 50 bytes, some information might not be collected correctly.

Execution Result/Output Format

[Windows]

```
Information was collected in c:\temp
```

[Linux]

```
Information was collected in /tmp/pminfo
```

1.5.6 swrba_collectinfo_agent (Agent Error Investigation Data Collection Command)

Description

This command collects the investigation data for Systemwalker Runbook Automation Agent and stores it in the specified data collection directory on the Linked Server.

Synopsis

```
swrba_collectinfo_agent Data collection directory
```

Options

Data collection directory

Specifies the directory that stores the Systemwalker Runbook Automation Agent investigation data.

It is necessary to specify an existing directory. The specified directory must also not contain any files or subdirectories.

It is not possible to specify a directory name that contains spaces.

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\bin  
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAA
```

[Linux]

```
/opt/FJSVswrbaa/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.

- This command can be executed on a Linked Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- This command can be executed on a Linked Server.

Example

[Windows]

```
swrba_collectinfo_agent c:\temp
```

[Linux]

```
/opt/FJSVswrbaa/bin/swrba_collectinfo_agent /tmp/info
```

Execution Result/Output Format

[Windows]

```
Information was collected in (c:\temp)
```

[Linux]

```
Information was collected in (/tmp/info).
```

1.5.7 ssocbackup (Interstage Single Sign-On Backup Command)

Description

The environment created by the configuration command (ssocsetup) in Interstage single sign-on is backed up.

The backup resources, the files and the stored destination are as follows:

| Resources | Files (Note 1) | Stored destination (Note 2) (upper line [Windows] lower line [Linux]) |
|---------------------------|---|--|
| Interstage Single Sign-on | - The definition file of the repository server | <Backup directory>\ssoroot\SSO\sv_back <Backup directory>/ssoroot/FJSVssosv_back |
| | - The definition file of authentication server - The message file displayed on Web browser of the authentication server. | <Backup directory>\ssoroot\SSO\ac_back <Backup directory>/ssoroot/FJSVssosac_back |
| | - The definition file of the Business Server - Message file displayed on Web browser of Business Server. | <Backup directory>\ssoroot\SSO\az_back <Backup directory>/ssoroot/FJSVssosaz_back |
| | Interstage HTTP Server | The following files in all Web servers. - The environment definition file in Interstage HTTP Server |

| Resources | Files (Note 1) | Stored destination (Note 2) (upper line [Windows] lower line [Linux]) |
|------------------------------------|--|---|
| | <ul style="list-style-type: none"> - Password file - Root directory for publishing. | |
| Interstage Directory Service | The following files of repositories using as SSO repository. <ul style="list-style-type: none"> - The repository - The repository data - Access log | <Backup directory>\ssoroot\IDS\rep_back\ <Backup directory>/ssoroot/FJSVirep/ rep_back.tar.gz |
| Interstage Certificate Environment | <ul style="list-style-type: none"> - The file for the certificate environment - SSL definition file | <Backup directory>\ssoroot\SCS\ <Backup directory>/ssoroot/FJSVisscs/ |

Additionally, the backed up environment information is stored in the following files.

| Stored information | Details | Stored destination (upper line [Windows] lower line [Linux]) |
|---|--|--|
| SSO repository name | The backed up SSO repository name is stored by text format. | <Backup directory>\ssoroot\info \rep_name.txt <Backup directory>/ssoroot/info/ rep_name.txt |
| Setting information of SSO repository | The setting information of the backed up SSO repository. | <Backup directory>\ssoroot\info \rep_config.txt <Backup directory>/ssoroot/info/ rep_config.txt |
| The list of Interstage HTTP Server Web server names | The list of the backed up Web server names is stored by text format. | <Backup directory>\ssoroot\info \web_server_list.txt <Backup directory>/ssoroot\info/ web_server_list.txt |

Note 1) Refer to "Maintenance (Resource Backup)" in *Interstage Application Operator's Guide* for details on files.

Note 2) This is a destination to store each backup resource. Specify this path when only a part of resources is restored individually. Refer to "Maintenance (Resource Backup)" in *Interstage Application Operator's Guide* for information on restoring individually.

Synopsis

```
ssocbackup backup directory
```

Options

Backup directory

The directory which stores backup resources is specified by the absolute path. Specify a path with up to 100 bytes. When the specified backup directory doesn't exist, a directory is created.

[Windows]

The following characters cannot be used as a backup directory name. However, ":" (colon) can be used to specify a drive letter and "\" (yen mark) can be used as a separator between directories.


```
.;/*?\<>|",
```

[Linux]

When "/" (slash) is specified for the backup directory name, it is treated as a separator between directories.

Return Values

0:

Normal termination

2:

Abnormal termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\sso\bin  
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVswrbaa/sso/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- Systemwalker Runbook Automation should be stopped.
- This command can be executed on a Management Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- Systemwalker Runbook Automation should be stopped.
- This command can be executed on a Management Server.

Note

- Do not execute this command multiple times simultaneously.
- Backup and restoring can be done only on the same OS.
- Do not back up during backup or restoring on the same server.
- Before starting backup, stop all services related to Interstage single sign-on. Refer to "[1.3.4 ssoclservicectl \(Interstage Single Sign-On Start and Stop Command\)](#)" for information about ssoclservicectl command.
- This command ends with error when backup resources under backup directories ("ssoroot" directory) exist.
- Execute this command only for the environment created by the command (ssoclservicectl) that configures Interstage single sign-on system. When the single sign-on system created by not using configuration command is backed up, back up referring to "Maintenance (Resource Backup)" - "Backing Up and Restoring Resources" in *Interstage Application Operator's Guide*.

- When there are contents and CGI, etc. except under the directory specified by DocumentRoot Directive of Interstage HTTP Server, back up corresponding files for each of them separately by the following methods.

[Windows]

copy command or explorer

[Linux]

cp command

- After starting this command, if the process is interrupted before the process is completed, the backup

Example

[Windows]

For example: restore "C:\backup"

```
ssocbackup C:\backup
```

[Linux]

For example: restore "/usr/backup"

```
/opt/FJSVswrbam/bin/ ssocbackup /usr/backup
```

1.5.8 ssocrestore (Interstage Single Sign-On Restore Command)

Description

The environment of Interstage single sign-on which was backed up by the ssocbackup command is restored. The followings are restored.

- The following servers of Interstage single sign-on.
 - Repository server
 - Authentication server
 - Business server
- SSO repository
- Interstage HTTP Server
- Interstage Certificate Environment

However, SSO repository and Interstage HTTP Server have to be one of the following statuses when this command is executed.

[SSO Repository](Note 1)

- The repository with the same name as SSO repository which is backed up exists and the following settings are the same as the backed up SSO repository. (Note 2)
 - Destination to store the database
 - Published directory
 - Encryption scheme of the user password
- The repository with the same name as SSO repository which is backed up doesn't exist.

[Interstage HTTP Server](Note 3)

- All of number of Web servers and Web server names match the backed up operation environment. (Note 4)
- No Web servers exist.

- Just after the installation of the product

Note 1) Check the status of the repository configuration in **System >> Service >> Repository >> repository name >> Environment setting** in Interstage Management console.

Note 2) Refer to information which was saved when the ssocbackup command was executed for information on SSO repository name of SSO repository and the setting information when they were backed up.

Note 3) Check the status of Interstage HTTP Server configuration by the ihdisp command. Refer to "12 Interstage HTTP Server Operation Commands" in "Web Server Operation Edition" of *Interstage Application Server Reference Manual (Command Edition)* for information on the ihdisp command.

Note 4) Refer to the list of Web server names in Interstage HTTP Server which was saved when the ssocbackup command was executed.

Synopsis

```
ssocrestore backup directory
```

Options

Backup directory

[Windows]

The following characters cannot be used as a backup directory name. However, ":" (colon) can be used to specify a drive letter and "\" (yen mark) can be used as a separator between directories.

```
:/ * ? \ < > | " ,
```

[Linux]

When "/" (slash) is specified for the backup directory name, it is treated as a separator between directories.

Messages

After executing this command, the list of the resources which were backed up in the specified back up directory is displayed as below. After that, the message appears whether you would like to restore the resources. Check the list and enter "yes" when you continue restoring the process. The meaning of the resources is as follows.

| Resource name | Description |
|------------------------------------|---|
| Repository Server | Repository server resource |
| Authentication Server | Authentication server resource |
| Business Server | Business server resources |
| Web Server | Interstage HTTP Server resource |
| SSO Repository (Repository name) | SSO repository resource |
| Interstage Certificate Environment | Interstage Certificate Environment resource |

Return Values

0:

Normal termination

2:

Abnormal termination

Command Location

[Windows]

<Systemwalker Runbook Automation installation directory>\sso\bin
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM

[Linux]

/opt/FJSVswrbam/sso/bin

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- Systemwalker Runbook Automation should be stopped.
- This command can be executed on a Management Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- Systemwalker Runbook Automation should be stopped.
- This command can be executed on a Management Server.

Note

- Do not execute this command multiple times simultaneously.
- Backup and restore can be done only on the same OS.
- The environment variable (LANG) must be the same value as that when it is backed up.
- Do not restore during backup or restoring on the same server.
- Before the restoring is started, stop all services related to Interstage single sign-on by using the `ssoclservicectl` command. Refer to "[1.3.4 ssoclservicectl \(Interstage Single Sign-On Start and Stop Command\)](#)" for information on `ssoclservicectl` command.
- When backup resources under the backup directory are insufficient, this command ends up with an error. Refer to "[1.5.7 ssocbackup \(Interstage Single Sign-On Backup Command\)](#)" for information on backup resources.
- When the backed up repository is restored, repository name, destination to store database and the destination of access log become the same environment as the backed up environment. When there are no paths of the destinations to store database or to store the access log, restore them after creating the paths.
- When there are contents and CGI, etc. except under the directory specified by DocumentRoot Directive in Interstage HTTP Server, restore corresponding files for each of them separately by the following methods.

[Windows]

copy command or Explorer

[Linux]

cp command

- Note the following points when the restoring is executed by this command after reinstallation of the product.
 - Setting up by the `ssocsetup` command is not necessary.
 - The machine installed the product must have the same disk structure as that when it was backed up.
 - Set the same installation path of the product as that when it was backed up.
- When there are any services which failed to restore after this command is executed, solve the problem by checking the output message and execute the command again.

After starting this command, when the process is interrupted before the process is completed, the backup isn't ended normally. In this case, execute the command again.

Example

[Windows]

For example: Backup directory is "X:\backup"

```
> ssocrestore X:\backup
Repository Server
Authentication Server
Business Server
Web Server
SSO Repository (rep001)
Interstage Certificate Environment
Are you sure to restore the Single Sign-on system? (yes/no)yes
IHS: INFO: ihs81407: The restore processing has commenced.
IHS: INFO: ihs81408: The restore processing has been completed normally
```

[Linux]

For example: Backup directory is "/backup"

```
> /opt/FJSVswrbam/sso/bin/ssocrestore /backup
Repository Server
Authentication Server
Business Server
Web Server
SSO Repository (rep001)
Interstage Certificate Environment
Are you sure to restore the Single Sign-on system? (yes/no)yes
IHS: INFO: ihs81407: The restore processing has commenced.
IHS: INFO: ihs81408: The restore processing has been completed normally
```

1.5.9 cmdbbbackup (CMDB Backup Command)

Description

This command backs up CMDB assets to a specified directory.

Synopsis

[Windows]

```
cmdbbbackup.bat -d backup destination directory
```

[Linux]

```
cmdbbbackup.sh -d backup destination directory
```

Options

-d *backup destination directory*

Specifies the full pathname of the directory where assets are backed up.
If the specified directory does not exist, it is created automatically.
It is not possible to specify a directory name that contains spaces.

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\CMDB\FJSVcmdbm\bin  
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVcmdbm/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- CMDB Manager must have stopped.
- This command can be executed on a Management Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- CMDB Manager must have stopped.
- This command can be executed on a Management Server.

Note

If the directory already exists when this command is executed, it is overwritten. To restore resources on another machine, the resources must be transferred to the target machine manually. Additionally, CMDB Manager must be stopped before this command is executed.

[Linux]

- For the backup directory, specify the full path to a location that the oms user can look up.

1.5.10 cmdbrestore (CMDB Restore Command)

Description

This command restores CMDB assets that have been stored in a backup directory.

Synopsis

[Windows]

```
cmdbrestore.bat -d backup asset directory
```

[Linux]

```
cmdbrestore.sh -d backup asset directory
```

Options

-d *backup asset directory*

Specifies the full pathname of the directory where assets are backed up.
It is not possible to specify a directory name that contains spaces.

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

```
<Systemwalker Runbook Automation installation directory>\CMDB\FJSCmdbm\bin  
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSCmdbm/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- CMDB Manager must have stopped.
- This command can be executed on a Management Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- CMDB Manager must have stopped.
- This command can be executed on a Management Server.

Note

[Windows]

- If the directory already exists when this command is executed, it is overwritten. To restore resources on another machine, the resources must be transferred to the target machine manually. Additionally, CMDB Manager must be stopped before this command is executed.

[Linux]

- If the directory already exists when this command is executed, it is overwritten. To restore resources on another machine, the resources must be transferred to the target machine manually. Additionally, CMDB Manager must be stopped before this command is executed.
- For the backup directory, specify the full path to a location that the oms user can look up.

1.5.11 cmdbgetinfo (CMDB Error Investigation Data Collection Command)

Description

This command collects CMDB maintenance information.

Synopsis

[Windows]

```
cmdbgetinfo.bat -d storage directory
```

[Linux]

```
cmdbgetinfo.sh -d storage directory
```

Options

-d *storage directory*

Specifies the directory where the collected maintenance information is stored.

It is not possible to specify a directory name that contains spaces.

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

- Management Server

[Windows]

```
<Systemwalker Runbook Automation installation directory>\CMDB\FJSVcmdbm\bin  
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVcmdbm/bin
```

- Linked Server

[Windows]

```
%SWCMDB_INSTALL_PATH%\FJSVcmdba\bin
```


Note: The installation destination of the CMDB agent included in the agent of Systemwalker Runbook Automation is set to environment variable %SWCMDB_INSTALL_PATH%.

[Linux]

/opt/FJSVcmdba/bin

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- CMDB Manager must have stopped.
- This command can be executed on a Management Server and Linked Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- CMDB Manager must have stopped.
- This command can be executed on a Management Server and Linked Server.

Note

Note that if maintenance information has already been collected in the storage directory, it will be overwritten.

1.5.12 swrba_recoverprocess (Process Instance Recovery Command)

Description

This command recovery error state process instance because of the following condition of all process instances

- In case the Management Server stops due to system overflow while operation component node is running.

After recovering Management Server, with executing this command, the process instance recovered successfully can be resumed by running operation component node.

Synopsis

swrba_recoverprocess

Options

none

Return Values

0:

Normal termination

Value other than 0:

Abnormal termination

Command Location

[Windows]

```
[Systemwalker Runbook Automation install directory]\bin  
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM
```

[Linux]

```
/opt/FJSVswrbam/bin
```

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges. When using Windows Server 2008 or later operating system, run as an administrator.
- Systemwalker Runbook Automation must have started.
- This command can be executed on a Management Server.

[Linux]

- This can only be executed by a system administrator (superuser).
- Systemwalker Runbook Automation must have started.
- This command can be executed on a Management Server.

Note

- If there are many process instance which to be recovered, you must recover all them. Also the messages are output if it is recovered successfully or not for each them.

Execution Result/Output Format

- When it is successfully to recovery process instance, the following messages are output

```
PROCESSID:Process instance ID(ACTIVITYID:Activity ID) is recovered
```

- When it is not successfully to recovery process instance, the following messages and error messages are output

```
PROCESSID:Process ID(ACTIVITYID:Activity ID) recovery failed  
FSP_SW/RB-A_BASE: ERROR: . . .
```

1.5.13 swrbaexport (Setup Information Export Command)

Description

This command exports the set up information of Systemwalker Runbook Automation Studio. The exported information is output as a file.

Synopsis

```
Swrbaexport Path of the set up information file
```

Options

Path of the set up information file

Specify the path for *the set up information file*. You can use the absolute path and the relative path.

Return Values

| Return Value | Meaning |
|--------------|--|
| 0 | Normal termination |
| 1 | The specified parameter is invalid. Confirm the parameter and execute this command again. |
| 2 | The specified set up information file cannot be made. Specify an effective set up information file and execute this command again. |
| 255 | Other errors occurred. |

Command Location

| | |
|---------|---|
| Windows | <Systemwalker Runbook Automation Studio installation directory>\swrba \bin |
|---------|---|

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges.
- This command can be executed on a computer for Development Computer.

Note

- When the tail of path is not .zip, this command adds .zip to the tail of path, and exports the file.
- For more information about this command, refer to Systemwalker Runbook Automation Studio Maintenance Command Messages in *Systemwalker Runbook Automation Messages Guide*.

Example

The following command exports the set up information to C:\work\swrbaconfig.zip

```
swrbaexport C:\work\swrbaconfig.zip
```

Execution Result/Output Format

When the export of the set up information succeeds:

```
> swrbaexport C:\work\swrbaconfig.zip  
SUCCESS "C:\work\swrbaconfig.zip"
```

When the mistake exists in the parameter:

```
> swrbaexport  
Usage: swrbaexport "export_file_path"
```

When the export of the set up information fails:

```
> swrbaexport C:\work\swrbaconfig.zip
```

```
FAILURE [%1]: %2(%3)
```

%1: Return code

%2: Error message

%3: Detailed information

1.5.14 swrbaimport (Setup Information Import Command)

Description

This command imports the set up information of Systemwalker Runbook Automation Studio.

Synopsis

```
swrbaimport Path of the set up information file
```

Options

Path of the set up information file

Specify the path for *the set up information file*. You can use the absolute path and the relative path.

When the specified file doesn't exist, this command outputs an error.

Return Values

| Return Value | Meaning |
|--------------|---|
| 0 | Normal termination |
| 1 | The specified parameter is invalid. Confirm the parameter and execute this command again. |
| 2 | The import of the set up information failed. Specify an effective set up information file and execute this command again. |
| 255 | Other errors occurred. |

Command Location

| | |
|---------|--|
| Windows | < <i>Systemwalker Runbook Automation Studio installation directory</i> >\swrba \bin |
|---------|--|

Privilege Required/Execution Environment

[Windows]

- This command requires administrator privileges.
- This command can be executed on a computer for Development Computer.

Note

- For more information about this command, refer to Systemwalker Runbook Automation Studio Maintenance Command Messages in *Systemwalker Runbook Automation Messages Guide*.

Example

The following command imports the set up information from C:\work\swrbaconfig.zip

```
swrbaimport C:\work\swrbaconfig.zip
```

Execution Result/Output Format

When the import of the set up information succeeds:

```
> swrbaimport C:\work\swrbaconfig.zip  
SUCCESS
```

When the mistake exists in the parameter:

```
> swrbaimport  
Usage: swrbaimport "import_file_path"
```

When the import of the set up information fails:

```
> swrbaimport C:\work\swrbaconfig.zip  
FAILURE [%1]: %2(%3)
```

%1: Return code

%2: Error message

%3: Detailed information

1.5.15 swrbacolinf (Maintenance Data Collection Command)

Description

This command collects maintenance information of Systemwalker Runbook Automation Studio. When the trouble occurred, collect maintenance information by using this command. Collected maintenance information is output to the file of the name of swrbacolinfyyyy-MM-dd-HH-mm-ss.dat under the control of the specified folder.

Synopsis

```
swrbacolinf Path of the output file
```

Options

Path of the output file

Specify the path of the file that is output the maintenance information. You can use the absolute path and the relative path.

Return Values

| Return Value | Meaning |
|--------------|---|
| 0 | Normal termination |
| 1 | The specified parameter is invalid. Confirm the parameter and execute this command again. |
| 2 | The file cannot be made in the specified pass. Specify the pass that can make the file, and execute this command again. |
| 255 | Other errors occurred. |

Command Location

| | |
|---------|---|
| Windows | <Systemwalker Runbook Automation Studio installation directory>\swrba\bin |
|---------|---|

Privilege Required/Execution Environment

[Windows]

- This command requires Users privileges.
- This command can be executed on a Development Computer.

Note

- For more information about this command, refer to Systemwalker Runbook Automation Studio Maintenance Command Messages in *Systemwalker Runbook Automation Messages Guide*.

Example

The following command collects the maintenance information from C:\work.

```
swrbacolinf C:\work
```

Execution Result/Output Format

When the collection of the maintenance information succeeds:

```
> swrbacolinf C:\work  
SUCCESS "C:\work\swrbacolinf2010-05-06-16-10-44.dat"
```

When the mistake exists in the parameter:

```
> swrbacolinf  
Usage: swrbacolinf "output_folder_path"
```

When the collection of the maintenance information fails:

```
> swrbacolinf C:\work  
FAILURE [%1]: %2(%3)
```

%1: Return code

%2: Error message

%3: Detailed information

Chapter 2 File Reference

This chapter explains each setting files in detail.

2.1 Definition File for Agent

File Name

mdrdb.user

Use

Set IP format which preferentially-detected in an agent for collecting IT resource information and an agent for the node automatic operation detection. Also, specify the subnet address for node detection, the subnet mask, and the SNMP community name when you set up an agent (AGT_ADSC) for the node automatic operation detection.

File Location

- Management Server

| | |
|---------|---|
| Windows | [<i>CMDB manager's data base storage directory</i>]\FJSVcmdba\etc |
| Linux | /etc/opt/FJSVcmdba/etc |

- Linked Server

| | |
|---------|---|
| Windows | [<i>Agent installed directory</i>]\CMDB\FJSVcmdba\etc |
| Linux | /etc/opt/FJSVcmdba/etc |

File Format

```
Mdbad.autodiscovery.network.address= subnet address  
mdbad.autodiscovery.network.subnetmask= subnet mask  
mdbad.autodiscovery.snmp.community= SNMP community name  
mdbad.common.ipaddress.preferIPv6= preferred setting for IPv4/IPv6
```

Parameter

`mdbad.autodiscovery.network.address`

Specify the subnet address.

When you specify two or more address, specify it by comma (,) delimitation.

When you detect node of a Management Server, or a subnet of Linked Server, you can omit this item.

If you omit this item, the node is detected from IPv4 subnet belonging to Management Server or Linked Server. When you specify the subnet address, the agent detects only node of the specified subnet.

Therefore, when you specify a Management Server or a subnet of Linked Server or other subnet, specify all subnet address including Management Server and subnet of Linked Server.

IP addresses in IPv4 and IPv6 formats cannot be specified collectively.

`mdbad.autodiscovery.network.subnetmask`

Specify the subnet mask.

For IPv6 environments, specify the length of the subnet prefix.

mdbad.autodiscovery.snmp.community

Specify the "public" for SNMP community name.

mdbad.common.ipaddress.preferIPv6

To make IPv6 address a priority when collecting configuration information of IPv4/IPv6 dual-stack environments, specify "true".

Note

- Do not change items other than the above-mentioned entry,
- When you edit this file for the Management Server, the change becomes effective by restarting Systemwalker Runbook Automation. When you edit this file for the Linked Server, the change becomes effective by restarting the agent service.

Example

For IPv4 environments

```
# Subnet address where node is retrieved
mdbad.autodiscovery.network.address= 192.0.2.0,198.51.100.0

# Subnet mask for node retrieval
mdbad.autodiscovery.network.subnetmask=255.255.255.0

# Community name of SNMP
mdbad.autodiscovery.snmp.community=public
```

For IPv6 environments

```
# Subnet address where node is retrieved
mdbad.autodiscovery.network.address= 2001:db8:0:100::

# Subnet mask for node retrieval
mdbad.autodiscovery.network.subnetmask=64

# Community name of SNMP
mdbad.autodiscovery.snmp.community=public
```

For making IPv6 address a priority in IPv4/IPv6 dual-stack environments

```
# Using IPv6 address in preference to IPv4 address.
mdbad.common.ipaddress.preferIPv6=true
```

2.2 Definition File for Collecting Information of IT Resource

File name

```
mdr_inv.properties
```

Use

When you set up an agent (AGT_INV) for collecting IT resource information, specify the subnet address for node detection, the subnet mask, and the SNMP community name.

When you don't set up an agent (AGT_INV) for collecting IT resource information, there is no need to edit this file.

Additionally, for large system, you can collect IT resource information sequentially by dividing the subnet into two or more groups.

Use

- Management Server

| | |
|---------|---|
| Windows | [<i>CMDB manager's data base storage directory</i>]\FJSVcmdba\etc |
| Linux | /etc/opt/FJSVcmdba/etc |

- Linked Server

| | |
|---------|--|
| Windows | [[<i>Agent installed directory</i>]\CMDB\FJSVcmdba\etc |
| Linux | /etc/opt/FJSVcmdba/etc |

File Format

```
[Group name].mdbad.inventory.network.address=Subnet address
[Group name].mdbad.inventory.network.subnetmask= Subnet mask
[Group name].mdbad.inventory.snmp.community= SNMP community name is public
[Group name].mdbad.inventory.node.discovery.ignore=Disregard of node detection
```

Parameter

[Group name].mdbad.inventory.network.address

Specify the subnet address.

When you specify two or more address, specify it by comma (,) delimitation.

When you detect node of a Management Server, or a subnet of Linked Server, you can omit this item.

If you omit this item, the node is detected from IPv4 subnet belonging to Management Server or Linked Server. When you specify the subnet address, the agent detects only node of the specified subnet.

IP addresses in IPv4 and IPv6 formats cannot be specified collectively. Separate them into different groups.

[Group name].mdbad.inventory.network.subnetmask

Specify the subnet mask.

For IPv6 environments, specify the length of the subnet prefix.

[Group name].mdbad.inventory.snmp.community

Specify "public" for SNMP community name.

[Group name].mdbad.inventory.node.discovery.ignore

Specify whether the node detection is disregarded or not.

true: Node is not detected.

false: Node is detected.

The agent (AGT_INV) execute detection of node automatically first, and then reflect the IT resource information to detected node.

When "true" is set to this parameter, the agent doesn't execute regular node detection, and the agent gather information from already detected node.

When you want to gather IT resource information after the detection of node every time, specify "false" to this parameter.

However, when you use "cmdbrefresh" command, even if "true" is set to this parameter, the agent detects IT resource information.

Note

- Don't change items other than the above-mentioned entry.
- When you collect IT resource information by dividing subnet into groups, specify group name at the head of each parameter.

- When you divide the description into two or more groups, change group name and describe four parameters for each groups.
- When you collect all IT resource information at a time, there is no need to specify group name.
- You can collect information along specified schedule in each group when you specify AGT_INT in definition file for collection of configuration information.
- To collect IT resource information from IPv4 and IPv6 environments, separate them into different groups.

Example

```
# default
mdbad.inventory.network.address=
mdbad.inventory.network.subnetmask=255.255.255.0
mdbad.inventory.snmp.community=public
mdbad.inventory.node.discovery.ignore=true

# group1
group1.mdbad.inventory.network.address= 192.0.2.0
group1.mdbad.inventory.network.subnetmask=255.255.255.0
group1.mdbad.inventory.snmp.community=public
group1.mdbad.inventory.node.discovery.ignore=true

# group2
group2.mdbad.inventory.network.address= 198.51.100.0
group2.mdbad.inventory.network.subnetmask=255.255.255.0
group2.mdbad.inventory.snmp.community=public
group2.mdbad.inventory.node.discovery.ignore=true

# group3
group3.mdbad.inventory.network.address= 203.0.113.0
group3.mdbad.inventory.network.subnetmask=255.255.255.0
group3.mdbad.inventory.snmp.community=public
group3.mdbad.inventory.node.discovery.ignore=true

# group4
group4.mdbad.inventory.network.address=2001:db8:0:100::
group4.mdbad.inventory.network.subnetmask=64
group4.mdbad.inventory.snmp.community=public
group4.mdbad.inventory.node.discovery.ignore=true
```

2.3 Definition File for Collection of Configuration Information

File name

```
schedule.conf
```

Use

Specify operation schedule of an agent for connecting configuration information.

File Location

- Management Server (three hierarchical composition)

| | |
|---------|---|
| Windows | [<i>CMDB manager's data base storage directory</i>]\FJSVcmdba\etc |
| Linux | /etc/opt/FJSVcmdba/etc |

- Linked Server

| | |
|---------|---|
| Windows | [[Agent installed directory]\CMDB\FJSVcmdba\etc |
| Linux | /etc/opt/FJSVcmdba/etc |

File Format

```
#] <agent type> <minute> <hour> <day> <month> <day of week> [<parameter>]
...
```

Parameter

This file defines one schedule from the following parameters.

```
[#] <agent type> <minute> <hour> <day> <month> <day of week> [<parameter>]
```

#:Comment line

If #(sharp) is applied at the head of a line, it becomes a comment. Because the agent which is set up is defined operation schedule by default, apply # at the head of a line when you need not collect information regularly.

<agent type>:Type of agent

Specify type of the agent which operates along schedule.

Agent types which can be specified are shown below. Specify type of agent which is set up.

AGT_CENTINV :An agent for inventory information of Systemwalker Centric Manager.

AGT_CENTREP :An agent for node information of Systemwalker Centric Manager.

AGT_ADSC :An agent for auto detection of node.

AGT_INV :An agent for collection of IT resource information.

<minute>:Field for minute

From 0 to 59

<hour>:Field for hour

From 0 to 23

<day>:Field for day

From 1 to 31

<month>:Field for month

From 1 to 12

<day of week>:Field for day of week

From 0 to 6

0:Sunday 1:Monday 2:Tuesday 3:Wednesday 4:Thursday 5:Friday 6:Saturday

<parameter>:Group name of the agent for collection of IT resource information.

This parameter is effective when you specify "AGT_INV" to type of agent.

You can specify schedule for collection of information in each group by specifying group name that is specified by the definition file for collection of IT resource information.

When group is not defined in the definition file for collection of IT resource information, omit this parameter.

All groups are collected when this parameter is omitted and group is defined in the definition file for collection of IT resource information.

Method of Specifying Value of Each Field

- List specification: Two or more values can be specified by comma (",").

Example: 0,10,20,30,40,50

- The range specification: The range from the beginning value to the end value can be specified by hyphen ("-").
Example: 0-40
This description and the list specification (0,1,2, ... ,39,40) are same meaning.
- Interval specification: The range can be specified by slash ("/").
Example: 0-59/10
This description and the list specification (0,1,2, ... ,39,40,50) are same meaning.
- When asterisk ("*") is specified, it has the same meaning as the specification of all the values where the field can be taken.

Note

- When you edit this file for the Management Server, the change becomes effective by restarting Systemwalker Runbook Automation.
When you edit this file for the Linked Server, the change becomes effective by restarting the agent service.

Example

Under the following definition, AGT_INV collects information automatically on the first day of every month at 0:30.

```
AGT_INV 30 0 1 * * group1
```

Under the following definition, AGT_INV collects information automatically on every Sunday at 1:00.

```
AGT_INV 0 1 * * 0 group1
```

Under the following definition, AGT_INV collects information automatically on February 1 at 22:30.

```
AGT_ADSC 30 22 1 2 *
```

Under the following definition, AGT_INV collects information automatically from group1 on every Monday at 2:00.

In addition, AGT_INV collects information automatically from group2 on every Tuesday at 2:00.

```
AGT_INV 0 2 * * 1 group1
AGT_INV 0 2 * * 2 group2
```

Under the following definition, AGT_INV doesn't collect information automatically.

```
# AGT_INV 30 4 * * *
```

2.4 Detailed Information File for Process Instance

File name

```
Process instance ID.xml
```

Use

This file is made when you execute swrba_admin (Administrator command) to get detailed information of process instance.

File Location

This file is made in the directory that is specified by "-d" option of swrba_admin (Administrator command).

File Format

The following content is output to the file by the XML form.

| Element name | Attribute | Contents | Remarks | |
|------------------|-----------|-----------|--|---|
| Process instance | - | - | Information of process instance | |
| | | Id | Process ID | |
| | | Name | Process instance name | |
| | | Started | Beginning date (yyyy-mm-dd hh:mm:ss) | |
| | | Completed | End date (yyyy-mm-dd hh:mm:ss) | While the process instance is operating, this content is not displayed. |
| | | Status | Status | |
| | | Owner(s) | Owner(s) | |
| | | Initiator | Those who start process | |
| | Node | - | Node information | |
| | | Id | Node ID | |
| | | Created | Node instance creation date (yyyy-mm-dd hh:mm:ss) | |
| | | Name | Name | |
| | | Type | Type | |
| | | Status | Status | |
| | | Form | Form | When QuickForm is appended, a form name is displayed. |
| | | Timer | Timer | Timer name when timer is specified. |
| | UDA | - | Information of user definition attribute | |
| | | Name | Name | |
| | | Value | Value | |
| | | Type | UDA type | |
| | History | - | History information | |
| | | Id | History ID | |
| | | Timestamp | History creation date (yyyy-mm-dd hh:mm:ss) | |
| | | EventCode | Event code | It is a history event code. There are the following values in the event code. 0 Beginning (default) 1 Activation 2 Selection 3 Approval 4 Refusal 5 Reassignment 6 End 7 Creation of the subprocess |

| Element name | Attribute | Contents | Remarks |
|--------------|--------------|--------------------|---|
| | | | 8 Stop temporarily work item 9 Restart the work item 10 Work beginning 11 Work stop 12 Vote completion 13 Process making 14 Process shift 15 Process regaining 16 Deactivation of the target node 17 Activation of source node 25 creation of work item in the future |
| | EventType | Event type | |
| | EventData | Event addition day | |
| | ProducerType | Producer type | |
| | ProducerId | Producer ID | |
| | ConsumerType | Consumer type | |
| | ConsumerId | Consumer ID | |
| | IsHandled | State of event | |

Example

The output example is shown below.

```
<?xml version="1.0" encoding="UTF-8"?>
<Processinstance Completed="" Id="34" Initiator="swrbasch" Name="startPara" Owner="swrbaadmin"
Started="2012-06-07 14:35:05" Status="running">
<Node Form="" Id="35" Name="Start" Status="Completed" Type="Start"/>
<Node Id="36" Name="Delay1" Status="Completed" Type="Delay"/>
<Node Form="" Id="37" Name="Activity1" Status="Running" Timer="" Type="Activity"/>
<Node Id="38" Name="Exit1" Status="Initial" Type="Exit"/>
<Node Form="" Id="39" Name="Activity2" Status="Initial" Timer="" Type="Activity"/>
<UDA Name="SWRBA_RCODE" Type="STRING" Value=""/>
<UDA Name="__atmr_Timer1_time" Type="LONG" Value="30000"/>
<UDA Name="__atmr_Timer1_actionset" Type="STRING" Value="&lt;?xml version=&quot;1.0&quot;
encoding=&quot;UTF-8&quot;?&gt;&lt;JavaActionSet javaActionCount=&quot;0&quot;
name=&quot;&quot;&gt;&#10; &lt;Description/&gt;&#10;&lt;/JavaActionSet&gt;&#10;"/>
<UDA Name="SWRBA_STDERR" Type="STRING" Value=""/>
<UDA Name="__example" Type="STRING" Value=""/>
<UDA Name="SWRBA_STDOUT" Type="STRING" Value=""/>
<History ConsumerId="34" ConsumerType="7" EventCode="0" EventData="" EventTYPE="__ProcessCreated"
Id="45" IsHandled="4" ProducerId="34" ProducerType="7" Timestamp="2012-06-07 14:35:05"/>
<History ConsumerId="34" ConsumerType="7" EventCode="0" EventData="" EventTYPE="__CommitEdit"
Id="46" IsHandled="4" ProducerId="34" ProducerType="7" Timestamp="2012-06-07 14:35:05"/>
<History ConsumerId="34" ConsumerType="7" EventCode="0" EventData="" EventTYPE="__Start" Id="47"
IsHandled="1" ProducerId="34" ProducerType="7" Timestamp="2012-06-07 14:35:05"/>
<History ConsumerId="35" ConsumerType="3" EventCode="1" EventData="" EventTYPE="__Activate" Id="48"
IsHandled="1" ProducerId="34" ProducerType="7" Timestamp="2012-06-07 14:35:05"/>
<History ConsumerId="35" ConsumerType="3" EventCode="0" EventData="" EventTYPE="__NodeClosed"
Id="49" IsHandled="4" ProducerId="35" ProducerType="3" Timestamp="2012-06-07 14:35:05"/>
<History ConsumerId="36" ConsumerType="3" EventCode="1" EventData="" EventTYPE="start" Id="50"
IsHandled="1" ProducerId="40" ProducerType="0" Timestamp="2012-06-07 14:35:05"/>
```

```
<History ConsumerId="36" ConsumerType="3" EventCode="0" EventData="" EventTYPE="__TimerEvent"
Id="52" IsHandled="1" ProducerId="51" ProducerType="15" Timestamp="2012-06-07 14:35:36"/>
<History ConsumerId="36" ConsumerType="3" EventCode="0" EventData="" EventTYPE="__NodeClosed"
Id="53" IsHandled="4" ProducerId="36" ProducerType="3" Timestamp="2012-06-07 14:35:36"/>
<History ConsumerId="37" ConsumerType="3" EventCode="1" EventData="" EventTYPE="Arrow1" Id="54"
IsHandled="1" ProducerId="41" ProducerType="0" Timestamp="2012-06-07 14:35:36"/>
</Processinstance>
```

2.5 Definition File for Operation Components

File name

opeconfig.properties

Use

Specify the parameters to which the process refers when the operation components are executed.

When parameters are specified as option in operation components, this file is not effective, and the definition in operation components is effective.

When the values other than regulated values are specified, or if a value is not set, the default value is effective.

File Location

- Management Server

| | |
|---------|---|
| Windows | %SWRBA_SHARE_HOME%\rbaope\opeparts |
| Linux | /opt/FJSVswrbam/etc/share/rbaope/opeparts |

File Format

```
TIMEOUT = <value>
RETRY = <value>
RETRY_INTERVAL = <value>
```

Parameter

TIMEOUT: Timeout period when process waits for execution of operation components

This parameter is timeout period when process waits for execution of operation components.

When you omit timeout option in the operation components, this parameter is effective.

The unit of time is a second (s).

Default: 300

Effective range: 300-86400

RETRY: Retry Frequency of operation components

This parameter is frequency to which the process retries the execution of the operation components.

When you omit retry option in the operation components, this parameter is effective.

Default: 0

Effective range: 0-5

RETRY_INTERVAL: Retry interval of operation components

This parameter is interval to which the process retries the execution of the operation components.

When you omit `retry_interval` option in the operation components, this parameter is effective.

The unit of time is a second (s).

Default: 60

Effective range: 1-14400

Note

- When the values other than the above-mentioned item are specified for the parameter, the default value becomes effective.

Example

Under the following description, the timeout is 600 seconds, retry frequency is 5 times, and retry interval is 300 seconds.

```
TIMEOUT = 600
RETRY = 5
RETRY_INTERVAL = 300
```

Under the following description, the timeout is 1000 seconds, retry frequency is default, and retry interval is default.

```
TIMEOUT = 1000
RETRY = 0
RETRY_INTERVAL = 60
```

2.6 Process Instance Audit Information File

File name

```
swrba_audit.log
```

Use

Process instance audit information is output to this file as a result of executing the `swrba_audit` command. Information for a single process instance is displayed as a single record.

- The process instance audit information file is managed using 10 generations, each 10 MB in size.
- The file switches to a new generation when the size of the file reaches 10 MB.

Even if the `swrba_audit` command is executed multiple times, information will be output to the same file, as long as the size of the file is less than 10 MB.

- The name of the current file is "swrba_audit.log", with older generations stored as "swrba_audit1.log", "swrba_audit2.log", ... "swrba_audit9.log" (a number between 1 and 9 is appended to "swrba_audit" each time the generation changes).
- Once 10 generations (or 100 MB) are exceeded, the oldest file (swrba_audit9.log) is deleted.

File Location

[Windows]

```
<Systemwalker Runbook Automation Management Server installation directory>\var\audit
Note: The default location is C:\Fujitsu\Systemwalker\SWRBAM.
```

[Linux]

```
/opt/FJSVswrbam/var/audit
```


File Format

Information is output in the following format:

"Time when the process instance started", "Person who started the process instance", "Name of the process instance", "Process instance state", "Time when the process instance ended", "Activity name", "Transition date/time", "Person in charge", "Status", "Selection result", ... , "Exit node"

The following table explains the output items.

| Item name | Output format | Description |
|---|---|---|
| <i>Time when the process instance started</i> | yyyy-mm-dd hh:mm:ss.sss | The time when the process instance started. |
| Person who started the process instance | ID of the person who started the process instance | The user ID of the user who started the process instance. |
| <i>Name of the process instance</i> | Name of the process instance | The name of the process instance. |
| <i>Process instance state</i> | Closed | The state of the process instance. closed: Indicates that the process instance has ended |
| <i>Time when the process instance ended</i> | yyyy-mm-dd hh:mm:ss.sss | The time when the process instance ended. |
| <i>Activity name</i> | Activity name | The activity name. |
| <i>Transition date/time</i> | yyyy-mm-dd hh:mm:ss.sss | The date and time when processing transitioned to the activity. If processing has not transitioned to the activity, a blank space is displayed. |
| <i>Person in charge</i> | User ID or group ID | The user ID to which the task has been assigned. If processing has not transitioned to the activity, a blank space is displayed. |
| <i>Status</i> | COMPLETED INITIAL | The status of the task. COMPLETED: Indicates that the task has completed. If processing has not transitioned to the activity, "INITIAL" is displayed. |
| <i>Selection result</i> | Arrow name | The name of the selected arrow. If processing has not transitioned to the activity, a blank space is displayed. |
| <i>Exit node</i> | Name of the exit node | The name of the exit node is displayed. |

Example

In the following audit information output example, the name of the process instance is "Sample-1".

"2011-05-11 14:50:32.460", "swrbaadmin", "Sample-1", "closed", "2011-05-11 14:53:27.161", "Activity1", "2011-05-11 14:53:27.033", "swrbaadmin", "COMPLETED", "Arrow2", "Exit1"

Chapter 3 Reference for Operation Components

This chapter presents detailed information about operation components.

- List of operation components by category

This section explains the items required for operation component nodes during the development of Automated Operation Processes.

- Libraries provided by the product

This section explains the libraries that can be used when developing custom operation components.






















3.1 List of Operation Components

























The operation components provided by this product are as follows:










| Category Icon | Category Name | Icon | Operation component name | Operation component name ID |
|---|---------------------|---|---|-----------------------------|
|  | Executing a Command |  | 3.2.1 Execute arbitrary command | SWRBA_COMMAND_RUN |
| | |  | 3.2.2 Execute WMI query | SWRBA_WMI_QUERY |
| | |  | 3.2.3 Execute multiple commands | SWRBA_INTERACTIVE_RUN |
| | |  | 3.2.4 Execute multi-operation processes | SWRBA_FLOWSET_RUN |
|  | Email operations |  | 3.3.1 Send emails | SWRBA_MAIL_SEND |
|  | File operations |  | 3.4.1 Transfer files | SWRBA_FILE_TRANSFER |
| | |  | 3.4.2 Change file access permissions | SWRBA_CHANGE_FILE_AUTHORITY |
| | |  | 3.4.3 Check that the file exists | SWRBA_FILE_SEARCH |
| | |  | 3.4.4 Check that file/directory exists | SWRBA_FILEDIRECTORY_SEARCH |
| | |  | 3.4.5 Create files | SWRBA_FILE_MAKE |
| | |  | 3.4.6 Delete files | SWRBA_FILE_DELETE |
| | |  | 3.4.7 Copy files/directories | SWRBA_FILE_COPY |
| | |  | 3.4.8 Move files/directories | SWRBA_FILE_MOVE |
| | |  | 3.4.9 Get list of files/directories | SWRBA_FILE_GETLIST |
| | |  | 3.4.10 Get file/directory size | SWRBA_FILE_GETSIZE |

| Category Icon | Category Name | Icon | Operation component name | Operation component name ID |
|---|--------------------------------------|---|--|----------------------------------|
| | |  | 3.4.11 Check file/directory access permissions | SWRBA_FILE_CHECKPROPERTY |
| | |  | 3.4.12 Get file/directory update date and time | SWRBA_FILE_GETUPDATETIME |
| | |  | 3.4.13 Create directory | SWRBA_DIRECTORY_MAKE |
| | |  | 3.4.14 Delete directory | SWRBA_DIRECTORY_DELETE |
| | |  | 3.4.15 Change directory access permissions | SWRBA_CHANGE_DIRECTORY_AUTHORITY |
| | |  | 3.4.16 Compress files | SWRBA_FILE_COMPRESS |
| | |  | 3.4.17 Compress directory | SWRBA_DIRECTORY_COMPRESS |
| | |  | 3.4.18 Decompress files | SWRBA_FILE_DECOMPRESS |
| | |  | 3.4.19 Load file | SWRBA_FILE_READ |
| | |  | 3.4.20 Print file | SWRBA_FILE_PRINT |
| | |  | 3.4.21 Search string in file | SWRBA_CHARACTER_STRING_SEARCH |
| | |  | 3.4.22 Add string to file | SWRBA_STRING_ADD |
| | |  | 3.4.23 Replace string in file | SWRBA_CHARACTER_STRING_REPLACE |
| | |  | 3.4.24 Convert file character encoding | SWRBA_CHARACTER_ENCODING_CHANGE |
| | |  | 3.4.25 Collect fingerprint | SWRBA_FINGERPRINT |
|  | Configurat ion item operations |  | 3.5.1 Obtain configuration item | SWRBA_CMDB_GET |
| | |  | 3.5.2 Update configuration item | SWRBA_CMDB_SET |
| | |  | 3.5.3 Delete configuration item | SWRBA_CMDB_DELETE |
| | |  | 3.5.4 Register logical node | SWRBA_CMDB_REGLOGICAL |
|  | Communi cation operations |  | 3.6.1 Perform REST-based communication | SWRBA_PROTOCOL_REST |

| Category Icon | Category Name | Icon | Operation component name | Operation component name ID |
|---|--|---|--|-----------------------------------|
| | |  | 3.6.2 Get value using SNMP | SWRBA_SNMP_GET |
| | |  | 3.6.3 Set value using SNMP | SWRBA_SNMP_SET |
| | |  | 3.6.4 Send SNMP trap | SWRBA_SNMP_TRAP |
| | |  | 3.6.5 Execute Web service | SWRBA_WEBSERVICE_CALL |
|  | Service/ process operations |  | 3.7.1 Check that service/process has started | SWRBA_SERVICE_PROCESS_START_CHECK |
| | |  | 3.7.2 Check that service/process has stopped | SWRBA_SERVICE_PROCESS_STOP_CHECK |
| | |  | 3.7.3 Check that service has started | SWRBA_SERVICE_START_CHECK |
| | |  | 3.7.4 Check that service has stopped | SWRBA_SERVICE_STOP_CHECK |
| | |  | 3.7.5 Check that process has started | SWRBA_PROCESS_START_CHECK |
| | |  | 3.7.6 Check that process has stopped | SWRBA_PROCESS_STOP_CHECK |
| | |  | 3.7.7 Start service | SWRBA_SERVICE_START |
| | |  | 3.7.8 Stop service | SWRBA_SERVICE_STOP |
| | |  | 3.7.9 Pause service | SWRBA_SERVICE_PAUSE |
| | |  | 3.7.10 Change service account | SWRBA_SERVICE_ACCOUNT_CHANGE |
| | |  | 3.7.11 Change service startup type | SWRBA_SERVICE_STARTMODE_CHANGE |
| | |  | 3.7.12 Get service status | SWRBA_SERVICE_STATE_GET |
| | |  | 3.7.13 End process | SWRBA_PROCESS_KILL |
|  | Load balancing and cluster operations |  | 3.8.1 Remove as load balancing target | SWRBA_LOADBALANCER_REMOVE |
| | |  | 3.8.2 Include as load balancing target | SWRBA_LOADBALANCER_EMBED |
| | |  | 3.8.3 Get cluster resource status | SWRBA_CLUSTER_STATE_GET |

| Category Icon | Category Name | Icon | Operation component name | Operation component name ID |
|---|-------------------|---|--|-----------------------------|
| | |  | 3.8.4 Switch cluster resource | SWRBA_CLUSTER_SWITCH |
|  | Server operations |  | 3.9.1 Start the server | SWRBA_SERVER_START |
| | |  | 3.9.2 Stop the server | SWRBA_SERVER_SHUTDOWN |
| | |  | 3.9.3 Stop OS | SWRBA_SERVER_SHUTDOWN_OS |
| | |  | 3.9.4 Restart OS | SWRBA_SERVER_REBOOT_OS |
| | |  | 3.9.5 Start WorkUnit | SWRBA_WORKUNIT_START |
| | |  | 3.9.6 Stop WorkUnit | SWRBA_WORKUNIT_STOP |
| | |  | 3.9.7 Restart WorkUnit | SWRBA_WORKUNIT_RESTART |
| | |  | 3.9.8 Start virtual server | SWRBA_VSERVER_START |
| | |  | 3.9.9 Stop virtual server | SWRBA_VSERVER_STOP |
| | |  | 3.9.10 Restart virtual server | SWRBA_VSERVER_RESTART |
| | |  | 3.9.11 Build virtual server | SWRBA_VSERVER_CREATE |
| | |  | 3.9.12 Delete virtual server | SWRBA_VSERVER_DELETE |
| | |  | 3.9.13 Change virtual server system | SWRBA_VSERVER_CHANGESYSTEM |
| | |  | 3.9.14 Get virtual server list | SWRBA_VSERVER_GETLIST |
| | |  | 3.9.15 Get detailed virtual server information | SWRBA_VSERVER_GETDETAIL |
| | |  | 3.9.16 Create virtual server snapshot | SWRBA_VSERVER_GETSNAPSHOT |
| | |  | 3.9.17 Restore virtual server snapshot | SWRBA_VSERVER_PUTSNAPSHOT |
| | |  | 3.9.18 Change host name | SWRBA_CHANGE_HOSTNAME |
| | |  | 3.9.19 Stop virtual server on the VM host | SWRBA_VMHOST_VMSHUTDOWN |

| Category Icon | Category Name | Icon | Operation component name | Operation component name ID |
|---|-----------------------|---|---|--------------------------------|
| | |  | 3.9.20 Set the maintenance mode of the VM host | SWRBA_VMHOST_MAINTENANCE |
| | |  | 3.9.21 Stop VM host forcibly | SWRBA_VMHOST_SHUTDOWN |
|  | Monitoring operations |  | 3.10.1 Check for hardware errors | SWRBA_SERVER_GET_SDRSTATUS |
| | |  | 3.10.2 Get server power status | SWRBA_SERVER_GET_POWERSTATUS |
| | |  | 3.10.3 Check server running normally | SWRBA_SERVER_CHECK_OPERATION |
| | |  | 3.10.4 Notify event to monitored product | SWRBA_EVENT_OCCURRENCE |
| | |  | 3.10.5 Check whether an event has occurred in the monitored product | SWRBA_EVENT_CONFIRM |
| | |  | 3.10.6 Change monitored product event status | SWRBA_EVENT_UPDATESTATUS |
| | |  | 3.10.7 Get monitored product event | SWRBA_EVENT_GETEVENTS |
| | |  | 3.10.8 Disable server monitoring | SWRBA_EVENT_DETERRENCE_SET |
| | |  | 3.10.9 Enable server monitoring | SWRBA_EVENT_DETERRENCE_RELEASE |
| | |  | 3.10.10 Get event log | SWRBA_EVENTLOG_GET |
| | |  | 3.10.11 Create event log | SWRBA_EVENTLOG_MAKE |
| | |  | 3.10.12 Get performance counter | SWRBA_PERFORMANCECOUNTER_GET |
|  | Job operations |  | 3.11.1 Obtain job net status | SWRBA_JOBNET_CHECK_STATUS |
| | |  | 3.11.2 Start job net | SWRBA_JOBNET_START |
|  | Network operations |  | 3.12.1 Check operational status of node | SWRBA_NODE_STATE_GET |
| | |  | 3.12.2 Check port connection | SWRBA_PORT_CHECK |
|  | System operations |  | 3.13.1 Obtain current date | SWRBA_TIME_GET |
| | |  | 3.13.2 Compare date and time | SWRBA_DATE_COMPARE |

| Category Icon | Category Name | Icon | Operation component name | Operation component name ID |
|---|---------------------------|---|--|-----------------------------|
| | |  | 3.13.3 Set OS network | SWRBA_NETWORK_SET |
| | |  | 3.13.4 Install software | SWRBA_SOFTWARE_INSTALL |
| | |  | 3.13.5 Install OS update | SWRBA_PATCH_APPLY |
|  | Operation process control |  | 3.14.1 Check that the specified time has elapsed | SWRBA_ITERATE |
| | |  | 3.14.2 Sort strings | SWRBA_STRING_SORT |
| | |  | 3.14.3 Store data as execution results | SWRBA_RESULT_SAVE |
| | |  | 3.14.4 Register Schedule Definitions | SWRBA_SCHEDULE_REGIST |
| | |  | 3.14.5 Delete Schedule Definitions | SWRBA_SCHEDULE_DELETE |

The following explains the I/O information for each operation component:

3.2 Command Execution Components

3.2.1 Execute arbitrary command



Description

This operation component executes commands on hosts.

Windows, Linux or Solaris command, and Windows PowerShell Cmdlet can be specified. Also, Batch file and Script file can be executed.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) commandline

Command name and argument to be executed.

Either a full path or relative path can be used for command names and arguments. If a relative path is used, the following directory becomes the relative path reference point:

| Host executing the command | Communication method | Base directory |
|-------------------------------|------------------------------|---|
| Windows Management Server | - | <Systemwalker Runbook Automation Management Server folder>\etc\share\rbaope\work The default is C:\Fujitsu\Systemwalker\SWRBAM |
| Linux Management Server | - | /etc/opt/FJSVswrbam/share/rbaope/work |
| Windows Business Server | File transfer infrastructure | <Systemwalker Runbook Automation Business Server folder>\FJSVInkbs\Ink02 The default is C:\Fujitsu\Systemwalker\SWRBAA |
| | SSH | Home directory of connected Cygwin users (C:\cygwin\home\Administrator) |
| | PowerShell | Connected user's home directory |
| | Other | Connection directory for each type of communication |
| Linux Solaris Business Server | File transfer infrastructure | /opt/FJSVInkbs/Ink02 |
| | Other | Connected user's home directory |

If path information is included in the commandline, specify it as stated below. If the path information is to be included in the command argument, however, follow the command specification.

- Change the path's delimiter from a "\" to "/".
- Enclose the path information with double-quotes.
- If the Business Server is running on Windows and the connection is established using the file transfer infrastructure and the path includes percent symbols ("%"), then repeat the percent symbols twice ("%").

Specify the extension for a command name of the extension ".bat" and ".cmd". If the extension is not specified, the action is not guaranteed.

An argument error occurs if the command name and argument are omitted.

The maximum length of the command name and argument is 8,000 characters. An argument error occurs if this is exceeded.

An error occurs if an interactive command is executed.

Specify command names and arguments to be executed as follows:

For example:

When acquiring a detailed list of the files in the specified directory:

```
dir "c:/work/example"
```

When a command name is specified by its full path:

```
"c:/work/example/example.bat" -a "c:/work/a.txt"
```

Advanced Options

(1) connectiontype

This is the method used for communication with the host.

Specify "File Transfer Infrastructure", "SSH", "PowerShell", "Telnet", "RSH" or "REXEC". This option is not case sensitive.

An argument error will occur if a value other than those listed above is specified.

If the communication method was not entered, a method will be searched for and used.

"PowerShell" can also be specified if the Management Server is running on Windows. However, if the Management Server is not running on Windows, specifying "PowerShell" results in an argument error.

(2) accport

This is the port number used with RSH and REXEC communications for receiving the standard error output.

For RSH, port numbers from 512 through 1023 can be specified. For REXEC, port numbers from 1 through 65535 can be specified.

The specification for this option is ignored for communication methods other than RSH and REXEC.

To specify multiple values, separate each value with a comma (.). Similarly, use hyphens ("-") to specify ranges.

Up to 10 port numbers can be specified. An argument error occurs if this limit is exceeded.

If a port number is not specified, "1014-1023" is used.

(3) ostype

OS type of the host executing the command. This option is not case sensitive.

Specify Windows, Linux or Solaris.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(4) username

Name of the user connecting with SSH, Windows PowerShell or Telnet to the remote executing host.

Alternatively, this is the remote host user name in rsh and rexec.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(5) password

Password of the user connecting with SSH or Windows PowerShell or Telnet to the remote executing host.

Alternatively, this is the remote host user password for rexec.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(6) execusername

Name of the user executing the command on the remote executing host.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(7) `execpassword`

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(8) `timeout`

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(9) `retry`

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it does not reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(10) `retry_interval`



This is the retry interval (seconds) for operation components.


When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and `retry_interval` is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to ["2.5 Definition File for Operation Components"](#) for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--|--|
|  | Success | Values lower than 159 or higher than 240 | The command has executed successfully. This is the return value for the command. |
|  | Failure | 161 | Failed to execute command. Retried if a retry count has been specified. |
| | | 178 | Executing program by command terminated abnormally. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH, Windows PowerShell, Telnet, RSH, or REXEC). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH, Telnet, RSH, or REXEC) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH, Windows PowerShell, Telnet, RSH, or REXEC) failed. |

| Icon | Name | Return value | Description |
|---|---------|---|---|
| | | | Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 196 | An option that cannot be specified when the Management Server is running on Linux has been specified. |
| | | 197 | There is an error in the input information. |
| | | 200 | Execution of command terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. |
| | | 203 | Failed to execute the operation component. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation components. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |
|  | Failure | Values from 159 through 240 other than those listed above | This is the return value used by Systemwalker Runbook Automation. |

Output information

| Variable | Description |
|--------------------|---|
| message | This variable will be set to the following message if the command is executed successfully. The operation component was successful. If an error occurs during the processing that controls the execution of the command specified by the commandline option, this variable will be set to the content of the error as a string. |
| command_stdout(*1) | This variable is set to the standard output for the command that has executed. |
| command_stderr(*1) | This variable is set to the standard error output for the command that has executed. |
| command_rcode | This variable is set to the return value for the command that has executed. |
| returnCode | This variable is set to the return value. |

*1: If the communication method is Telnet, the standard error output is set to the command_stdout variable as well. In this case, nothing is output to the command_stderr variable.

Notes

- This operation component uses File Transfer Infrastructure, SSH, Windows PowerShell, Telnet, RSH, or REXEC communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to ["3.16 Notes of Each Communication Method"](#) for information on communication methods.
 - Note 1: If the information for the Operation Automation Server has been entered for 'hostname', SSH communication will not be used and the command will be executed within the Operation Automation Server, so follow the command's specifications.
- If the Business Server is running on Windows or Linux, and in IPv6 environment, operating system is not be available with REXEC communications. For this reason, if it is specified "REXEC" in connctiontype, it becomes error of return value 189.
- Refer to ["3.16.7 Notes When Connected User And Executing User Are Different"](#) for information on different connected and executing users.
- If a Windows PowerShell commandlet or Windows PowerShell script is to be executed, add "powershell -command" at the beginning of the "commandline" option.

Example: Executing a commandlet for obtaining update programs with a description starting with "Security" that have already been applied

```
powershell -command Get-HotFix -description Security*
```

If scripts are executed using Windows PowerShell, the return values for the scripts can be acquired using the following specification.

Example: powershell -command \$LASTEXITCODE = 0; "C:/work/example.bat" ;exit \$LASTEXITCODE;

Similarly, the following specification can be used to detect exceptions that have occurred while the script was executing.

Example: powershell -command \$LASTEXITCODE = 0; "C:/work/example.bat" ;exit \$LASTEXITCODE;trap{if (\$LASTEXITCODE -eq 0) {\$error;exit 1} else {\$LASTEXITCODE}}

If the "commandline" option includes symbols, the specification for Windows PowerShell dictates that the escape character (a back quote " ` ") may need to be added, depending on the symbol. Refer to the specification for Windows PowerShell for details.

- Values between 159 and 240 can be set as return values in Systemwalker Runbook Automation. Return values other than those between 159 and 240, or those between 159 and 240 that are unused, are not set by Systemwalker Runbook Automation, but are values that the commands output. Investigate the command itself.
- If specify the command that does not exist in commandline option, there is a case of becoming an error of the following return values.
 - 1
 - 127
 - 9009
- If a command to start a permanent process (such as a daemon-starting shell) is specified in the commandline option, operation components may not return even after the specified command has completed. When specifying a command like this, redirect the standard output and standard error output to a file.

Example: sample.sh > /tmp/stdout.txt 2> /tmp/stderr.txt

Command output will not be included in command_stdout and command_stderr, so refer to the redirected files to obtain this information

- Confirm the return values with the Web console. Refer to "Checking the execution result of operation component" in the *Systemwalker Runbook Automation Administration Guide* for details.
- In order to perform communication using Windows PowerShell, Windows PowerShell 2.0 or later must be installed on the Management Server as well. Refer to ["3.16.3 Notes on Windows PowerShell"](#) for details.
- If a firewall function is used on the Management Server, it is necessary to allow communications from Business Servers using the port numbers specified in the "accport" option to use RSH or REXEC communications. Refer to the relevant operating system manuals for information on how to allow RSH and REXEC communications.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.

- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.2.2 Execute WMI query



Description

This operation component sends a WMI query to a Windows Business Server.

This component can be used only when the Management Server is running on Windows.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) namespace

This is the target namespace.

Example: root/cimv2

An argument error occurs if the namespace is omitted.

The maximum length of the namespace is 1,024 characters. An argument error occurs if this is exceeded.

(3) query

This is the query statement used by the WMI query.

Example: SELECT Freespace,DeviceID FROM Win32_LogicalDisk

An argument error occurs if the query statement is omitted.

The maximum length of the query statement is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) ostype

Operating system of the host executing the operation component.

Specify Windows. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

This is the name of the user that uses WMI to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(3) password

This is the password of the user that executes the command on the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(4) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(5) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(6) retry_interval

This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to ["2.5 Definition File for Operation Components"](#) for details.

Return Values

| Icon | Name | Return value | Description |
|------|---------|--------------|---|
| | Success | 0 | A WMI query has executed successfully. |
| | Failure | 161 | An attempt to execute a WMI query has failed. If a retry count has been specified, retries will be attempted. |
| | | 188 | Network communications with the Business Server have been disconnected. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 189 | An attempt to connect to the Business Server via the network failed. |
| | | 196 | An option that cannot be specified when the Management Server is running on Linux has been specified. |
| | | 197 | There is an error with the input information. |
| | | 200 | Execution of a WMI query has terminated abnormally. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------------|---|
| message | <p>This variable will be set to the following message if a WMI query is executed successfully.</p> <p>The operation component was successful.</p> <p>If a WMI query fails to execute, the content of the error will be output as a string.</p> |
| wmi_query_result | <p>This variable is set to the execution results of the WMI query, using the following format.</p> <pre> **QueryResult1** "PropertyName1","Value1" "PropertyName2","Value2" **QueryResult2** "PropertyName1","Value1" "PropertyName2","Value2" </pre> <p><Example></p> <p>If "root/cimv2" has been specified for the namespace and "SELECT Freespace,DeviceID FROM Win32_LogicalDisk" has been specified for the query statement:</p> <pre> **QueryResult1** "DeviceID","C:" "FreeSpace","13665103872" **QueryResult2** "DeviceID","D:" "FreeSpace","52320559104" **QueryResult3** "DeviceID","E:" "FreeSpace","43498602496" </pre> |
| returnCode | This variable is set to the return value. |

Notes

- Start the WMI service on the host before executing the WMI query.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.2.3 Execute multiple commands



Description

This operation component connects to a host through SSH or Telnet communications, and then executes multiple commands interactively.

Use this component to operate the following devices.

- Network devices
- Storage devices

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

An argument error occurs if the host name or IP address is omitted.

If 'localhost', '127.0.0.1' or '::1' is specified for the host name or IP address, an argument error occurs.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) commandlinelist

This is the list of commands to be executed.

Multiple commands can be specified in the command list.

The following can be specified in the command:

- Command name and argument to be executed
- Interactive command response

The following table indicates how the operation component behaves when commands that include the following strings are specified.

| Included string | Behavior |
|-----------------|--|
| %PASSWORD% | The command is executed by replacing the "%PASSWORD%" string with the password for the administrator user that was specified using the "adminpassword" option. |

An argument error will occur if the command list is omitted.

The maximum length of the string for the command list is 8,000 characters. An argument error occurs if this is exceeded.

Note the following points:

- Separate each command by a linefeed character.
- Specify commands in the order in which they will be executed.
- When specifying interactive commands, specify the responses to prompts as well.
- After the commands to be executed, specify the "exit" command to terminate the SSH or Telnet communications.

Example 1: Setting up configuration definitions for a network device (IPCOM EX2500)

```
terminal window 65535 65535 (1)
terminal pager disable (2)
prompt disable (3)
admin (4)
%PASSWORD% (5)
configure terminal (6)
load running-config (7)
class-map match-any rba0101 (8)
match source-address ip 192.0.2.0/27 (8)
! (8)
save running-config (9)
save startup-config (9)
exit (10)
exit (10)
exit (10)
exit (11)
```

- (1) Sets the window size (height and width) for the terminal display to 65,535 characters.
- (2) Disables the pager function for the terminal display.
- (3) Disables the function that prompts the user.
- (4) Switches to administrator EXEC mode.
- (5) Executes the password for the administrator user that was specified using the "adminpassword" option.
- (6) Switches to global configuration definition mode (real time).
- (7) Starts editing the configuration definitions for running-config, and switches to global configuration definition mode (change).
- (8) Creates filter conditions (class-map).
- (9) Saves the running-config and startup-config.
- (10) Returns to the previous mode.
- (11) Ends the session and logs out.

Example 2: Obtaining details of disk errors for a storage device (ETERNUS DX80)

```
set clienv-show-more -scroll disable (1)
show disk-error (2)
exit (3)
```

- (1) Disables page scroll mode.
- (2) Displays details of the disk error.
- (3) Ends the session and logs out.

Advanced Options

(1) connectiontype

This is the method used for communication with the host.

Specify either "SSH" or "Telnet". This option is not case sensitive.

An argument error will occur if a value other than "SSH" and "Telnet" is specified.

The character code for the communication method is not case sensitive.

If a communication method is not entered, "SSH" will be set.

(2) username

This is the user name used for communication with the host.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(3) password

This is the user password used for communication with the host.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(4) adminpassword

This is the password for the administrator user.

This is used when a string containing %PASSWORD% was specified in the commandlinelist option.

If the administrator user password is omitted, the command will search the Configuration Management Database (CMDB) based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the value for the administrator user password that has been acquired from the CMDB.

The maximum length of the administrator user password is 1,024 characters. An argument error occurs if this is exceeded.

(5) expectprompt

This is the list of prompts to be output by the host.

For the messages output by the host, the commands are executed one at a time interactively for each specified prompt matched.

Note the following points:

- Specify the entire prompt (including spaces and symbols) rather than just part of the prompt. (If the last character of the prompt is a space, specify a space as well.)
- To specify multiple prompts, separate each prompt by a linefeed character.
- To execute interactive commands, specify the prompts used to prompt the user as well.
- Prompts can be specified using regular expressions. To specify a regular expression, enclose the prompt with forward slashes ("/").

The maximum number of characters for the prompt list is 1,024. An argument error occurs if this is exceeded.

If the prompt list is omitted, the following value will take effect.

```
/[ $#> ]\s?\z/  
/^[Pp]assword[: ][: ]?\z/
```

Example 1: An IPCOM EX2500 network device with host name "ipcom"

```
ipcom>  
ipcom#  
ipcom(check-sslvpn)#  
ipcom(config)#  
ipcom(edit)#  
/^ipcom\(edit[a-z\-\]*\)\#\ \z/  
Password:
```

Example 2: An ETERNUS DX80 storage device where the prompt is "CLI>"

```
CLI>
```

(6) abort

This is the list of conditions which cause error termination following command execution.

The component will terminate with an error if a message output by the host matches one of these conditions.

Note the following points:

- To specify multiple conditions for error termination, separate each condition by a linefeed character.
- The component terminates with an error immediately if even one of these conditions is met.
- The conditions for error termination can also be specified using regular expressions. To specify a regular expression, enclose the conditions for error termination with forward slashes ("/").

If the conditions for error termination are omitted, command execution will not terminate with an error.

The maximum length of the string for the conditions for error termination is 1,024 characters. An argument error occurs if this is exceeded.

Example 1: Target the standard error for an IPCOM EX2500 network device

```
<ERROR>
<ABORT>
<ALERT>
<EMERGENCY>
<CRITICAL>
Authentication failed.
Ambiguous command.
Unrecognized command.
Command incomplete.
Unknown commands or command parameters are insufficient.
Bad use <">.
Because the command is too long, it is not possible to recognize it.
A system of free memory is nothing. Please retry after a few minutes.
A system of free memory is low. Please take care.
A character code is invalid. Please use an ASCII character code.
Operation aborted by user.
Starting the system now. Please retry after a few minute.
This command cannot be executed because the system is stopping.
```

Example 2: Target the standard error for an ETERNUS DX80 storage device

```
/^Error: /
```

(7) charactercode

This is the character code for the host.

Specify "UTF-8", "SJIS" or "EUC".

An argument error will occur if a value other than "UTF-8", "SJIS" and "EUC" is specified.

The character code for the host is not case sensitive.

If this option is omitted, it will be set to "UTF-8".

(8) userprompt

For Telnet communications, this is the format for the login prompt that is requested at connection time by the host that executes commands interactively.

Note the following points:

- Specify the entire prompt (including spaces and symbols) rather than just part of the prompt. (If the last character of the prompt is a space, specify a space as well.)
- To specify multiple prompts, separate each prompt by a linefeed character.

- To execute interactive commands, specify the prompts used to prompt the user as well.
- Prompts can be specified using regular expressions. To specify a regular expression, enclose the prompt with forward slashes ("/").

If the login prompt format is omitted, the following value will take effect.

```
/[Uu]sername[ : ]? \z/  
/[Ll]ogin[ : ]? \z/
```

The maximum length of the string for the login prompt format is 1,024 characters. An argument error occurs if this is exceeded.

For SSH communications, the login prompt format is not used.

(9) passwordprompt

For Telnet communications, this is the format for the password prompt that is requested at connection time by the host that executes commands interactively.

Note the following points:

- Specify the entire prompt (including spaces and symbols) rather than just part of the prompt. (If the last character of the prompt is a space, specify a space as well.)
- To specify multiple prompts, separate each prompt by a linefeed character.
- To execute interactive commands, specify the prompts used to prompt the user as well.
- Prompts can be specified using regular expressions. To specify a regular expression, enclose the prompt with forward slashes ("/").

If the password prompt format is omitted, the following value will take effect.

```
/[Pp]assword[ : ]? \z/
```

The maximum length of the string for the password prompt format is 1,024 characters. An argument error occurs if this is exceeded.

For SSH communications, the password prompt format is not used.

(10) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(11) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(12) retry_interval



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Success | 0 | All commands have been executed. |
|  | Failure | 161 | An attempt to execute the command failed. If a retry count has been specified, retries will be attempted. |
| | | 178 | Processing has been interrupted because one of the error termination conditions has been met. |
| | | 187 | Authentication failed when an attempt was made to establish a network connection (via SSH or Telnet) to the host. |
| | | 188 | Network communications (SSH or Telnet) with the host have been disconnected. |
| | | 189 | An attempt to establish a network connection to the host via SSH or Telnet failed. |
| | | 197 | There is an error with an option specification. Alternatively, there is a problem with the information registered in the Configuration Management Database (CMDB). |
| | | 200 | Executing the command has terminated abnormally. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| | | 203 | Failed to execute the operation component. There is a problem with the Management Server environment. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------------|---|
| message | This variable will be set to the following message if the command is executed successfully. The operation component was successful. If the command fails to execute, the content of the error will be output as a string. |
| command_result | This variable is set to the string received from the host. |
| returnCode | This variable is set to the return value. |

Example: The following example shows the output for the "command_result" variable when the component has been executed with the "commandlinelist" option as shown in Example 1 (under the explanation of the "commandlinelist" option above).

```
ipcom> terminal window 65535 65535
ipcom> terminal pager disable
ipcom> prompt disable
ipcom> admin
Password:
ipcom# configure terminal
ipcom(config)# load running-config
ipcom(edit)# class-map match-any rba0101
ipcom(edit-cmap)# match source-address ip 192.0.2.0/27
ipcom(edit-cmap)# !
ipcom(edit)# save running-config

Dynamic distribution of the configuration is carried out.

-----
The configuration was committed.
-----
ipcom(edit)# save startup-config

-----
The configuration was saved to startup-config.
The configuration is applied when the system is restarted.
Please restart the system.
-----

ipcom(edit)# exit
ipcom(config)# exit
ipcom# exit
ipcom> exit
```

Notes

- This operation component targets the following devices:
 - Network devices
 - IPCOM EX series
 - Storage devices
 - ETERNUS DX series
- SSH and Telnet communications use the following ports.
 - SSH communications uses port "22/tcp".
 - Telnet communications uses port "23/tcp".
- Refer to "3.16.2 Notes on SSH" for notes on using SSH for communications with the server.
- Refer to "3.16.4 Notes on Telnet" for notes on using Telnet for communications with the server.
- This operation component does not use the file transfer infrastructure for communications.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.2.4 Execute multi-operation processes



Description

This operation component executes an operation process and waits for the process to terminate. Operation process is executed by the number of parameters passed to the specified operation process up to 16 multiplicities. (Default: a multiplicity of 1)

For example, if you specify a multiplicity of 4 and 10 parameters, Runbook Automation runs 10 operation processes up to 4 multiplicities.

Options

Basic Options

(1) subflowname

The name of executed operation process.

The name specified here should specify the name of the operation process registered in the Management Server of Systemwalker Runbook Automation.

When the operation process corresponding to the specified name does not exist, it becomes an argument error.

To judge whether the specified operation process ends through a normal route or an error route, it is necessary to divide the Exit node that reaches normally and the Exit node that reaches abnormally.

(2) parameters

The parameter passed to the executed operation process is specified.

It is necessary to specify the value in the form of the following.

| Tag | Description | Remarks |
|--------------|---|-----------------------------|
| ParameterSet | Tag that shows sets of the entire parameters passed to operation process. | Number of occurrences:1 |
| Parameter | Tag that shows parameter passed when operation process of one degree is executed. | Number of occurrences:1-128 |
| | Attribute name: ID Describe the number of the parameter by the sequential number from one. The value of ID is added to the end of the process instance name of the executed operation process. | Appearance: Essential |
| | Attribute name: ProcessInstanceID It is not necessary to specify it here. It is disregarded even if it specifies it. | Appearance: Optional |
| | Attribute name: Result The execution result of the operation process is stored. It is not necessary to specify it here. It is disregarded even if it specifies it. | Appearance: Optional |
| | Attribute name: ExitNodeName | Appearance: Optional |

| Tag | Description | Remarks |
|-----------|--|--|
| | The name of the Exit node that reaches the operation process is stored. It is not necessary to specify it here. It is disregarded even if it specifies it. | |
| TargetUDA | Tag corresponding to user definition attribute on executed operation process. | Number of occurrences: One or more |
| | Attribute name: Name Specify the name of the user definition attribute on the executed operation process. | Appearance: Essential *This version, the type supports only the user definition attribute of STRING |
| | Attribute name: Value Specify the value set to the user definition attribute on the executed operation process. | Appearance: Essential |

For example:

```
<?xml version="1.0" encoding="UTF-8"?>
<ParameterSet>
  <Parameter ID="1">
    <TargetUDA Name="hostname" Value="serverA" />
    <TargetUDA Name="patchId" Value="T999999XX-99,T888888XX-88" />
  </Parameter>
  <Parameter ID="2">
    <TargetUDA Name="hostname" Value="serverB" />
    <TargetUDA Name="patchId" Value="T999999XX-99" />
  </Parameter>
  . . .
  <Parameter ID="N">
    <TargetUDA Name="hostname" Value="serverZ" />
    <TargetUDA Name="patchId" Value="T999999XX-99" />
  </Parameter>
</ParameterSet>
```

Advanced Options

(1) multiplicity

Specify the execution concurrency of operation processes.

It is possible to specify it within the range from 1 to 16.

If execution concurrency is omitted, 1 is specified.

(2) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(3) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it does not reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(4) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Success | 0 | Processing terminated normally. |
|  | Failure | 1-128 | The number of operation processes that ended without reaching the Exit node is returned. |
| | | 197 | There is an error in the option content. |
| | | 200 | Processing terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation components were not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|---------------------------|---|
| message | This variable will be set to the following message if multiple operation processes are executed successfully. The operation component was successful. If multiple operation processes fail to execute, the content of the error will be output as a string. |
| plural_designation_result | If multiple operation processes execute successfully, the execution results will be output as an XML format string. See below for details. |
| non_arrival_number | This variable is set to the number of operation processes that executed but then terminated without reaching their Exit nodes. |

| Variable | Description |
|------------|---|
| returnCode | This variable is set to the return value. |

plural_designation_result format

The execution result is output by the following formats.

| Tag | Description | Remarks |
|--------------|---|------------------------------------|
| ParameterSet | Tag that shows sets of the entire parameters passed to operation process. | Number of occurrences:1 |
| Parameter | Tag that shows parameter passed when operation process of one degree is executed. | Number of occurrences: One or more |
| | Attribute name: ID The value input before the operation process is executed enters. | Appearance: Essential |
| | Attribute name: ProcessInstanceID Process instance ID of the executed operation process is stored. | Appearance: Essential |
| | Attribute name: Result The execution result of the operation process is stored. When the operation process reaches the Exit node, "SUCCESS" is stored. When the error occurs, "ERROR" is stored. When the operation process is interrupted, "ABORTED" is stored. | Appearance: Essential |
| | Attribute name:ExitNodeName The name of the Exit node that reaches the operation process is stored. When not reaching the Exit node, the value is not set. | Appearance: Optional |
| TargetUDA | Tag corresponding to user definition attribute on executed operation process. | Number of occurrences: One or more |
| | Attribute name:Name The value input before the operation process is executed enters. | Appearance: Essential |
| | Attribute name:Value The value stored in the user definition attribute corresponding to Name enters after the operation process is executed. | Appearance: Essential |

For example:

```
<?xml version="1.0" encoding="UTF-8"?>
<ParameterSet>
  <Parameter ID="1" ProcessInstanceID="1010" Result="SUCCESS" ExitNodeName="Exit1">
    <TargetUDA Name="hostname" Value="serverA"/>
    <TargetUDA Name="patchId" Value="T888888XX-88"/>
  </Parameter>
  <Parameter ID="2" ProcessInstanceID="1020" Result="SUCCESS" ExitNodeName="Exit2">
    <TargetUDA Name="hostname" Value="serverB"/>
    <TargetUDA Name="patchId" Value="T999999XX-99"/>
  </Parameter>
</ParameterSet>
```

```

</Parameter>
<Parameter ID="3" ProcessInstanceID="1030" Result="ERROR">
  <TargetUDA Name="hostname" Value="serverC" />
  <TargetUDA Name="patchId" Value="T999999XX-99" />
</Parameter>
...
<Parameter ID="N" ProcessInstanceID="1040" Result="ABORTED">
  <TargetUDA Name="hostname" Value="serverZ" />
  <TargetUDA Name="patchId" Value="T999999XX-99" />
</Parameter>
</ParameterSet>

```

Notes

- The specified operation process (operation process specified with subflowname) should be stored in the same process group as the operation process including this operation component, and be put into the state to open the operation process specified with subflowname to the public.
- The return value is confirmed with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" of *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

- If the Automated Operation Process which executed by this operation component is paused or aborted, the operation process which executed by this operation component is not paused or not aborted. As necessary, execute to pause or abort operation process which executed by this operation component.
- If the Automated Operation Process which executed by this operation component is paused, and if the operation process which executed by this operation component is paused, restart operation is required to execute in the following order.
 1. Restarting operation process which executed by this operation component.
 2. Restarting Automated Operation Process which run this operation component.

3.3 Email Operation Components

3.3.1 Send emails



Description

This operation component uses an SMTP server to send emails to the specified email address.

Options

Basic Options

(1) hostname

Host name or IP address of the outgoing mail (SMTP) server.

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) **fromaddress**

Address of the email sender.

An argument error occurs if the sender's address is omitted.

The maximum length of the sender's address is 1,024 characters. An argument error occurs if this is exceeded.

(3) **toaddress**

Destination address of the email.

Delimit with ";" to specify multiple destination addresses.

An argument error occurs if the destination address is omitted.

The maximum length of the destination address is 1,024 characters. An argument error occurs if this is exceeded.

(4) **subject**

Title of the email.

The maximum length of the title of the email is 1,024 characters. An argument error occurs if this is exceeded.

(5) **text**

Body of the email.

The maximum length of the body of the email is 2,048 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) **ccaddress**

CCs for email.

Delimit with ";" to specify multiple CC.

The email is sent only to the destination address if the CC is omitted.

The maximum length of the CC is 1,024 characters. An argument error occurs if this is exceeded.

(2) **filename**

Name of the file attached to the email.

Specify a full path including the directory for the file name.

Delimit with ";" to specify multiple file names.

Binary files (such as image files and compressed files) and text files can be specified.

If a text file has been specified, the file is attached to the email without character code conversion.

The maximum length of the file name is 1,024 characters. An argument error occurs if this is exceeded.

(3) **smtpusername**

Name of the user that is to perform SMTP authentication on the host of the outgoing mail (SMTP) server.

If the user name is omitted, then emails will be sent without SMTP authentication.

The maximum length of the user name is 1,024 bytes. An argument error occurs if this is exceeded.

(4) **smtppassword**

Password of the user that is to perform SMTP authentication on the host of the outgoing mail (SMTP) server.

If the password is omitted, then emails will be sent without SMTP authentication.

The maximum length of the password required for authentication is 1,024 characters. An argument error occurs if this is exceeded.

(5) port

The port number for connecting to the outgoing mail (SMTP) server.

Specify the port number using an integer between 0 and 65535. Specify the TCP port number

When no port number is specified, 25 is used.

(6) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(7) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it does not reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(8) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Email send terminated normally. |
|  | Failure | 161 | Failed to send email. Retried if a retry count has been specified. |
| | | 188 | Connection failed during execution. |
| | | 189 | An attempt to connect to the server has failed. |
| | | 197 | There is an error in the option content. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|---|
| message | This variable will be set to the following message if email has been sent successfully. The operation component was successful. If email transmission fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses SMTP communication to perform its operations. Ensure the SMTP server is installed and configured before you use this operation component. Also, encryption of SMTP communication by SSL or TLS is not supported. Communication with an SMTP server that requires either SSL or TLS encryption will result in an error with the return value of 189 or 197.
- When using operation components, the communication port which requires communication permission on the Business Server is the number specified in the port option. If no port is specified, it is TCP port 25.
- Characters in 'subject' may be garbled if more than 60 characters are used.
- If model-dependent characters are specified in the "subject", "text", or "filename" options, these characters may not display correctly depending on which mail server is used.
- The file size attached to an email depends on the mail server being used. Check the file size attached to an email with the SMTP server administrator.
- The name of the file to be attached may contain alphanumeric, white space and full width characters, and the symbols below.
Symbols that can be used: "!", "~", "_", "-", ".".
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4 File Operation Components

3.4.1 Transfer files



Description

This operation component transfers files.

Specify host names or IP addresses to acquire files from the specified host, and then copy to another host.

Options

Basic Options

(1) hostname

Host name or IP address of the file transfer destination.

To set the file transfer destination on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address of the file transfer destination is omitted.

The maximum length of the host name or IP address of the file transfer destination is 1,024 characters. An argument error occurs if this is exceeded.

(2) sourcehostname

Host name or IP address of the file transfer source.

To set the file transfer source on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address of the file transfer source is omitted.

The maximum length of the host name or IP address of the file transfer source is 1,024 characters. An argument error occurs if this is exceeded.

When hostname and source hostname match, the file is copied to the specified host.

If the Business Server specified as the file transfer target is different from file transfer source, then the files are transferred from the source host to the Management Server, and from there to the target host.

(3) sourcefile

The name (full path) of the transfer source file.

When FTP is used and the source server is not the Management Server, specify the name of the file using a relative path starting from the home directory of the FTP server.

Binary files (such as image files and compressed files) and text files can be specified.

If a text file is specified, the file is transferred without character code conversion.

An argument error occurs if the file name is omitted.

The maximum length of the file name is 255 characters. An argument error occurs if this is exceeded.

(4) destinationfile

The name (full path) of the transfer destination file.

When FTP is used and the destination server is not the Management Server, specify the name of the file using a relative path starting from the home directory of the FTP server.

An argument error occurs if the file name is omitted.

The maximum length of the file name is 255 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) connectiontype

This is the method used for communication with the host.

Specify "File Transfer Infrastructure", "SSH" or "FTP". This option is not case sensitive.

An argument error will occur if a value other than those listed above is specified.

If the communication method was not entered, a method will be searched for and used.

(2) ostype

OS type of the file transfer destination host.

Specify Windows or Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(3) username

Name of the user connecting with SSH or FTP to the file transfer destination host.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(4) password

Password of the user connecting with SSH or FTP to the file transfer destination host.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(5) charactercode

This is the character encoding for the host to which the file is to be sent.

This option does not take effect if 'localhost', '127.0.0.1' or ':::1' is specified for "hostname".

Specify "UTF-8", "SJIS" or "EUC". This option is not case sensitive.

An argument error will occur if a value other than "UTF-8", "SJIS" and "EUC" is specified.

If this option is omitted, the behavior will be as follows:

- If the communication method is FTP, this option will be set to "UTF-8".
- If the communication method is not FTP, the character encoding for the destination host will be detected automatically.

(6) sourceostype

OS type of the file transfer source host.

Specify Windows or Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(7) sourceusername

Name of the user connecting with SSH or FTP to the file transfer source host.

If the user name of the file transfer source and password required for connection are omitted, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, "sourceusername" will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(8) sourcepassword

Password of the user connecting with SSH or FTP to the file transfer source host.

If the user name of the file transfer source and password required for connection are omitted, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(9) sourcecharactercode

This is the character encoding for the host from which the file is to be sent.

This option does not take effect if either 'localhost', '127.0.0.1' or ':::1' is specified for "sourcehostname".

Specify "UTF-8", "SJIS" or "EUC". This option is not case sensitive.

An argument error will occur if a value other than "UTF-8", "SJIS" and "EUC" is specified.

If this option is omitted, the behavior will be as follows:

- If the communication method is FTP, this option will be set to "UTF-8".
- If the communication method is not FTP, the character encoding for the destination host will be detected automatically.

(10) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(11) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(12) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry, and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Success | 0 | Transferring the file was successful. |
|  | Failure | 161 | Failed to transfer the file. Retried if a retry count has been specified. |
| | | 177 | Failed to access the file. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH or FTP). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH, FTP) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH or FTP) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 200 | Transferring of file terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if the file is transferred successfully. The operation component was successful. If the file transfer fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure, SSH, or FTP communication to perform its operations when specify the host name other than the Management Server. Specify settings so that communications can be performed using at least one of these methods. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Use alphanumeric characters and white space and full width characters, and the symbols below for the names of the files to get or transfer.
Symbols that can be used: "!", "~", "_", "-", "."
- If the specified sourcefile is a symbolic link, the linked file will be transferred.
- If the file of the same name as destinationfile exists in destination host, overwrite the file. If the specified filename is a symbolic link, the linked file will be overwritten. If the directory does not exist, the error code 177 will be returned.
- If Management Server is Windows and Business Server is Solaris, and if it used FTP as communication with Business Server, it takes time to translate than FTP command.
- Confirm the return values with the Web console. Refer to "*Checking the execution result of operation component*" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to "Confirming the Operation Component Execution Status/Execution Results" for details.

3.4.2 Change file access permissions



Description

This operation component changes the access permissions for a file.

Options

Basic Options

(1) hostname

Host name or IP address where the file whose access permissions are to be changed resides.

To change the access permission the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) filename

The name (full path) of the file whose access permissions are to be changed.

An argument error occurs if the file name is omitted.

The maximum length of the file name is 1,024 characters. An argument error occurs if this is exceeded.

(3) ownerauthority

Access permission content of the owner of the file to be changed.

Specify execute permission (X), read (R), write (W), or cancel all permissions (C).

Multiple access permissions can be specified.

Specify access permissions as follows:

| Permissions content | OS type: Linux or Solaris | OS type: Windows |
|---------------------|-------------------------------|------------------|
| C | Cancel all permissions | Read only |
| X | Execute permissions only | Read only |
| W | Write permissions only | Writable |
| WX | Write and execute permissions | Writable |
| R | Read permissions only | Read only |
| RX | Read and execute permissions | Read only |
| RW | Read and write permissions | Writable |
| RWX | Full control | Writable |

Permissions content must be entered using the letters shown above and in the shown order.

An argument error will occur if any other value for permissions content is specified.

If the access permissions for a file are changed using the file transfer infrastructure and the file is in a Windows environment, the file attributes are changed.

If the access permissions for a file are to be changed on an environment where the OS type is Windows, the attribute of the file is changed.

An argument error occurs if the content of access permissions is omitted.

The maximum length of access permissions content is 1,024 characters. An argument error occurs if this is exceeded.

(4) groupauthority

Access permission content of the owner group of the file to be changed.

Specify execute permission (X), read (R), write (W), or cancel all permissions (C).

Multiple access permissions can be specified.

Specify access permissions as follows:

| Permissions content | OS type: Linux or Solaris | OS type: Windows |
|---------------------|-------------------------------|------------------|
| C | Cancel all permissions | - |
| X | Execute permissions only | - |
| W | Write permissions only | - |
| WX | Write and execute permissions | - |
| R | Read permissions only | - |

| Permissions content | OS type: Linux or Solaris | OS type: Windows |
|---------------------|------------------------------|------------------|
| RX | Read and execute permissions | - |
| RW | Read and write permissions | - |
| RWX | Full control | - |

Permissions content must be entered using the letters shown above and in the shown order.

An argument error will occur if any other value for permissions content is specified.

If the access permissions for a file are to be changed on an environment where the OS type is Windows, the specified content is invalid.

An argument error occurs if the content of access permissions is omitted.

The maximum length of access permissions content is 1,024 characters. An argument error occurs if this is exceeded.

(5) otherauthority

Access permission content of the other users of the file to be changed.

Specify execute permission (X), read (R), write (W), or cancel all permissions (C).

Multiple access permissions can be specified.

Specify access permissions as follows:

| Permissions content | OS type: Linux or Solaris | OS type: Windows |
|---------------------|-------------------------------|------------------|
| C | Cancel all permissions | - |
| X | Execute permissions only | - |
| W | Write permissions only | - |
| WX | Write and execute permissions | - |
| R | Read permissions only | - |
| RX | Read and execute permissions | - |
| RW | Read and write permissions | - |
| RWX | Full control | - |

Permissions content must be entered using the letters shown above and in the shown order.

An argument error will occur if any other value for permissions content is specified.

If the access permissions for a file are to be changed on an environment where the OS type is Windows, the specified content is invalid.

An argument error occurs if the content of access permissions is omitted.

The maximum length of access permissions content is 1,024 bytes. An argument error occurs if this is exceeded.

Advanced Options

(1) ostype

OS type of the host changing file access permissions.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

Name of the user connecting with SSH to the host where the file whose access permissions are to be changed resides.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(3) password

Password of the user connecting with SSH to the host where the file whose access permissions are to be changed resides.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(4) execusername

Name of the user changing access permissions on the host where the file whose access permissions are to be changed resides.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(6) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(7) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(8) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry, and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Changing access permissions of the file was successful. |
|  | Failure | 161 | Failed to change access permissions of the file. Retried if a retry count has been specified. |
| | | 177 | Failed to access the file. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over a network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 200 | Changing access permissions of the file terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | <p>This variable will be set to the following message if the access permissions for the file are changed successfully.</p> <p>The operation component was successful.</p> <p>If changing the access permissions for the file fails, the content of the error will be output as a string.</p> |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- Use alphanumeric characters and white space and full width characters, and the symbols below for the names of the file to change access permissions.
Symbols that can be used: "!", "~", "_", "-", "."
- If the specified filename is a symbolic link, the access permissions to the linked file will be changed.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.3 Check that the file exists



Description

This operation component confirms whether a file exists.

Options

Basic Options

(1) hostname

Host name or IP address of the host that will confirm the existence of the file.

To confirm the existence of the file on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) filename

The name (full path) of the file whose existence is to be confirmed.

An argument error occurs if the file name is omitted.

The maximum length of the file name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) ostype

OS type of the host confirming the existence of the file.

Specify Window, Linux, or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

Name of the user connecting with SSH to the host confirming the existence of the file.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(3) password

Password of the user connecting with SSH to the host confirming the existence of the file.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(4) execusername

Name of the user confirming the existence of the file on the host where the existence of the file is to be confirmed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

if not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(6) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(7) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(8) retry_interval




This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry, and retry_interval is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|----------------|--------------|---|
|  | Exists | 0 | The file exists. |
|  | Does not exist | 161 | The file doesn't exist. Retried if a retry count has been specified. |
|  | Failure | 177 | Failed to access the file. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 198 | There is an error in the option content. |
| | | 200 | Existence confirmation of file terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|---|
| message | If the file is determined to exist, this variable will be set to "Exist". If the file is determined to be nonexistent, this variable will be set to "None". If checking the existence of the file fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- Use alphanumeric characters and white space and full width characters, and the symbols below for the names of the files confirming the existence.
Symbols that can be used: "!", "~", "_", "-", "."
- If the specified filename is a symbolic link, the existence of the linked file will be checked.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.4 Check that file/directory exists



Description

This operation component checks whether a file or directory exists on the host.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) filename

The name (full path) of the file/directory whose existence is to be confirmed.

An argument error occurs if the file name or directory name is omitted.

The maximum length of the file name or directory name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) ostype

Operating system of the host executing the operation component.

Specify Windows, Linux, or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

This is the name of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(3) password

This is the password of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with the file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(4) **execusername**

This is the name of the user that executes the command on the target host where the operation component is to be executed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value. If an administrator user has not been registered with the CMDB, the command will be executed using the name of the connected user.

If the host specified in "hostname" is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

The maximum length of the executing user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) **execpassword**

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(6) **timeout**

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(7) **retry**

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(8) **retry_interval**


This is the retry interval (seconds) for operation components.




Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|-------------|--------------|------------------|
|  | File exists | 0 | The file exists. |

| Icon | Name | Return value | Description |
|---|------------------|--------------|--|
|  | Directory exists | 1 | The directory exists. |
|  | Does not exist | 161 | The file /directory does not exist. If a retry count has been specified, retries will be attempted. |
|  | Failure | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code of the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error with the input information. |
| | | 198 | There is an error with an option specification. |
| | | 200 | Checking the existence of the file or directory has terminated abnormally. |
| | | - | - |
| - | - | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| - | - | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |
| - | - | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| - | - | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| - | - | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| - | - | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if the existence of a file or directory is checked successfully. The operation component was successful. If checking the existence of a file or directory fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH. Specify settings so that communications can be performed using at least one of these methods. Refer to "3.16 Notes of Each Communication Method" for information on communication methods.
- Refer to "3.16.7 Notes When Connected User And Executing User Are Different" for information on different connected and executing users.
- For the name of the file or directory whose existence is to be checked, use only alphanumeric characters and white space and full width characters, and the symbols below:
- Symbols that can be used: "! " ~ " _ " - " . "
- If the specified filename is a symbolic link, the existence of the linked file/directory will be checked.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.5 Create files



Description

This operation component creates text files. If the middle directory of the file passing does not exist, the directory is created.

Options

Basic Options

(1) hostname

Host name or IP address of the host that will create the file.

To create on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or ':::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) filename

The name (full path) of the file to be created.

If the specified directory does not exist, then it will be created.

An argument error occurs if the file name is omitted.

The maximum length of the file name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) text

String to be written to the file.

If the string is omitted, an empty file will be created.

The maximum length of the string to be written is 4,096 characters. An argument error occurs if this is exceeded.

(2) overwrite

If the file being created already exists, specify "on" or "off" for overwrite. This option is not case sensitive.

If "on" is specified, it overwrites when the file already exists.

If "off" is specified, the error is returned when the file already exists.

If the specification is omitted, specify 'off'.

(3) ostype

OS type of the host creating the file.

Specify Windows, Linux, or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(4) username

Name of the user connecting with SSH to the host creating the file.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(5) password

Password of the user connecting with SSH to the host creating the file.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(6) execusername

Name of the user creating the file on the host where the file is to be created.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(7) `execpassword`

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(8) `timeout`

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(9) `retry`

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(10) `retry_interval`

This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry, and `retry_interval` is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to ["2.5 Definition File for Operation Components"](#) for details.

Return Values

| Icon | Name | Return value | Description |
|------|---------|--------------|---|
| | Success | 0 | Creating the file was successful. |
| | Failure | 161 | Failed to create the file. Retried if a retry count has been specified. |
| | | 177 | Failed to access the file. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | | to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 198 | There is an error in the option content. |
| | | 200 | Creation of file terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if the file is created successfully. The operation component was successful. If file creation fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to ["3.16 Notes of Each Communication Method"](#) for information on communication methods.
- Refer to ["3.16.7 Notes When Connected User And Executing User Are Different"](#) for information on different connected and executing users.
- Use alphanumeric characters and white space and full width characters, and the symbols below for the names of the files to create.
Symbols that can be used: "!", "~", "_", "-", "."
- If the specified filename is a symbolic link, the linked file will be created or updated. An error will occur if the linked file is a directory.
- This operation component creates text files with the character encodings listed in the following table.

| Host where files are to be created | Character encoding of the text file |
|--|-------------------------------------|
| Windows Management Server | SJIS |
| Linux Management Server | UTF-8 |
| Windows Linked Server or Business Server | SJIS |

| Host where files are to be created | Character encoding of the text file |
|---|---|
| Linux ,Solaris Linked Server or Business Server | Character encoding specified by the LANG environment variable |

- If the host creating the file is running Linux or Solaris, a file will be created by the following owners and access permissions.
 - Owner: root
 - Owner's access permissions: read permission and write permission
 - Owners group access permissions: read permission
 - Other users' access permissions: read permission
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.6 Delete files



Description

This operation component deletes files.

Options

Basic Options

(1) hostname

Host name or IP address of the host that will delete the file.

To delete file on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) filename

The name (full path) of the file to be deleted.

An argument error occurs if the file name is omitted.

The maximum length of the file name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) ostype

OS type of the host deleting the file.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

Name of the user connecting with SSH to the host deleting the file.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(3) password

Password of the user connecting with SSH to the host deleting the file.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(4) execusername

Name of the user deleting the file on the host where the file is to be deleted.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(6) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(7) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(8) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry, and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Deleting the file was successful. |
|  | Failure | 161 | Failed to delete the file. Retried if a retry count has been specified. |
| | | 177 | Failed to access the file. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 198 | There is an error in the option content. |
| | | 200 | Deletion of file terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if the file is deleted successfully. The operation component was successful. If file deletion fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- Use alphanumeric characters and white space and full width characters, and the symbols below for the names of the files to delete.
Symbols that can be used: "!", "~", "_", "-", "."
- If the specified filename is a symbolic link, the linked file will be deleted.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.7 Copy files/directories



Description

This operation components copies files and directories.

Options

Basic Options

(1) hostname

Host name or IP address of the host that will execute operation components.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) sourcefile

The name (full path) of the copy source file or directory.

An argument error occurs if the file or directory name is omitted.

The maximum length of the file or directory name is 1,024 characters. An argument error occurs if this is exceeded.

(3) destination

The full path of the destination file/directory where the source file is to be copied.

If a file name is specified in sourcefile and the path to the directory where the file is to be copied is specified in destination, the file is copied using the same file name as specified in sourcefile.

An argument error occurs if the file name or directory name is omitted.

The maximum length of the file/directory name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) overwrite

If a file or directory already exists in the copy destination, specify "on" or "off" for overwrite. This option is not case sensitive.

If "on" is specified, it overwrites when the file or directory already exists.

If "off" is specified, the error is returned when the file or directory already exists.

If the specification is omitted, specify 'off'.

(2) ostype

OS type of the host where operation components are to be executed.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(3) username

Name of the user connecting with SSH to the host where operation components are to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(4) password

Password of the user connecting with SSH to the host where operation components are to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(5) execusername

Name of the user copying the file on the host where operation components are to be executed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(6) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(7) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(8) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(9) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry, and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to ["2.5 Definition File for Operation Components"](#) for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Copy to the file/directory was successful. |
|  | Failure | 161 | Failed to copy the file/directory. Retried if a retry count has been specified. |
| | | 177 | Failed to access the file/directory. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 198 | There is an error in the option content. |
| | | 200 | Copy to the file/directory terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------|--|
| message | This variable will be set to the following message if the file or directory is copied successfully. The operation component was successful. If copying the file or directory fails, the content of the error will be output as a string. |

| Variable | Description |
|------------|---|
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- Use alphanumeric characters and white space and full width characters, and the symbols below for the names of the files and directories to copy.

Symbols that can be used: "!", "~", "_", "-", "."

- The behavior will vary depending on sourcefile, destination, and overwrite:
 - If a file is specified in sourcefile:

| | If overwrite is off | If overwrite is on |
|---|---|---|
| File does not exist in destination | File will be copied with the specified name. | File will be copied with the specified name. |
| File exists in destination | Operation component will terminate with return value 177. | File will be copied with the specified name. |
| Directory does not exist in destination | Directory will be copied as a file (*). | Directory will be copied as a file . |
| Directory exists in destination | File will be copied to a directory under the specified directory. | File will be copied to a directory under the specified directory. |

Note: If the string ends in "/"(for example, "c:/aaa/bbb/"), then the file will be copied as the last sub-folder("bbb").

- If a directory is specified in sourcefile:

| | If overwrite is off | If overwrite is on |
|---|---|---|
| File does not exist in destination | File will be copied as a directory. | File will be copied as a directory. |
| File exists in destination | Operation component will terminate with return value 177. | Operation component will terminate with return value 177. |
| Directory does not exist in destination | Directory will be copied. | Directory will be copied. |
| Directory exists in destination | Operation component will terminate with return value 177. | Directory will be copied. |

- If the specified sourcefile is a symbolic link, the linked file/directory will be copied.
- If the specified destinationfile is a symbolic link, the linked file/directory will be the target.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.8 Move files/directories



Description

This operation component moves files and directories.

Options

Basic Options

(1) hostname

Host name or IP address of the host where operation components are to be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) sourcefile

The name (full path) of the move source file or directory.

An argument error occurs if the file name or directory name is omitted.

The maximum length of the file name or directory name is 1,024 characters. An argument error occurs if this is exceeded.

(3) destination

The full path of the destination file/directory where the source file is to be moved.

If a file name is specified in sourcefile and the path to the directory where the file is to be moved is specified in destination, the file is moved using the same file name as specified in sourcefile.

An argument error occurs if the file name or directory name is omitted.

The maximum length of the file/directory name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) overwrite

If a file or directory already exists in the move destination, specify "on" or "off" for overwrite. This option is not case sensitive.

If "on" is specified, it overwrites when the file or directory already exists.

If "off" is specified, the error is returned when the file or directory already exists.

If the specification is omitted, specify 'off'.

(2) ostype

OS type of the host where operation components are to be executed.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(3) username

Name of the user connecting with SSH to the host where operation components are to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(4) password

Password of the user connecting with SSH to the host where operation components are to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(5) execusername

Name of the user executing the command on the host where operation components are to be executed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(6) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(7) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(8) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(9) retry_interval

This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry, and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|------|---------|--------------|---|
| | Success | 0 | Moving the file/directory was successful. |
| | Failure | 161 | Failed to move the file/directory. Retried if a retry count has been specified. |
| | | 177 | Failed to access the file/directory. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 198 | There is an error in the option content. |
| | | 200 | Move to the file/directory terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if the file or directory is moved successfully. The operation component was successful. If moving the file or directory fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- Use alphanumeric characters and white space and full width characters, and the symbols below for the names of the files and directories to move.

Symbols that can be used: "!", "~", "_", "-", "."

- Depending upon the combination of sourcefile, destination, and overwrite specifications, operation of this operation component is as below:
 - If a file is specified to sourcefile:

| | If overwrite is off | If overwrite is on |
|---|--|--|
| File does not exist in destination | File will be moved and renamed. | File will be moved and renamed. |
| File exists in destination | Operation component will terminate with return value 177. | File will be moved and renamed. |
| Directory does not exist in destination | Directory will be moved as a file (*) | Directory will be moved as a file |
| Directory exists in destination | File will be moved to a directory under the specified directory. | File will be moved to a directory under the specified directory. |

Note: If the string ends in "/"(for example, "c:/aaa/bbb/"), then the file will be moved as the last sub-folder("bbb").

- If a directory is specified in sourcefile:

| | If overwrite is off | If overwrite is on |
|---|---|---|
| File does not exist in destination | File will be moved as a directory. | File will be moved as a directory. |
| File exists in destination | Operation component will terminate with return value 177. | Operation component will terminate with return value 177. |
| Directory does not exist in destination | Directory will be moved. | Directory will be moved. |
| Directory exists in destination | Operation component will terminate with return value 177. | Directory will be moved. |

- If the specified sourcefile is a symbolic link, the linked file/directory will be moved. After the operation, you must change the symbolic link to the location of the file/directory.
- If the specified destinationfile is a symbolic link, the target will be the linked file/directory.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.

- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.9 Get list of files/directories



Description

This operation component obtains a list of files and directories under a specific directory.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) directoryname

The name (full path) of the directory used for the obtained file/directory list.

An argument error occurs if the directory name is omitted.

The maximum length of the directory name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) listmode

This is the display type ("display or do not display file" or "display or do not display directory") used for the obtained file/directory list.

If "file" is specified, a list of all the files is obtained.

If "directory" is specified, a list of all the directories is obtained.

If "all" is specified, a list of all (files and directories) is obtained.

If this option is omitted, it will be set to "all". This option is not case sensitive.

(2) showhidden

This is the obtain type ("display or do not display hidden files" or "display or do not display hidden directories") used for the file/directory list.

If "on" is specified, hidden files/directories will be included in the list.

If "off" is specified, hidden files/directories will not be included in the list.

If nothing was specified, the setting will be "off". This option is not case sensitive.

(3) ostype

Operating system of the host executing the operation component.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(4) username

This is the name of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) password

This is the password of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with the file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(6) execusername

This is the name of the user that executes the command on the target host where the operation component is to be executed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value. If an administrator user has not been registered with the CMDB, the command will be executed using the name of the connected user.

If the host specified in "hostname" is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

The maximum length of the executing user name is 1,024 characters. An argument error occurs if this is exceeded.

(7) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(8) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(9) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(10) retry_interval



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | A list of files and directories has been obtained successfully. |
|  | Failure | 161 | An attempt to obtain a list of files and directories failed. If a retry count has been specified, retries will be attempted. |
| | | 177 | An attempt to access a file or directory failed. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error with the input information. |
| | | 198 | There is an error with an option specification. |
| | | 200 | Obtaining a list of files and directories terminated abnormally. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if a list of files and directories is obtained successfully. The operation component was successful. If obtaining a list of files and directories fails, the content of the error will be output as a string. |
| file_list | This variable is set to the result of obtaining a list of files and directories. |
| returnCode | This variable is set to the return value. |

The format for the "file_list" variable is as follows:

[Absolute path to the file or directory]

Windows:

"D:\test\Test1.txt", "D:\test\Test", "D:\test\Test2.log", "D:\test\Test3.cfg", "D:\test\Test4", ...

Linux or Solaris:

"/root/test/Test", "/root/test/Test1.log", "/root/test/Test2.cfg", "/root/test/Test3.log", ...

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH. Specify settings so that communications can be performed using at least one of these methods. Refer to ["3.16 Notes of Each Communication Method"](#) for information on communication methods.
- Refer to ["3.16.7 Notes When Connected User And Executing User Are Different"](#) for information on different connected and executing users.
- For the directory for which a list of files and directories is to be obtained, use only alphanumeric characters and white space and full width characters, and the symbols below:
- Symbols that can be used: "!" "~" "_" "-" "."
- If the specified directoryname is a symbolic link, the list of files/directories under the linked directory will be obtained.
- Use the Web console to check the return value. Refer to ["Confirming the Operation Component Execution Status/Execution Results"](#) in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.10 Get file/directory size



Description

This operation component obtains the size of a file or directory.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) filename

The name (full path) of the file/directory used for the obtained file/directory size.

An argument error occurs if the file name or directory name is omitted.

The maximum length of the file name or directory name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) sizeunit

The unit used for the obtained file/directory size.

Specify "B", "KB" or "MB".

If this option is omitted, it will be set to "KB". This option is not case sensitive.

(2) ostype

Operating system of the host executing the operation component.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(3) username

This is the name of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(4) password

This is the password of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with the file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(5) execusername

This is the name of the user that executes the command on the target host where the operation component is to be executed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value. If an administrator user has not been registered with the CMDB, the command will be executed using the name of the connected user.

If the host specified in "hostname" is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

The maximum length of the executing user name is 1,024 characters. An argument error occurs if this is exceeded.

(6) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(7) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(8) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(9) retry_interval



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|--|--------------|---|
|  | Success | 0 | The size of a file or directory has been obtained successfully. |
|  | Failure | 161 | An attempt to obtain the size of a file or directory failed. If a retry count has been specified, retries will be attempted. |
| | | 177 | An attempt to access a file or directory failed. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection with the Business Server has been closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error with the input information. |
| | | 198 | There is an error with an option specification. |
| | | 200 | Obtaining the size of a file or directory has terminated abnormally. |
| | | - | - |
| 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. | | |
| 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. | | |
| 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. | | |
| 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. | | |
| 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. | | |
| 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. | | |

Output information

| Variable | Description |
|----------|---|
| message | <p>This variable will be set to the following message if the size of a file or directory is obtained successfully.</p> <p>The operation component was successful.</p> <p>If obtaining the size of a file or directory fails, the content of the error will be output as a string.</p> |

| Variable | Description |
|------------|--|
| | The units for the size specification are determined by the value specified in the "sizeunit" option. |
| file_size | This variable is set to the size of a file or directory. |
| returnCode | This variable is set to the return value. |

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH. Specify settings so that communications can be performed using at least one of these methods. Refer to ["3.16 Notes of Each Communication Method"](#) for information on communication methods.
- Refer to ["3.16.7 Notes When Connected User And Executing User Are Different"](#) for information on different connected and executing users.
- For the name of the file or directory whose size is to be obtained, use only alphanumeric characters and white space and full width characters, and the symbols below:
- Symbols that can be used: "!" "~" "_" "-" "."
- If the specified filename is a symbolic link, the size of the linked file/directory will be obtained.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.11 Check file/directory access permissions



Description

This operation component checks the access permissions for a file or directory.

If the operating system type is Windows, this component checks whether the attribute value is "read only" or "read/write".

If the operating system type is Linux or Solaris, this component checks whether the user that executed the component has the specified access permissions.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) filename

The name (full path) of the file/directory, where the file/directory access permissions are checked.

An argument error occurs if the file name or directory name is omitted.

The maximum length of the file name or directory name is 1,024 characters. An argument error occurs if this is exceeded.

(3) authority

access permissions information where the file/directory access permissions are checked.

When the operating system is Windows and the access permissions for the existing file/directory are checked, the file/directory attribute value is checked.

Specify "X" (execute), "R" (read) or "W" (write).

Multiple access permissions can be specified.

Specify access permissions as follows:

If the operating system type is Windows, any of the following can be specified.

To check "read-only", specify "X", "R" or "RX".

To check "read/write", specify "W", "WX", "RW" or "RWX".

| Permissions content | Operating system type: Linux, Solaris | Operating system type: Windows |
|---------------------|---------------------------------------|--------------------------------|
| X | Execute permission only | Read only |
| W | Write permission only | Writable |
| WX | Write and execute permission | Writable |
| R | Read permission only | Read only |
| RX | Read and execute permission | Read only |
| RW | Read and write permission | Writable |
| RWX | Full control | Writable |

Permissions content must be entered using the uppercase letters shown above in the shown order.

An argument error will occur if any value other than those shown above is specified for permissions content.

An argument error will occur if the content of the access permissions is omitted.

The maximum length of the string for the content of the access permissions is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) ostype

Operating system of the host executing the operation component.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

This is the name of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(3) password

This is the password of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with the file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(4) execusername

This is the name of the user that executes the command on the target host where the operation component is to be executed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value. If an administrator user has not been registered with the CMDB, the command will be executed using the name of the connected user.

If the host specified in "hostname" is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

The maximum length of the executing user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(6) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(7) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(8) retry_interval




This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to ["2.5 Definition File for Operation Components"](#) for details.

Return Values

| Icon | Name | Return value | Description |
|---|--|--------------|---|
|  | Matches | 0 | The access permissions for a file or directory have been checked successfully. The access permissions match the content of the access permissions being checked. |
|  | Does not match | 1 | The access permissions for a file or directory have been checked successfully. The access permissions do not match the content of the access permissions being checked. |
|  | Failure | 161 | An attempt to check the access permissions for a file or directory failed. If a retry count has been specified, retries will be attempted. |
| | | 177 | An attempt to access a file or directory has failed. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 197 | There is an error with the input information. |
| | | 200 | Checking the access permissions for a file or directory has terminated abnormally. |
| | | - | - |
| 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. | | |
| 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. | | |
| 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. | | |
| 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. | | |
| 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. | | |
| 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. | | |

Output information

| Variable | Description |
|----------------|---|
| message | This variable will be set to the following message if the access permissions for a file or directory are checked successfully. The operation component was successful. If checking the access permissions for a file or directory fails, the content of the error will be output as a string. |
| file_attribute | This variable is set to the access permissions for a file or directory. |
| returnCode | This variable is set to the return value. |

- If the operating system is Windows, the "file_attribute" variable will be set using the following format. For FAT32 file systems, however, the following access permissions will not be displayed.

```
C:\sample.txt BUILTIN\administrators:F
                NT AUTHORITY\SYSTEM:F
                BUILTIN\Users:R
```

- If the operating system is Linux or Solaris, the "file_attribute" variable will be set using the following format.

```
-rw-r--r-- 1 root root 155 2011/07/25 15:55:58 sample.sh
```

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH. Specify settings so that communications can be performed using at least one of these methods. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- For the name of the file or directory for which access permissions are to be checked, use only alphanumeric characters and white space and full width characters, and the symbols below:
- Symbols that can be used: "!" "~" "_" "-" "."
- If the specified filename is a symbolic link, the access permissions of the linked file/directory will be checked.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.12 Get file/directory update date and time



Description

This operation component obtains the update date and time for a file or directory.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) filename

The name (full path) of the file/directory for which the update date and time is to be obtained.

An argument error occurs if the file name or directory name is omitted.

The maximum length of the file name or directory name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) ostype

Operating system of the host executing the operation component.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

This is the name of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(3) password

This is the password of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(4) execusername

This is the name of the user that executes the command on the target host where the operation component is to be executed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as

the value. If an administrator user has not been registered with the CMDB, the command will be executed using the name of the connected user.

If the host specified in "hostname" is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

The maximum length of the executing user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) **execpassword**

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(6) **timeout**

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(7) **retry**

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(8) **retry_interval**



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to ["2.5 Definition File for Operation Components"](#) for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | The update date and time for a file or directory has been obtained successfully. |
|  | Failure | 161 | An attempt to obtain the update date and time for a file or directory failed. If a retry count has been specified, retries will be attempted. |
| | | 177 | An attempt to access a file or directory failed. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error with the input information. |
| | | 198 | There is an error with an option specification. |
| | | 200 | Obtaining the update date and time for a file or directory terminated abnormally. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|-----------------|--|
| message | This variable will be set to the following message if the update date and time for a file or directory is obtained successfully. The operation component was successful. If obtaining the update date and time for a file or directory fails, the content of the error will be output as a string. |
| file_updatedate | This variable is set to the update date and time (as a string) that has been obtained. The update date and time are output using the following format: yyyyMMddHHmmss |
| returnCode | This variable is set to the return value. |

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH. Specify settings so that communications can be performed using at least one of these methods. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.

- For the name of the file or directory for which the update date and time is to be obtained, use only alphanumeric characters and white space and full width characters, and the symbols below:
- Symbols that can be used: "!" "~" "_" "-" "."
- If the specified filename is a symbolic link, the update date and time of the linked file/directory will be obtained.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.13 Create directory



Description

This operation component creates directories.

Options

Basic Options

(1) hostname

Host name or IP address of the host that will create the directory.

To create the directory on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) directoryname

The name (full path) of the directory to be created.

If the specified directory does not exist, then it will be created.

An argument error occurs if the directory name is omitted.

The maximum length of the directory name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) ostype

OS type of the host creating the directory.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

Name of the user connecting with SSH to the host creating the directory.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(3) password

Password of the user connecting with SSH to the host creating the directory.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(4) execusername

Name of the user creating the directory on the host where the directory is to be created.

If the "execusername" and exepassword are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is ignored even if specified.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) exepassword

This operation component does not use the value of "exepassword". The value of "exepassword" is ignored even if specified.

(6) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(7) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(8) retry_interval

This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry, and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|------|---------|--------------|---|
| | Success | 0 | Creating the directory was successful. |
| | Failure | 161 | Failed to create to the directory. Retried if a retry count has been specified. |
| | | 175 | The directory already exists. |
| | | 177 | Failed to access the directory. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 198 | There is an error in the option content. |
| | | 200 | Creation of the directory terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if the directory is created successfully. The operation component was successful. If directory creation fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- Use alphanumeric characters and white space and full width characters, and the symbols below for the names of the directory to create.
Symbols that can be used: "!", "~", "_", "-", "."
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.14 Delete directory



Description

This operation component deletes directories.

Options

Basic Options

(1) hostname

Host name or IP address of the host that will delete the directory.

To delete the directory on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) directoryname

The name (full path) of the directory to be deleted.

An argument error occurs if the directory name is omitted.

The maximum length of the directory name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) ostype

OS type of the host deleting the directory.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

Name of the user connecting with SSH to the host deleting the directory.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(3) password

Password of the user connecting with SSH to the host deleting the directory.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(4) execusername

Name of the user deleting the directory on the host where the directory is to be deleted.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) `execpassword`

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(6) `timeout`

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(7) `retry`

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(8) `retry_interval`

This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry, and `retry_interval` is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to ["2.5 Definition File for Operation Components"](#) for details.

Return Values

| Icon | Name | Return value | Description |
|------|---------|--------------|---|
| | Success | 0 | Deleting the directory was successful. |
| | Failure | 161 | Failed to delete the directory. Retried if a retry count has been specified. |
| | | 177 | Failed to access the file. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH,) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. |

| Icon | Name | Return value | Description |
|------|------|--------------|---|
| | | | Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 198 | There is an error in the option content. |
| | | 200 | Deletion of the directory terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if the directory is deleted successfully. The operation component was successful. If directory deletion fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- Use alphanumeric characters and white space and full width characters, and the symbols below for the names of the directory to delete.
Symbols that can be used: "!", "~", "_", "-", "."
- If the specified directoryname is a symbolic link, the linked directory will be linked.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.

- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.15 Change directory access permissions



Description

This operation component changes the access permissions for directories.

Options

Basic Options

(1) hostname

Host name or IP address where the directory whose permissions are to be changed resides.

To change the access permission of the directory that exists on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) directoryname

The name (full path) of the directory whose access permissions are to be changed.

An argument error occurs if the directory name is omitted.

The maximum length of the directory name is 1,024 characters. An argument error occurs if this is exceeded.

(3) ownerauthority

Access permission content of the owner of the directory to be changed.

Specify execute permission (X), read (R), write (W), or cancel all permissions (C).

Multiple access permissions can be specified.

Specify access permissions as follows:

| Permissions content | OS type: Linux or Solaris | OS type: Windows (*1) |
|---------------------|-------------------------------|-----------------------|
| C | Cancel all permissions | Read only |
| X | Execute permissions only | Read only |
| W | Write permissions only | Writable |
| WX | Write and execute permissions | Writable |
| R | Read permissions only | Read only |
| RX | Read and execute permissions | Read only |

| Permissions content | OS type: Linux or Solaris | OS type: Windows (*1) |
|---------------------|----------------------------|-----------------------|
| RW | Read and write permissions | Writable |
| RWX | Full control | Writable |

*1: If performing operation using file transfer infrastructure, the directory attributes will be changed, and if using SSH, the security permissions will be changed.

Permissions content must be entered using the letters shown above and in the shown order.

An argument error will occur if any other value for permissions content is specified.

An argument error occurs if the content of access permissions is omitted.

The maximum length of access permissions content is 1,024 characters. An argument error occurs if this is exceeded.

(4) groupauthority

Access permission content of the owner group of the directory to be changed.

Specify execute permission (X), read (R), write (W), or cancel all permissions (C).

Multiple access permissions can be specified.

Specify access permissions as follows:

| Permissions content | OS type: Linux or Solaris | OS type: Windows |
|---------------------|-------------------------------|------------------|
| C | Cancel all permissions | - |
| X | Execute permissions only | - |
| W | Write permissions only | - |
| WX | Write and execute permissions | - |
| R | Read permissions only | - |
| RX | Read and execute permissions | - |
| RW | Read and write permissions | - |
| RWX | Full control | - |

Permissions content must be entered using the letters shown above and in the shown order.

An argument error will occur if any other value for permissions content is specified.

If the access permissions for a directory are to be changed on an environment where the OS type is Windows, the specified content is invalid.

An argument error occurs if the content of access permissions is omitted.

The maximum length of access permissions content is 1,024 characters. An argument error occurs if this is exceeded.

(5) otherauthority

Access permission content of the other users of the directory to be changed.

Specify execute permission (X), read (R), write (W), or cancel all permissions (C).

Multiple access permissions can be specified.

Specify access permissions as follows:

| Permissions content | OS type: Linux or Solaris | OS type: Windows |
|---------------------|---------------------------|------------------|
| C | Cancel all permissions | - |
| X | Execute permissions only | - |

| Permissions content | OS type: Linux or Solaris | OS type: Windows |
|---------------------|-------------------------------|------------------|
| W | Write permissions only | - |
| WX | Write and execute permissions | - |
| R | Read permissions only | - |
| RX | Read and execute permissions | - |
| RW | Read and write permissions | - |
| RWX | Full control | - |

Permissions content must be entered using the letters shown above and in the shown order.

An argument error will occur if any other value for permissions content is specified.

If the access permissions for a file are to be changed on an environment where the OS type is Windows, the specified content is invalid.

An argument error occurs if the content of access permissions is omitted.

The maximum length of access permissions content is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) ostype

OS type of the host where the directory whose access permissions are to be changed resides.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

Name of the user connecting with SSH to the host where the directory whose access permissions are to be changed resides.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(3) password

Password of the user connecting with SSH to the host where the directory whose access permissions are to be changed resides.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(4) execusername

Name of the user changing access permissions on the host where the directory whose access permissions are to be changed resides.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) `execpassword`

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(6) `timeout`

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(7) `retry`

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(8) `retry_interval`



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry, and `retry_interval` is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to ["2.5 Definition File for Operation Components"](#) for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Changing access permissions of the directory was successful. |
|  | Failure | 161 | Failed to change access permissions of the directory. Retried if a retry count has been specified. |
| | | 177 | Failed to access the file. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 198 | There is an error in the option content. |
| | | 200 | Changing access permissions of the directory terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|---|
| message | This variable will be set to the following message if the access permissions for the directory are changed successfully. The operation component was successful. if changing the access permissions for the directory fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- Use alphanumeric characters and white space and full width characters, and the symbols below for the names of the directory to change access permissions.
Symbols that can be used: "!", "~", "_", "-", "."
- If the specified directoryname is a symbolic link, the access permissions of the linked directory will be changed.

- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.16 Compress files



Description

This operation component compresses files. The compressed format is zip form.

Options

Basic Options

(1) hostname

Host name or IP address of the host that will compress the file.

To compress the file on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or ':::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) filename

The name (full path) of the file to be compressed.

Delimit with ";" (semicolon) to specify multiple files.

An argument error occurs if the file name is omitted.

The maximum length of the file name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) compfilename

The name (full path) of the compressed file.

If the file path's intermediate directory does not exist, it will be created.

If the compressed file name is omitted, the file name will have the "zip" extension added to filename.

If multiple compressed files are specified, the file name will have the "zip" extension added to filename specified first.

The maximum length of the compressed file name is 1,024 characters. An argument error occurs if this is exceeded.

(2) overwrite

If a compressed file already exists, specify "on" or "off" for overwrite. This option is not case sensitive.

If "on" is specified, it overwrites when the file already exists.

If "off" is specified, the error is returned when the file already exists.

If the specification is omitted, specify 'off'.

(3) ostype

OS type of the host compressing the file.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(4) username

Name of the user connecting with SSH to the host compressing the file.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(5) password

Password of the user connecting with SSH to the host compressing the file.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(6) execusername

Name of the user compressing the file on the host where the file is to be compressed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is ignored even if specified.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(7) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(8) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(9) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(10) retry_interval

This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry, and retry_interval is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "2.5 Definition File for Operation Components" for details.

Return Values

| Icon | Name | Return value | Description |
|------|---------|--------------|---|
| | Success | 0 | Compressing the file was successful. |
| | Failure | 161 | Failed to compress the file. Retried if a retry count has been specified. |
| | | 177 | Failed to access the file. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 198 | There is an error in the option content. |
| | | 200 | Compression of the file terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if the file is compressed successfully. The operation component was successful. If file compression fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- Use alphanumeric characters and white space and full width characters, and the symbols below for the names of the files to compress.
Symbols that can be used: "!", "~", "_", "-", "."
- If the specified filename is a symbolic link, the linked file will be compressed.
- If the specified compfilename is a symbolic link, the linked file will be created or overwritten.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.17 Compress directory



Description

This operation component compresses directories. The compressed format is zip form.

Options

Basic Options

(1) hostname

Host name or IP address of the host that will compress the directory.

To compress the directory on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) directoryname

The name (full path) of the directory to be compressed.

An argument error occurs if the directory name is omitted.

The maximum length of the directory name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) compfilename

The name (full path) of the compressed file.

If the file path's intermediate directory does not exist, it will be created.

If the compressed file name is omitted, the file name will have the "zip" extension added to directoryname.

The maximum length of the compressed file name is 1,024 characters. An argument error occurs if this is exceeded.

(2) overwrite

If a compressed file already exists, specify "on" or "off" for overwrite. This option is not case sensitive.

If "on" is specified, it overwrites when the file already exists.

If "off" is specified, the error is returned when the file already exists.

If the specification is omitted, specify 'off'.

(3) ostype

OS type of the host compressing the directory.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(4) username

Name of the user connecting with SSH to the host compressing the directory.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(5) password

Password of the user connecting with SSH to the host compressing the directory.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(6) execusername

Name of the user compressing the directory on the host where the directory is to be compressed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is ignored even if specified.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(7) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(8) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(9) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(10) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry, and retry_interval is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Compressing the file was successful. |
|  | Failure | 161 | Failed to compress the directory. Retried if a retry count has been specified. |
| | | 174 | The directory is empty. |
| | | 177 | Failed to access the directory. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 198 | There is an error in the option content. |
| | | 200 | Compression of the directory terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if the directory is compressed successfully. The operation component was successful. If directory compression fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- Use alphanumeric characters and white space and full width characters, and the symbols below for the names of the directory to compress.
Symbols that can be used: "!", "~", "_", "-", "."
- If the file does not exist in a subordinate of the directory specified to directoryname, the operation component will terminate with a return value of 174.
- If the specified directoryname is a symbolic link, the linked directory will be compressed.
- If the specified compfilename is a symbolic link, the linked file will be created or overwritten.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.18 Decompress files



Description

This operation component decompresses files. The compressed format is zip form.

Options

Basic Options

(1) hostname

Host name or IP address of the host that will decompress the file.

To decompress the file on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) compfilename

The name (full path) of the compressed file to be decompressed.

An argument error occurs if the file name is omitted.

The maximum length of the compress file name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) directoryname

The name (full path) of the decompress destination directory.

If the directory doesn't exist, create the directory.

If directoryname is omitted, decompress the same directory as compfilename.

The maximum length of the directory name is 1,024 characters. An argument error occurs if this is exceeded.

(2) ostype

OS type of the host decompressing the file.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(3) username

Name of the user connecting with SSH to the host decompressing the file.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(4) password

Password of the user connecting with SSH to the host decompressing the file.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(5) execusername

Name of the user decompressing the file on the host where the file is to be decompressed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and if it connects with file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(6) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(7) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(8) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(9) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry, and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "2.5 Definition File for Operation Components" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Decompressing the file was successful. |
|  | Failure | 161 | Failed to decompress the file. Retried if a retry count has been specified. |
| | | 177 | Failed to access the file. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 198 | There is an error in the option content. |
| | | 200 | Decompression of the file terminated abnormally. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|---|
| message | This variable will be set to the following message if the file is decompressed successfully. The operation component was successful. If decompression of the file fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- If there are same name file as a directory name specified in decompress directory, operation component will be aborted with return code 177.
- If the same name file and directory as an after decompressing file and directory name in decompress directory, it will be overwrite.
- This operation component uses File Transfer Infrastructure or SSH to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- Use alphanumeric characters and white space and full width characters, and the symbols below for the names of the files to decompress.
Symbols that can be used: "!", "~", "_", "-", "."
- If the specified compfilename is a symbolic link, the linked file will be extracted.
- If the specified directoryname is a symbolic link, the files will be extracted to the linked directory (the linked directory must be created if it does not exist).
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.19 Load file



Description

This operation component loads text files.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) filename

The name (full path) of the file which is to be loaded.

An argument error occurs if the file name is omitted.

The maximum length of the file name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) readscope

Specify the numbers of lines to be read from the file.

To read multiple lines, list multiple line numbers separated by commas.

Examples: 1,5,10

To read multiple consecutive lines, type the line numbers using the *<start position>-<end position>* format.

Examples: 10-20

If the start position is omitted, the start position will be the start of the file, and if the end position is omitted, the end position will be the end of the file.

Example: Loading from the start of the file through to the 20th line: -20

Example: Loading from the 10th line through to the end of the file: 10-

If the file does not have the specified line number, then its specification will be ignored.

An argument error will occur if the same line number is specified more than once.

(2) ostype

Operating system of the host executing the operation component.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(3) username

This is the name of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(4) password

This is the password of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(5) execusername

This is the name of the user that executes the command on the target host where the operation component is to be executed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value. If an administrator user has not been registered with the CMDB, the command will be executed using the name of the connected user.

If the host specified in "hostname" is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

The maximum length of the executing user name is 1,024 characters. An argument error occurs if this is exceeded.

(6) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(7) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(8) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(9) retry_interval



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | The file has been loaded successfully. |
|  | Failure | 161 | Failed to read the file. If a retry count has been specified, retries will be attempted. |
| | | 177 | An attempt to access the file failed. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error with the input information. |
| | | 198 | There is an error with an option specification. |
| | | 200 | Loading the file terminated abnormally. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if the file is loaded successfully. The operation component was successful. If loading the file fails, the content of the error will be output as a string. |
| file_value | This variable is set to the content loaded from the file. |
| returnCode | This variable is set to the return value. |

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH. Specify settings so that communications can be performed using at least one of these methods. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- For the name of the file to be loaded, use only alphanumeric characters and white space and full width characters, and the symbols below:
- Symbols that can be used: "!" "~" "_" "-" "."
- If the specified filename is a symbolic link, the linked file will be loaded.
- For the "filename" option, specify a text file that uses appropriate character encoding, as listed in the following table.

| Host where files are to be loaded | Character encoding of the text file |
|---|---|
| Windows Management Server | SJIS |
| Linux Management Server | UTF-8 |
| Windows Linked Server or Business Server | SJIS |
| Linux or Solaris Linked Server or Business Server | Character encoding specified by the LANG environment variable |

- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.20 Print file



Description

This operation component prints text files.

Options

Basic Options

(1) hostname

This is the host name or IP address of the server where the file exists.

To print a file on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) filename

This is the name (absolute path) of the file to be printed.

An argument error occurs if the file name is omitted.

The maximum length of the file name is 1,024 characters. An argument error occurs if this is exceeded.

(3) printer

If the Management Server is running on Linux, this is the name of the printer that will print the file.

If the Management Server is running on Windows, this is the name of the device that will print the file.

- If the device name is omitted, the file will be printed using the default device (LPT1).
- If the device is a local printer, specify the port (example: "LPT3").
- If the device is a shared printer on the network, set the device name to \\PrintServer\Sharename.
(Example: If a printer with the name "printer" and host "192.0.2.0" is shared on the network, set the device name to "\\192.0.2.0\printer".)

An argument error occurs if the printer name or device name is omitted.

The maximum length of the printer name or device name for a printer is 1,024 characters. An argument error occurs if this is exceeded.

The file is printed using the print settings in the properties of the specified printer or device. If print settings in the properties are changed, this will affect printing.

Advanced Options

(1) ostype

This is the operating system of the host where the file to be printed is located.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

This is the name of the user using SSH to connect to the host where the file to be printed is located.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(3) password

This is the password of the user using SSH to connect to the host where the file to be printed is located.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with the file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(4) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(5) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(6) retry_interval



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | The file has been printed successfully. |
|  | Failure | 161 | An attempt to print the file failed. If a retry count has been specified, retries will be attempted. |
| | | 177 | An attempt to access the file failed. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error with the input information. |
| | | 198 | There is an error with an option specification. |
| | | 200 | Printing the file terminated abnormally. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| Message | This variable will be set to the following message if the file is printed successfully. The operation component was successful. If printing the file fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH. Specify settings so that communications can be performed using at least one of these methods. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- For the name of the file to be printed, use only alphanumeric characters and white space and full width characters, and the symbols below:
- Symbols that can be used: "! " ~ " _ " - " . "
- If the specified filename is a symbolic link, the linked file will be printed.

- This operation component prints files using the print settings for the following users. Specify the print settings for the Management Server so that files can be printed by the following users.
 - If the Management Server is running on Windows: "swrbajobuser" user
 - If the Management Server is running on Linux: "root" user 00
- The maximum size of files that can be printed is 4 MB. An error with the return value 177 occurs if this limit is exceeded.
- For the "filename" option, specify a text file that uses appropriate character encoding, as listed in the following table.

| Host where the file exists | Character encoding of the text file |
|---|---|
| Windows Management Server | SJIS |
| Linux Management Server | UTF-8 |
| Windows Linked Server or Business Server | SJIS |
| Linux or Solaris Linked Server or Business Server | Character encoding specified by the LANG environment variable |

- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.21 Search string in file



Description

This operation component searches character strings in text files.

Options

Basic Options

(1) hostname

Host name or IP address of the file where the string is to be searched resides.

To search the character string to the file that exists on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or ':::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) searchfile

The name (full path) of the file where the string is to be searched.

An argument error occurs if the file name is omitted.

The maximum length of the file name is 1,024 characters. An argument error occurs if this is exceeded.

(3) searchstring

Specify the string that is to be searched.

An argument error occurs if the character string is omitted.

The maximum length of the searching character string is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) outputmode

The format for outputting the results of the string search.

Specify LineNumber (the line number is output), Text (the content of the line is output), or ALL (the line number and the content of the line are output).

An argument error occurs if the output form other than the above is specified.

If the output form is omitted, only the content of the line is output.

For example:

Content of text

```
2010/01/01 00:00:00 rba:message1
2010/01/01 00:00:00 rba:message2
2010/01/01 00:00:00 other:message1
2010/01/01 00:00:00 rba:message3
```

Search character string:rba

Output example if "line" is specified.

```
1
2
4
```

Output example if "text" is specified.

```
2010/01/01 00:00:00 rba:message1
2010/01/01 00:00:00 rba:message2
2010/01/01 00:00:00 rba:message3
```

Output example if "all" is specified.

```
1, 2010/01/01 00:00:00 rba:message1
2, 2010/01/01 00:00:00 rba:message2
4, 2010/01/01 00:00:00 rba:message3
```

(2) searchscope

The search range of the string within the file.

Specify search ranges using line numbers.

Separate the start position and the end position numbers with a hyphen (-).

If the starting position is omitted, the starting position becomes the first of the file.

If the end position is omitted, the end position becomes the end of the file.

If the starting position and the end position are omitted, search in the whole files.

For example:

If search the 20th line from the 10th line: 10-20

If search the 20th line from the head of the file: -20

If search from the 10th line to the end of the file: 10-

If the file does not have the specified line number, then its specification will be ignored.

An argument error occurs if the same line number is specified more than once.

(3) searchmode

The search method for the string.

Specify First (search until the first occurrence of the string) or ALL (search the entire range). This option is not case sensitive.

An argument error occurs if the output form other than the above is specified.

If the search method is omitted, all ranges of specification are searched.

(4) exclusionsearch

Specify whether to use exclusive search.

Specify off (normal search) or on (exclusive search). This option is not case sensitive.

An argument error occurs if the output form other than the above is specified.

If the specification is omitted, specify 'off' by default.

(5) outputfile

Name (full path) of the file that will output the result of the search for the string.

If the file name is omitted, search results are output to the search_result by default.

Specify the file setting the writing authority, if the existing file is specified for outputfile option. The action is not guaranteed if the file that is not setting the writing authority is specified.

An argument error occurs if specify the same file name as searchfile.

The maximum length of the file name is 1,024 characters. An argument error occurs if this is exceeded.

(6) overwrite

If the file name being output already exists, specify "on" or "off" for overwrite. This option is not case sensitive.

If "on" is specified, it overwrites when the file already exists.

If "off" is specified, the error is returned when the file already exists.

If the specification is omitted, specify 'off'.

(7) ostype

OS type of the host existing the file to search the character string.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(8) username

Name of the user connecting with SSH to the host existing the file to search the character string.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(9) password

Password of the user connecting with SSH to the host existing the file to search the character string.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(10) execusername

Name of the user searching the character string on the host where the file to which the character string is searched exists.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and if it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(11) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(12) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(13) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(14) retry_interval




This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry, and retry_interval is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|--|--------------|---|
|  | Detected | 0 | Searching the character string in the file was successful. The character string was found. |
|  | Undetected | 1 | Searching the character string in the file was successful. The character string was not found. |
|  | Failure | 161 | Failed to search the character string in the file. Retried if a retry count has been specified. |
| | | 177 | Failed to access the file. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 198 | There is an error in the option content. |
| | | 200 | Search to the character string in the file terminated abnormally. |
| | | - | - |
| 202 | The operation component was not executed. There is a problem in the setting to execute operation components. | | |
| 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. | | |
| 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. | | |
| 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. | | |
| 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. | | |
| 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. | | |

Output information

| Variable | Description |
|----------|---|
| message | This variable will be set to the following message if a string in the file is searched successfully. The operation component was successful. |

| Variable | Description |
|---------------|---|
| | If searching a string in the file fails, the content of the error will be output as a string. |
| search_result | This variable is set to the result of searching for a string in the file. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- Use alphanumeric characters and white space and full width characters, and the symbols below for the names of the files to search the character string.
Symbols that can be used: "!", "~", "_", "-", "."
- If the specified searchfile is a symbolic link, the linked file will be searched.
- If the specified outfile is a symbolic link, the linked file will be created or overwritten.
- For the "searchfile" option, specify a text file that uses appropriate character encoding, as listed in the following table.

| Host containing the file with the string to be searched | Character encoding of the text file |
|---|--|
| Windows Management Server | SJIS |
| Linux Management Server | UTF-8 |
| Windows Linked Server or Business Server | SJIS |
| Linux or Solaris Linked Server or Business Server | Character encoding specified by the LANG environment |

- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.22 Add string to file



Description

This operation component adds an arbitrary character string at the end of text files.

Options

Basic Options

(1) hostname

Host name or IP address of the file where the string that will be added resides.

To add the character string to the file that exist on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) filename

The name (full path) of the file where the string is to be added.

An argument error occurs if the file name is omitted.

The maximum length of the file name is 1,024 characters. An argument error occurs if this is exceeded.

(3) addstring

String that will be added to the file.

An argument error occurs if the additional character string is omitted.

The maximum length of the string to be added is 4,096 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) outputfile

Name (full path) of the file that will output the content added with the string.

If the file name is omitted, the file specified with filename is updated.

Specify the file setting the writing authority, if the existing file is specified for outputfile option. The action is not guaranteed if the file that is not setting the writing authority is specified.

The maximum length of the file name is 1,024 characters. An argument error occurs if this is exceeded.

(2) overwrite

If specify the file name being output in *outputfile* option, specify "on" or "off" for overwrite. This option is not case sensitive.

If "on" is specified, it overwrites when the file already exists.

If "off" is specified, the error is returned when the file already exists.

If the specification is omitted, specify 'off'.

To specify outputfile option is omitted, this specification of option is ignored.

(3) ostype

OS type of the host existing the file to add the character string.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(4) username

Name of the user connecting with SSH to the host existing the file to add the character string.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(5) password

Password of the user connecting with SSH to the host existing the file to add the character string.

If the connected user password is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user name is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(6) execusername

Name of the user adding the character string on the host where the file to which the character string is added exists.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(7) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(8) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(9) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(10) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry, and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Adding string to the file was successful. |
|  | Failure | 161 | Failed to Add string to the file. Retried if a retry count has been specified. |
| | | 177 | Failed to access the file. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 198 | There is an error in the option content. |
| | | 200 | The string addition to the file terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if a string is added to the file successfully. The operation component was successful. If adding a string to the file fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to [3.16 Notes of Each Communication Method](#) for information on communication methods.
- Refer to ["3.16.7 Notes When Connected User And Executing User Are Different"](#) for information on different connected and executing users.
- Use alphanumeric characters and white space and full width characters, and the symbols below for the names of the files to add string. Symbols that can be used: "!", "~", "_", "-", "."
- If the specified filename is a symbolic link, the linked file will be loaded.
- If the specified outfile is a symbolic link, the linked file will be created or overwritten.
- For the "filename" option, specify a text file that uses appropriate character encoding, as listed in the following table.

| Host containing the file to which the string is to be added | Character encoding of the text file |
|---|---|
| Windows Management Server | SJIS |
| Linux Management Server | UTF-8 |
| Windows Linked Server or Business Server | SJIS |
| Linux or Solaris Linked Server or Business Server | Character encoding specified by the LANG environment variable |

- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.23 Replace string in file



Description

This operation component replaces character strings in text files.

Options

Basic Options

(1) hostname

Host name or IP address of the file where the string is to be replaced resides.

To replace the character string to the file that exists on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or ':::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) searchfile

The name (full path) of the file where the string is to be replaced.

An argument error occurs if the file name is omitted.

The maximum length of the file name is 1,024 characters. An argument error occurs if this is exceeded.

(3) searchstring

Specify the string that is to be replaced.

An argument error occurs if the character string is omitted.

The maximum length of the character string is 1,024 characters. An argument error occurs if this is exceeded.

(4) replacestring

Specify the string after replacement.

An argument error occurs if the character string is omitted.

The maximum length of the character string is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) outputfile

Name of the file(full path) that outputs the result of replacing the character string.

If the file name is omitted, update the file specified with searchfile.

Specify the file setting the writing authority, if the existing file is specified for outputfile option. The action is not guaranteed if the file that is not setting the writing authority is specified.

An argument error occurs if specify the same file name as searchfile.

The maximum length of the file name is 1,024 characters. An argument error occurs if this is exceeded.

(2) overwrite

If the file name being output already exists, specify "on" or "off" for overwrite. This option is not case sensitive.

If "on" is specified, it overwrites when the file already exists.

If "off" is specified, the error is returned when the file already exists.

If the specification is omitted, specify 'off'.

(3) ostype

OS type of the host existing the file to replace the character string.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(4) username

Name of the user connecting with SSH to the host existing the file to replace the character string.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(5) password

Password of the user connecting with SSH to the host existing the file to replace the character string.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(6) execusername

Name of the user replacing the character string on the host where the file to which the character string is replaced exists.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(7) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(8) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(9) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(10) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry, and retry_interval is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description | | |
|---|--|--------------|---|-----|--|
|  | Success | 0 | Replacing the character string in the file was successful. | | |
|  | Failure | 161 | Failed to replace the character string in the file. Retried if a retry count has been specified. | | |
| | | 177 | Failed to access the file. | | |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. | | |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. | | |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. | | |
| | | 197 | There is an error in the input information. | | |
| | | 198 | There is an error in the option content. | | |
| | | 200 | Replacing the character string in the file terminated abnormally. | | |
| | | - | - | 201 | Execution of operation component timed out. |
| | | | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. | | | | |
| 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. | | | | |
| 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. | | | | |
| 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. | | | | |
| 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. | | | | |

Output information

| Variable | Description |
|----------|---|
| message | This variable will be set to the following message if a string in the file is replaced successfully. The operation component was successful. |

| Variable | Description |
|------------|---|
| | If replacing a string in the file fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- Use alphanumeric characters and white space and full width characters, and the symbols below for the names of the files to replace the character string.
Symbols that can be used: "!", "~", "_", "-", "."
- If the specified searchfile is a symbolic link, the linked file will be loaded.
- If the specified outputfile is a symbolic link, the linked file will be created or overwritten.
- For the "searchfile" option, specify a text file that uses appropriate character encoding, as listed in the following table.

| Host containing the file with the string to be replaced | Character encoding of the text file |
|---|---|
| Windows Management Server | SJIS |
| Linux Management Server | UTF-8 |
| Windows Linked Server or Business Server | SJIS |
| Linux or Solaris Linked Server or Business Server | Character encoding specified by the LANG environment variable |

- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.24 Convert file character encoding



Description

This operation components converts the character code in files.

Options

Basic Options

(1) searchfile

Name (full path) of the file for which the character code is to be converted.

An argument error occurs if the file name is omitted.

The maximum length of the file name is 1,024 characters. An argument error occurs if this is exceeded.

(2) character_encoding

Character code after conversion.

Specify the character-code as follows. This option is not case sensitive.

| Character-code |
|----------------|
| UTF-8 |
| UTF-16 |
| SJIS |
| EUC |

An argument error occurs if the content of the character-code other than the above is specified.

An argument error occurs if the content of the character-code is omitted.

(3) outputfile

Name (full path) of the file that will output the result convert character code.

An argument error occurs if specify the same file name as searchfile.

Specify the file setting the writing authority, if the existing file is specified for outputfile option. The action is not guaranteed if the file that is not setting the writing authority is specified.

The maximum length of the file name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) from_encoding

Character code before conversion.

Specify the character-code as follows. This option is not case sensitive.

| Character-code |
|----------------|
| UTF-8 |
| UTF-16 |
| SJIS |
| EUC |

An argument error occurs if the content of the character-code other than the above is specified.

The character-code of the file is distinguished automatically if the content of the character-code is omitted.

Specify the character-code if understand the character-code because the automated discrimination is not complete.

(2) overwrite

If the file name being output already exists, specify "on" or "off" for overwrite. This option is not case sensitive.

If "on" is specified, it overwrites when the file already exists.

If "off" is specified, the error is returned when the file already exists.

If the specification is omitted, specify 'off'.

(3) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(4) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(5) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "2.5 Definition File for Operation Components" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Success | 0 | Character-code conversion of the file was successful. |
|  | Failure | 161 | Failed to convert the character-code of the file. Retried if a retry count has been specified. |
| | | 177 | Failed to access the file. |
| | | 197 | There is an error in the input information. |
| | | 198 | There is an error in the option content. |
| | | 200 | Character-code conversion of the file terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation components were not executed. There is a problem in the specification of the input information of the operation components. |
| | | 206 | The operation components were not able to be executed normally. There is a problem in the specification of the output information of the operation components. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if the character encoding for the file is converted successfully. The operation component was successful. If converting the character encoding for the file fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- Use alphanumeric characters and white space and full width characters, and the symbols below for the names of the files to convert the character code.
Symbols that can be used: "!", "~", "_", "-", "."
- If the specified searchfile is a symbolic link, the linked file will be converted.
- If the specified outputfile is a symbolic link, the linked file will be created or overwritten.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.4.25 Collect fingerprint



Description

Collects a fingerprint of the specified file.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if this option is omitted.

This option can contain up to 1,024 characters. An argument error occurs if this limit is exceeded.

(2) filename

Full name of the file which fingerprint will be collected. You can specify text or binary files (such as compressed files or graphics files).

The following will cause an error:

- If the file name is omitted
- If a non-existing file name is specified
- If more than 1,024 characters are specified for the file name

Advanced Options

(1) type

The hash algorithm that collects the fingerprint. Select [MD5] or [SHA-1].

If nothing was specified, the setting will be [MD5].

(2) ostype

Operating system of the host executing the operation component.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Data Base (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

This option can contain up to 1,024 characters. An argument error occurs if this limit is exceeded.

(3) username

Name of the user connecting with SSH or Windows PowerShell to the host executing the operation component.

If username or password is omitted, the hostname will be searched in the Configuration Management Data Base (CMDB), and the acquired user name will be used.

If using file transfer infrastructure to connect, username must have the value below (any other value specified in this option will be ignored):

- For Linux and Solaris Business Servers: root
- For Windows Business Server: SYSTEM user

This option can contain up to 1,024 characters. An argument error occurs if this limit is exceeded.

(4) password

Password of the user connecting with SSH or Windows PowerShell to the host executing the operation component.

Also, the password for users on remote hosts that occur in rexec.

If username or password is omitted, the hostname will be searched in the Configuration Management Data Base (CMDB), and the acquired password will be used.

If using file transfer infrastructure to connect, even if the password is specified, it will be invalid.

This option can contain up to 1,024 characters. An argument error occurs if this limit is exceeded.

(5) execusername

The user name for executing the command on the target host where the operation component is to be executed.

If execusername or execpassword is omitted, the hostname will be searched in Configuration Management Data Base (CMDB), and the acquired administrator user will be used. If the user is not registered on CMDB, the connected user name will be used.

If using file transfer infrastructure to connect and the specified hostname is running Windows, execution will be carried out by the SYSTEM user, and any value specified in this option will be ignored.

This option can contain up to 1,024 characters. An argument error occurs if this limit is exceeded.

(6) timeout

Maximum number of seconds to wait for the execution of operation components.

The valid range is from 300 to 86,400 (1 day).

For example, specify 600 for a completion timeout of 10 minutes.

If the operation component times out, the operation component process will be suspended with a return value of 201.

(7) retry

Number of times to try to execute the operation components.

Retry will only attempted if the operation component ends with a return value of 161.

The valid range is from 0 to 5.

As a result of retrying, if the operation components ended with return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example, specify 2 for retry twice to execute the components.

(8) retry_interval

Number of seconds to wait between retries.



Retry will only attempted if the operation component ends with a return value of 161.

The valid range is from 1 to 14400.

For example, specify 300 to wait 300 seconds between each retry.

If timeout, retry or retry_interval are omitted or a value outside the range is specified, then the default value specified in the operation components definition file will be used. Refer to ["2.5 Definition File for Operation Components"](#) for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Fingerprint successfully collected. |
|  | Failure | 161 | Fingerprint collection failed. A retry will be attempted if the retry option was specified. |
| | | 171 | Fingerprint collection failed because the specified file does not exist. |
| | | 177 | Failed to access the file. |
| | | 178 | Program terminated abnormally due to a command. |
| | | 187 | If using SSH or Windows PowerShell: Authentication failed during an operation component connection to a Business Server over the network. If using file transfer infrastructure: An error occurred during an operation component communication with the Business Server. The error code for the file transfer infrastructure will be output to the execution results (refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes). |
| | | 188 | Network communication (SSH) with the Business Server was terminated during an operation component operation on a Business Server in which an RBA Agent is not installed,. |
| | | 189 | If using SSH or Windows PowerShell: Connection to Business Server network failed during an operation component operation. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | | If using file transfer infrastructure: An error occurred during an operation component communication with the Business Server. The error code for the file transfer infrastructure will be output to the execution results (refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes). |
| | | 197 | There is an error in the option content. |
| | | 200 | Command terminated abnormally. |
| - | - | 201 | Operation component timed out. |
| | | 202 | Failed to execute the operation component because there is a configuration problem in the component. |
| | | 203 | Failed to execute the operation component because there is a problem in the Management Server environment. |
| | | 205 | Failed to execute the operation component because there is a problem with the operation component input. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component was not executed. It is possible that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been aborted because the Automated Operation Process was recovered while the operation component was executing. |

Output Data

| Variable | Description |
|--------------|---|
| message | This variable will be set to the following message if the fingerprint is obtained successfully: The operation component was successful. If collection of the fingerprint fails, error content is set as a string. |
| finger_print | Sets the collected fingerprint result. Fingerprint is displayed using half-width alphanumeric characters (lower case letters). Output example: 3141f904eebe53206c25b58f8f3a6da0 |
| returnCode | Sets return values |

Notes

- This operation component sets information other than the Management Server to the hostname, and if the ostype has been set to Windows, then RBA Agent or Windows PowerShell is mandatory.
- This operation component sets information other than the Management Server to the hostname, and if the ostype has been set to Linux, then fingerprint collection is carried out using md5sum command/sha1sum command
- This operation component sets information other than the Management Server to the hostname, and if the ostype has been set to Solaris, then fingerprint collection is carried out using digest command.
- Use alphanumeric characters, space characters, and the following symbols for the names of the files to collect the fingerprint.
Symbols that can be used: "!", "~", "_", "-", "."
- Where the RBA agent is not installed in the Business Server, the operation results of the operation component are not guaranteed if Japanese is specified in the filename option. Install the RBA agent in the Business Server if Japanese is to be specified.

- Confirmation of return values is carried out on the Web console. Refer to "Confirming the Operation Component Execution Status/ Execution results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If return values 201 to 208 are output, the automated operation process is cancelled or an error condition occurs, and error messages are output to the following locations:
 - Management Server event log (if Management Server is running on Windows (R))
 - Management Server sys log (if Management Server is running on Linux)
 - BMPN custom message

Check messages at the locations noted above and take appropriate remedial action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.5 Configuration Item Operations

3.5.1 Obtain configuration item



Description

This operation component acquires configuration items stored in the Configuration Management Database (CMDB).

Options

Basic Options

(1) hostname

Host name or IP address of the host requesting acquisition of configuration items.

To set the source for acquiring configuration items on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) searchxpath

Conditional expression for acquiring configuration items.

An argument error occurs if searchxpath is omitted.

The maximum length of the conditional expression is 1,024 characters. An argument error occurs if this is exceeded.

Specify conditional expressions for acquiring configuration items as follows:

For example:

- Acquire information on all logical server:


```
/%LogicalServer
```
- Acquire information on a logical server of "svr001":


```
/%LogicalServer[./#observed/rc:LogicalServer[@hostname='svr001']]
```
- Acquire the information for the logical server whose OS is "Windows":


```
/%LogicalServer[./#observed/rc:LogicalServer/rc:SystemSettings/rc:OSSetting[matches(@name,'Windows.*')]]
```




- Enhancing original CMDB that uses "%" "&" "#" is added to axis of usual XPath.
- "%" shows the configuration item. The type name of the configuration item is specified after "%".
For example, "%LogicalServer" shows "LogicalServer" that is the configuration item.
- "&" shows the relation. The type name of the relation is specified after "&". Specify "&GRelation" usually.
- Installed software relating to LogicalServer can be searched by describing it like "%LogicalServer/&GRelation/InstalledSoftware". (The search result is InstalledSoftware.)
- "#" shows the record. "#expected" shows the expected record, "#observed" shows the observed record.
- Refer to "*configuration item form*" for the definition of the configuration item.

Advanced Options

(1) xpath

Conditional expression for acquiring attribute information from configuration items.

If xpath is specified, attribute information matching the conditions is acquired.

If there are multiple instances of attribute information matching the conditions, the attribute information is enclosed in double-quotes and separated by commas for output.

For example: When the attribute information is "A", "B 'C,D'": "A","B "'C,D'""

If xpath is omitted, configuration items of the server specified in searchxpath are acquired.

The maximum length of xpath is 1,024 characters. An argument error occurs if this is exceeded.

Specify conditional expressions for acquiring attribute information from configuration items as follows:

For example:

Acquire attribute information on a specific logical server:

```
entities/cmdb:item/cmdb:record/ns0:LogicalServer/attribute::attribute name
```

(2) ostype

OS type of the host requesting the acquisition of the configuration item.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(3) username

Name of the user connecting with SSH to the host requesting acquisition of configuration items.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(4) password

Password of the user connecting with SSH to the host requesting acquisition of configuration items.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(5) `execusername`

Name of the user acquiring configuration items on the host requesting acquisition of configuration items.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(6) `execpassword`

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(7) `timeout`

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(8) `retry`

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(9) `retry_interval`



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and `retry_interval` is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Success | 0 | Acquisition of configuration item was successful. |
|  | Failure | 161 | Failed to acquire configuration item. Retried if a retry count has been specified. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. Alternatively, there were no configuration items matching the conditional expression. |
| | | 200 | Acquisition of configuration item terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|---------------|--|
| message | This variable will be set to the following message if the configuration item is obtained successfully. The operation component was successful. If obtaining the configuration item fails, the content of the error will be output as a string. |
| ci_get_result | This variable is set to the result of acquiring the configuration item (as an XML format string). |
| returnCode | This variable is set to the return value. |

ci_get_result output example

```

<?xml version="1.0" encoding="UTF-8"?>
<entities>
<cmdb:item id="xxxxx" type="LogicalServer" version="1" xmlns:cmdb="http://xxxxx">
  <cmdb:record type="observed">
    <ns0:LogicalServer hostname="xxxxx" id="xx.xx.xx.xx" ipAddress="xx.xx.xx.xx" name=" "
nickname="xxxxx" status="unknown" vendorID=" " xmlns:ns0="urn:xmlns-fujitsu-com:rcxml2004-05">
      <ns0:LogicalServerConfiguration>
        <ns0:LogicalPSU option=" " />
        <ns0:LAN description=" " id="xxxxx" index=" " ipAddress="xx.xx.xx.xx"
macAddress="xx:xx:xx:xx:xx:xx" netmask="xx.xx.xx.xx" netmaskAddress="xx.xx.xx.xx" speed=" " />
      </ns0:LogicalServerConfiguration>
      <ns0:SystemSettings>
        <ns0:Network gateway="xx.xx.xx.xx" hostname="xxxxx" subnetAddress="xx.xx.xx.x"
subnetMask="xx.xx.xx.xx" />
        <ns0:OSSetting codeSet="UTF-8" name="LINUX" />
        <ns0:DHCP flag="0" />
        <ns0:NTDomain name=" " />
        <ns0:SNMP certifyProtocol=" " community="public" description=" " encryptionProtocol=" "
securityLevel=" " securityModel="None" userName=" " />
      </ns0:SystemSettings>
    </ns0:LogicalServer>
  </cmdb:record>
  <cmdb:instanceId>
    <cmdb:mdrId>mdr000000000004</cmdb:mdrId>
    <cmdb:localId>xx.xx.xx.xx</cmdb:localId>
  </cmdb:instanceId>
  <cmdb:instanceId>
    <cmdb:mdrId>mdr000000000001</cmdb:mdrId>
    <cmdb:localId>xxxxx</cmdb:localId>
  </cmdb:instanceId>
</cmdb:item>
</entities>

```

Notes

- This operation component uses File Transfer Infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- When acquiring configuration items stored in a Configuration Management Database on a server other than the Management Server, it is necessary to store the work file in the folder (directory) on the server where the Configuration Management Database is located. Specify the directory path for the location where the work file is stored as the "SWRBA_CMDB_WORK_HOME" environment variable of the server where the Configuration Management Database is located.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.5.2 Update configuration item



Description

This operation component updates configuration items stored in the Configuration Management Database (CMDB).

Options

Basic Options

(1) hostname

Host name or IP address of the host requesting update of configuration items.

To set the source for acquiring configuration items on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) searchxpath

Conditional expression for updating configuration items.

An argument error occurs if searchxpath is omitted.

The maximum length of the conditional expression is 1,024 characters. An argument error occurs if this is exceeded.

Specify conditional expressions for updating configuration items as follows:

For example:

- Update information on all logical server:
`/%LogicalServer`
- Update information on a logical server of "svr001":
`/%LogicalServer[./#observed/rc:LogicalServer[@hostname='svr001']]`
- Update the information for the logical server whose OS is "Windows":
`/%LogicalServer[(./#observed/rc:LogicalServer/rc:SystemSettings/rc:OSSetting[matches(@name,'Windows.*')])]`



Point

- Enhancing original CMDB that uses "%" "&" "#" is added to axis of usual XPath.
- "%" shows the configuration item. The type name of the configuration item is specified after "%".
For example, "%LogicalServer" shows "LogicalServer" that is the configuration item.
- "&" shows the relation. The type name of the relation is specified after "&". Specify "&GRelation" usually.
- InstalledSoftware relating to LogicalServer can be searched by describing it like "%LogicalServer/&GRelation/InstalledSoftware". (The search result is InstalledSoftware.)
- "#" shows the record. "#expected" shows the expected record, "#observed" shows the observed record.
- Refer to [Chapter 6 Configuration Item Format](#) for the definition of the configuration item.

(3) xpath

Conditional expression for updating attribute information from configuration items.

If xpath is specified, attribute information matching the conditions is updated.

If there are multiple instances of attribute information matching the conditions, all of them are updated.

An argument error occurs if xpath is omitted.

The maximum length of xpath is 1,024 bytes. An argument error occurs if this is exceeded.

Specify conditional expressions for updating attribute information from configuration items as follows:

For example:

Update attribute information on a specific logical server:

entities/cmdb:item/cmdb:record/ns0:LogicalServer/attribute::*attribute name*

(4) content

Specify the content to be updated.

An argument error occurs if the content of update is omitted.

The maximum length of the content of update is 2,048 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) ostype

OS type of the host requesting update of the configuration item.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

Name of the user connecting with SSH to the host requesting update of configuration items.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(3) password

Password of the user connecting with SSH to the host requesting update of configuration items.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(4) execusername

Name of the user updating configuration items on the host requesting update of configuration items.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) `execpassword`

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(6) `timeout`

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(7) `retry`

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(8) `retry_interval`

This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and `retry_interval` is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to ["2.5 Definition File for Operation Components"](#) for details.

Return Values

| Icon | Name | Return value | Description |
|------|---------|--------------|--|
| | Success | 0 | Update of configuration item was successful. |
| | Failure | 161 | Failed to update configuration item. Retried if a retry count has been specified. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 197 | There is an error in the input information. Alternatively, there were no configuration items matching the conditional expression. |
| | | 200 | Update of configuration item terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if the configuration item is updated successfully. The operation component was successful. If updating the configuration item fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- When updating configuration items stored in a Configuration Management Database on a server other than the Management Server, it is necessary to store the work file in the folder (directory) on the server where the Configuration Management Database is located. Specify the directory path for the location where the work file is stored as the "SWRBA_CMDDB_WORK_HOME" environment variable of the server where the Configuration Management Database is located.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.5.3 Delete configuration item



Description

This operation component deletes configuration items stored in the Configuration Management Database (CMDB). This component is used to delete configuration items from the CMDB after an environment has been deleted.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) searchxpath

Conditional expression for deleting configuration item.

All configuration items that match the condition are deleted.

An argument error occurs if this option is omitted. However, the error does not occur if "a" is specified for "option".

The maximum length of the string for a conditional expression is 1,024 characters. An argument error occurs if this is exceeded.

Specify conditional expressions for deleting configuration items as below.

Example:

- To delete all logical server information
`/%LogicalServer`
- To delete logical server information for servers for which the "hostname" option is set to "svr001"
`/%LogicalServer[./#observed/rc:LogicalServer[@hostname='svr001']]`



Point

- CMDB-specific extensions that use %, &, and # are added to the normal XPath axis.
- "%" indicates the configuration item. After %, specify the type name for the configuration item. For example, "%LogicalServer" indicates the configuration item "LogicalServer".
- "&" indicates the relation. After &, specify the type name for the relation. In normal cases, specify "&GRelation".
- By defining `/%LogicalServer/&GRelation/%InstalledSoftware`, it is possible to search InstalledSoftware that is related to LogicalServer (the search result will be InstalledSoftware).
- "#" indicates the record. "#expected" indicates the expected record, and "#observed" indicates the observed record.
- Refer to [Chapter 6 Configuration Item Format](#) for information on configuration item definitions.

(3) option

Specify the record which is to be deleted from the configuration item, or the configuration item (CI).

Specify one of the following values. This option is not case sensitive.

observed: Delete observed record

expected: Delete expected record

cataloged: Delete catalog record

all: Delete all records

a: Delete all configuration items (CI)

If the record or configuration item (CI) was omitted, "all" is specified.

Advanced Options

(1) ostype

Operating system of the host executing the operation component.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

This is the name of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(3) password

This is the password of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with the file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(4) execusername

This is the name of the user that executes the command on the target host where the operation component is to be executed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value. If an administrator user has not been registered with the CMDB, the command is executed using the name of the connected user.

If the host specified in "hostname" is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

The maximum length of the executing user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(6) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(7) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(8) retry_interval



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "2.5 Definition File for Operation Components" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | The configuration item has been deleted successfully. |
|  | Failure | 161 | An attempt to delete the configuration item failed. Or, there were no configuration items that match the conditional expression. If a retry count has been specified, retries will be attempted. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over a network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 197 | There is an error with the content of an option. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 200 | Deletion of the configuration item terminated abnormally. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component has not been executed. |
| | | 203 | Failed to execute the operation component. There is a problem with the Management Server environment. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|---|
| message | This variable will be set to the following message if the configuration item is deleted successfully. The operation component was successful. If deletion of the configuration item fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH communications. Specify settings so that communications can be performed using at least one of these methods. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- To delete configuration items stored in a Configuration Management Database on a server other than the Management Server, the server where the Configuration Management Database is located must have a folder (directory) to store work files. For the "SWRBA_CMDB_WORK_HOME" environment variable for the server where the Configuration Management Database is located, specify the path to the folder (directory) where the work files are stored.
- This operation component processes configuration items using the cidelete command. Refer to "cidelete (Configuration Item Deletion Command)" for details.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.5.4 Register logical node



Description

This operation component registers a new configuration item for a logical node in the Configuration Management Database (CMDB). This component is used to register machine information in the CMDB after a machine environment has been created.

Options

Basic Options

(1) `serveripaddress`

The IP address of the server to be registered as the Configuration Management Database (CMDB).

An argument error occurs if the IP address is omitted.

The maximum length of the IP address is 1,024 characters. An argument error occurs if this is exceeded.

If an already registered node is specified, the existing content is overwritten by the new content.

(2) `ostype`

The operating system type for the server to be registered as the Configuration Management Database (CMDB).

Specify Windows, Linux or Solaris. This option is not case sensitive.

An argument error occurs if the operating system type is omitted.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) `timeout`

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(2) `retry`

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(3) `retry_interval`



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Success | 0 | The logical node has been registered successfully. |
|  | Failure | 161 | An attempt to register the logical node failed. If a retry count has been specified, retries will be attempted. |
| | | 197 | There is an error with the content of an option. |
| | | 200 | Registering the logical node has terminated abnormally. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component has not been executed. |
| | | 203 | Failed to execute the operation component. There is a problem with the Management Server environment. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if the logical node is registered successfully. The operation component was successful. If registering the logical node fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- To use this operation component, install an RBA Agent on the server where the logical node is to be registered.
- For this operation component, an RBA Agent must be set up in advance. Refer to "IT Resource Information Collection Program Settings" in the *Systemwalker Runbook Automation Installation Guide* for details.
- For this operation component, settings for collecting IT resource information must be specified for the Management Server in advance. Refer to *Setup procedure(When using the "Register logical node" operation component)* in the *Systemwalker Runbook Automation Installation Guide* for details.
- Register this operation component with the CMDB bundled with the RBA Manager.
- In case of a high load on the server, this operation component may take a long time to register configuration items, in which case, the return value is an error value (161).
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.

- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.6 Communication Operation Components

3.6.1 Perform REST-based communication



Description

This operation component performs REST-based communications on hosts.

Options

Basic Options

(1) hostname

Host name or IP address of the host performing REST-based communications.

To perform REST communication with Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) methodname

Method name of HTTP (HTTPS) to be executed.

Specify GET, POST, PUT, and DELETE. Use uppercase letters.

An argument error occurs if the method name is omitted.

The maximum length of the methodname is 1,024 characters. An argument error occurs if this is exceeded.

(3) resourcepath

Path of the resource to be used.

An argument error occurs if the resource path is omitted.

The maximum length of the path is 1,024 characters. An argument error occurs if this is exceeded.

Specify the resource path as follows:

For example:

`/webdav/index.html`

If the HTTP (or HTTPS) method to be executed is POST, PUT, or DELETE, the arguments for the resource to be used can be specified as follows.

- Use a question mark ("?") to separate the resource path from the arguments.

- Specify an argument using the `<argument name>=<argument value>` format. To specify multiple arguments, separate each argument with an ampersand ("&") as shown below.

Example: `/webdav/index.html?label1=value1&label2=value2`

(4) param

Specify the argument names and values for the resource to be used.

Specify this option if the HTTP (or HTTPS) method to be executed is "GET".

If the argument name and argument value are omitted, REST communication will be performed without an argument.

The maximum lengths of the argument name and the value of the argument are 1,024 characters. An argument error occurs if this is exceeded.

The specified argument name and value are converted to the UTF-8 character encoding before communications are performed.

Specify the argument name and the argument value as "Argument name = Argument value". Separate with "&" to specify more than one.

For example:

`label1=value1&label2=value2`

If the HTTP (or HTTPS) method to be executed is "POST" or "PUT", the specified value is stored in the body as a request.

Example: `label1=value1&label2=value2`

To specify requests with other formats, specify the "requestxml" option.

If the HTTP (or HTTPS) method to be executed is "DELETE", this option is ignored even if specified.

Advanced Options

(1) port

Port number of the host performing REST-based communications.

Specify the port number using an integer between 0 and 65535.

If port number is omitted, 80 is specified.

(2) basicusername

Name of the user who performs BASIC authentication.

If the user name is omitted, then REST communication will be performed without BASIC authentication.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(3) basicpassword

Password of the user who performs BASIC authentication.

If the password is omitted, then REST communication will be performed without BASIC authentication.

The maximum length of the password is 1,024 characters. An argument error occurs if this is exceeded.

(4) element

Address of the element name to analyze the execution results (XML) of REST-based communications.

A text string matching the address (xpath) specified in 'element' is extracted from the text in the execution results XML file, and then output.

If there are multiple instances of elements matching the conditions, elements are enclosed in double-quotes and separated by commas for output.

For example: If the data is "element A", "element B 'C, D": "element A", "element B "'C,D'"

An error occurs if the corresponding element doesn't exist.

Execution results of REST-based communications are output as XML if element names are omitted.

The maximum length of the element name is 1,024 characters. An argument error occurs if this is exceeded.

Specify element name addresses as follows:

For example: /response/params/item

(5) proxy

Address of the proxy server.

Communication without a proxy server is performed if the proxy server address is omitted.

The maximum length of the address is 1,024 characters. An argument error occurs if this is exceeded.

(6) proxyport

Port number of the proxy server.

Specify the port number using an integer between 0 and 65535.

If port number is omitted, 8080 is specified.

(7) protocoltype

Protocol type for performing REST communication.

Specify http or https. Use lowercase letters.

If protocol type is omitted, http is specified.

The maximum length of the protocol type is 1,024 characters. An argument error occurs if this is exceeded.

(8) requestxml

This option contains parameters for REST-based communications.

A maximum of 2,048 characters can be specified as parameters of REST communications. An argument error occurs if this limit is exceeded.

The specified parameter is converted to the UTF-8 character encoding before communications are performed.

If this option is omitted, the specification for the "param" option will take effect.

If the HTTP (or HTTPS) method to be executed is "GET"

Specify the argument names and argument values for the resource to be used.

Specify the argument name and value to be passed to the resource using the `<argument name>=<argument value>` format shown below. To specify multiple values, specify each value separated by ampersands (&).

Example:

```
label1=value1&label2=value2
```

If the HTTP (or HTTPS) method to be executed is "POST" or "PUT"

Specify the request to be stored in the body with REST communications.

To specify a request in the text format, specify as shown below.

Example:

```
UDA1=value1  
UDA2=value2
```

To specify a request in the XML format, specify as shown below.

Example:

```
<request>  
  <data>1234</data>  
</request>
```

If the HTTP (or HTTPS) method to be executed is "DELETE"

The specification of this option is ignored.

(9) contenttype

The data format (MIME type) used in REST communication.

If the data format is omitted, application/x-www-form-urlencoded will be specified.

In addition to data formats, character sets can be specified for contenttype.

Specify data formats and character sets as follows:

Example of specifying data formats: application/xml

Example of specifying data formats and character sets: application/xml; charset=utf-8

The maximum length of the content type is 1,024 characters. An argument error occurs if this is exceeded.

(10) accepttype

The data format (MIME type) that can be received in REST communication.

If the data format is omitted, no data format will be specified. In this case, the format of the received data will follow what is specified for the communication destination.

The maximum length of the data format is 1,024 characters. An argument error occurs if this is exceeded.

Specify XML format requests as follows:

For example: text/plain

(11) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(12) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(13) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | REST communication was successful. |
|  | Failure | 161 | REST communication failed. Retried if a retry count has been specified. |
| | | 176 | An element corresponding to 'element' does not exist. |
| | | 188 | Connection failed during execution. |
| | | 189 | An attempt to connect to the server has failed. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 197 | There is an error in the option content. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation components. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|---------------------------|--|
| message | This variable will be set to the following message if REST-based communications are successful. The operation component was successful. If REST-based communications fails, the content of the error will be output as a string. |
| rest_communication_result | This variable is set to the execution result, using either a string or an XML format string. |
| returnCode | This variable is set to the return value. |

Notes

- Before using this operation component, ensure that the host where REST-based communications are to be performed is set up correctly.
- When specifying the method HTTP (or HTTPS) names to be executed, specify GET, POST, PUT, or DELETE, fully capitalized.
- Do not specify "&" for the parameter name or parameter value specified in the "param" option.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.6.2 Get value using SNMP



Description

This operation component retrieves the value of an SNMP object from an SNMP agent.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) snmpversion

This is the SNMP protocol version.

For the version, specify "v1", "v2" or "v3". This option is not case sensitive.

An argument error occurs if the version is omitted.

(3) oid

This is the SNMP object ID.

Multiple object IDs can be specified.

An argument error occurs if the object ID is omitted.

The maximum number of object IDs is 100. An argument error occurs if this is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

To specify multiple object IDs, separate them by commas (",") as below.

Example: 1.3.6.1.2.1.1.5.0,1.3.6.1.2.1.1.6.0,1.3.6.1.2.1.1.3.0

Advanced Options

(1) community

This is the SNMP Manager community name.

This can be specified when the SNMP protocol version is v1 or v2. If the protocol version is v3, the specified content will be ignored.

For the community name, specify "public", "private" or another custom value.

If the community name was omitted, the setting will be "public".

The maximum length of the community name is 1,024 characters. An argument error occurs if this is exceeded.

(2) securitylevel

This is the SNMP security level.

This can be specified when the SNMP protocol version is v3. If the protocol version is v1 or v2, the specified content will be ignored.

For this option, specify "noAuthNoPriv", "authNoPriv" or "authPriv". This option is not case sensitive.

If "noAuthNoPriv" is specified, the IDs will not be checked and the messages to be sent will not be encrypted. In this case, the "snmpusername" option must be specified.

If "authNoPriv" is specified, the IDs will be checked and the messages to be sent will not be encrypted. In this case, the "snmpusername", "snmppassword" and "authprotocol" options must be specified.

If "authPriv" is specified, the IDs will be checked and the messages to be sent will be encrypted. In this case, the "snmpusername", "snmppassword", "authprotocol", "privpassword" and "privprotocol" options must be specified.

If the security level is omitted, "noAuthNoPriv" will be set.

(3) snmpusername

This is the SNMP user name for the host which obtains the object value.

This can be specified when the SNMP protocol version is v3. If the protocol version is v1 or v2, the specified content will be ignored.

If the SNMP protocol version is "v3", this option cannot be omitted.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(4) snmppassword

This is the SNMP user password for the host which obtains the object value.

This can be specified when the SNMP protocol version is v3. If the protocol version is v1 or v2, the specified content will be ignored.

This option cannot be omitted when the SNMP protocol version is v3 and the security level is authNoPriv or authPriv.

An argument error will occur if the password is less than 8 characters long.

The maximum length of the password is 1,024 characters. An argument error occurs if this is exceeded.

(5) authprotocol

This is the protocol which is used in the SNMP user ID check.

This can be specified when the SNMP protocol version is v3. If the protocol version is v1 or v2, the specified content will be ignored.

This option cannot be omitted when the SNMP protocol version is v3 and the security level is authNoPriv or authPriv.

Specify either "MD5" or "SHA" for the protocol. In all other cases, an argument error occurs. This option is not case sensitive.

(6) privpassword

This is the password used during encryption of the message sent by the SNMP user for the host which obtains the object value.

This can be specified when the SNMP protocol version is v3. If the protocol version is v1 or v2, the specified content will be ignored.

This option cannot be omitted when the SNMP protocol version is v3 and the security level is authPriv.

An argument error will occur if the password is less than 8 characters long.

The maximum length of the password is 1,024 characters. An argument error occurs if this is exceeded.

(7) privprotocol

This is the protocol used to encrypt the SNMP message.

This can be specified when the SNMP protocol version is v3. If the protocol version is v1 or v2, the specified content will be ignored.

This option cannot be omitted when the SNMP protocol version is v3 and the security level is authPriv.

Specify either "DES" or "AES" for the protocol. In all other cases, an argument error occurs. This option is not case sensitive.

(8) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(9) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(10) retry_interval



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Success | 0 | The object value has been successfully acquired using SNMP. |
|  | Failure | 161 | An attempt to obtain the object value using SNMP failed. If a retry count has been specified, retries will be attempted. |
| | | 187 | SNMP communication authentication failed. |
| | | 197 | There is an error with the input information. |
| | | 200 | An attempt to obtain the object value using SNMP terminated abnormally. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------|--|
| message | This variable will be set to the following message if the object value is successfully obtained using SNMP. The operation component was successful. |

| Variable | Description |
|-----------------|--|
| | If an attempt to obtain the object value using SNMP fails, the content of the error will be output as a string. |
| snmp_get_result | This variable is set to the object value that has been acquired, using the following format: [oid], [object value acquired] Example: "1.3.6.1.2.1.1.5.0","new computer name" "2.3.6.1.2.1.1.5.0","new computer name" |
| returnCode | This variable is set to the return value. |

Notes

- Before using this operation component, ensure the SNMP agent on the host (where this operation component is to be executed) is correctly installed and configured.
- This operation component uses UDP port number 161.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.6.3 Set value using SNMP



Description

This operation component sets SNMP object values for an SNMP agent.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) snmpversion

This is the SNMP protocol version.

For the version, specify "v1", "v2" or "v3". This option is not case sensitive.

An argument error occurs if the version is omitted.

(3) oid

This is the SNMP object ID.

Multiple object IDs can be specified.

An argument error occurs if this option is omitted.

Up to 100 instances of this option can be specified. An argument error occurs if this is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

To specify multiple object IDs, separate them by commas (",") as below.

Example: 1.3.6.1.2.1.1.5.0,1.3.6.1.2.1.1.6.0,1.3.6.1.2.1.1.3.0

(4) value

This is the object value which is set.

Multiple object values can be specified. The order in which they are specified is the same as for the object ID.

If this option is omitted, it will be set to a null value ("").

Up to 100 instances of this option can be specified. An argument error occurs if this is exceeded.

The specified object values are converted to the UTF-8 character encoding before communications are performed.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Specify the object values as below.

Example: new_hostname,new_location,23:10:54.50

(5) type

Values of object data type to be set.

Multiple data types can be specified. The order in which they are specified is the same as for the object ID. This option is not case sensitive.

The following table lists the data types that can be specified.

| type | Description |
|------|----------------|
| i | INTEGER |
| u | UNSIGNED |
| s | STRING |
| x | HEX STRING |
| d | DECIMAL STRING |
| n | NULLOBJ |
| o | OBJID |
| t | TIMETICKS |
| a | IPADDRESS |
| b | BITS |

An argument error will occur if a value other than those listed above is specified.

If this option is omitted, it will be set to "s".

Up to 100 instances of this option can be specified. An argument error occurs if this is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Advanced Options

(1) community

This is the SNMP Manager community name.

This can be specified when the SNMP protocol version is v1 or v2. If the protocol version is v3, the specified content will be ignored.

For this option, specify "public", "private" or another custom value.

If this option is omitted, it will be set to "public".

The maximum length of this option is 1,024 characters. An argument error occurs if this is exceeded.

(2) securitylevel

This is the SNMP security level.

This can be specified when the SNMP protocol version is v3. If the protocol version is v1 or v2, the specified content will be ignored.

For this option, specify "noAuthNoPriv", "authNoPriv" or "authPriv". This option is not case sensitive.

If "noAuthNoPriv" is specified, the IDs will not be checked and the messages to be sent will not be encrypted. In this case, the "snmpusername" option must be specified.

If "authNoPriv" is specified, the IDs will be checked and the messages to be sent will not be encrypted. In this case, the "snmpusername", "snmppassword" and "authprotocol" options must be specified.

If "authPriv" is specified, the IDs will be checked and the messages to be sent will be encrypted. In this case, the "snmpusername", "snmppassword", "authprotocol", "privpassword" and "privprotocol" options must be specified.

If this option is omitted, it will be set to "noAuthNoPriv".

(3) snmpusername

This is the SNMP user name for the host where the object value is to be set.

This can be specified when the SNMP protocol version is v3. If the protocol version is v1 or v2, the specified content will be ignored.

If the SNMP protocol version is "v3", this option cannot be omitted.

The maximum length of this option is 1,024 characters. An argument error occurs if this is exceeded.

(4) snmppassword

This is the SNMP user password for the host where the object value is to be set.

This can be specified when the SNMP protocol version is v3. If the protocol version is v1 or v2, the specified content will be ignored.

This option cannot be omitted when the SNMP protocol version is v3 and the security level is authNoPriv or authPriv.

An argument error will occur if the password is less than 8 characters long.

The maximum length of the password is 1,024 characters. An argument error occurs if this is exceeded.

(5) authprotocol

This is the protocol which is used in the SNMP user ID check.

This can be specified when the SNMP protocol version is v3. If the protocol version is v1 or v2, the specified content will be ignored.

This option cannot be omitted when the SNMP protocol version is v3 and the security level is authNoPriv or authPriv.

For this option, specify either "MD5" or "SHA". In all other cases, an argument error occurs. This option is not case sensitive.

(6) privpassword

This is the password used when encrypting messages sent by the SNMP user for the host where the object value is to be set.

This can be specified when the SNMP protocol version is v3. If the protocol version is v1 or v2, the specified content will be ignored.

This option cannot be omitted when the SNMP protocol version is v3 and the security level is authPriv.

An argument error will occur if the password is less than 8 characters long.

The maximum length of the password is 1,024 characters. An argument error occurs if this is exceeded.

(7) privprotocol

This is the protocol used to encrypt the SNMP message.

This can be specified when the SNMP protocol version is v3. If the protocol version is v1 or v2, the specified content will be ignored.

This option cannot be omitted when the SNMP protocol version is v3 and the security level is authPriv.

For this option, specify either "DES" or "AES". In all other cases, an argument error occurs. This option is not case sensitive.

(8) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(9) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(10) retry_interval



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "2.5 Definition File for Operation Components" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Success | 0 | The object value has been successfully set using SNMP. |
|  | Failure | 161 | An attempt to set an object value using SNMP failed. If a retry count has been specified, retries will be attempted. |
| | | 187 | SNMP communication authentication failed. |
| | | 197 | There is an error with the input information. |
| | | 200 | An attempt to set an object value using SNMP terminated abnormally. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|-----------------|---|
| message | This variable will be set to the following message if an object value is successfully set using SNMP. The operation component was successful. If an attempt to set an object value using SNMP fails, the content of the error will be output as a string. |
| snmp_set_result | This variable is set to the object value that has been set, using the following format: [oid],[object value set] Example: "1.3.6.1.2.1.1.5.0","new computer name" "2.3.6.1.2.1.1.5.0","new computer name" |
| returnCode | This variable is set to the return value. |

Notes

- Before using this operation component, ensure the SNMP agent on the host (where this operation component is to be executed) is correctly installed and configured.
- This operation component uses UDP port number 161.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.6.4 Send SNMP trap



Description

This operation component sends SNMP traps to the SNMP Manager.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) snmpversion

This is the SNMP protocol version.

For the version, specify "v1", "v2" or "v3". This option is not case sensitive.

An argument error occurs if the version is omitted.

(3) oid

This is the SNMP object ID.

Multiple object IDs can be specified.

An argument error occurs if this option is omitted.

Up to 100 instances of this option can be specified. An argument error occurs if this is exceeded.

The specification is in CSV format. Refer to ["3.17 Notes on Specifying Multiple Input Parameters"](#) for examples of multiple specifications.

To specify multiple object IDs, separate them by commas (",") as below.

Example: 1.3.6.1.2.1.1.5.0,1.3.6.1.2.1.1.6.0,1.3.6.1.2.1.1.3.0

(4) value

This is the object value which is set.

Multiple object values can be specified. The order in which they are specified is the same as for the object ID.

If this option is omitted, it will be set to a null value ("").

Up to 100 instances of this option can be specified. An argument error occurs if this is exceeded.

The specified object values are converted to the UTF-8 character encoding before communications are performed.

The specification is in CSV format. Refer to ["3.17 Notes on Specifying Multiple Input Parameters"](#) for examples of multiple specifications.

Specify the object values as below.

Example: new_hostname,new_location,23:10:54.50

(5) type

This is the object data type value which is set.

Multiple data types can be specified. The order in which they are specified is the same as for the object ID.

The following table lists the data types that can be specified.

| type | Description |
|------|----------------|
| i | INTEGER |
| u | UNSIGNED |
| s | STRING |
| x | HEX STRING |
| d | DECIMAL STRING |
| n | NULLOBJ |
| o | OBJID |
| t | TIMETICKS |
| a | IPADDRESS |
| b | BITS |

An argument error will occur if a value other than those listed above is specified.

If this option is omitted, it will be set to "s".

Up to 100 instances of this option can be specified. An argument error occurs if this is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Advanced Options

(1) community

This is the SNMP Manager community name.

This can be specified when the SNMP protocol version is v1 or v2. If the protocol version is v3, the specified content will be ignored.

For this option, specify "public", "private" or another custom value.

If this option is omitted, it will be set to "public".

The maximum length of this option is 1,024 characters. An argument error occurs if this is exceeded.

(2) timestamp

This is the time interval between the SNMP manager startup and the trap occurrence. The units are hundredths of a second.

If this option is omitted, it will be set to "0".

Values between 0 and 2147483647 can be specified. An argument error will occur if any other value is specified.

(3) securitylevel

This is the SNMP security level.

This can be specified when the SNMP protocol version is v3. If the protocol version is v1 or v2, the specified content will be ignored.

For this option, specify "noAuthNoPriv", "authNoPriv" or "authPriv". This option is not case sensitive.

If "noAuthNoPriv" is specified, the IDs will not be checked and the messages to be sent will not be encrypted. In this case, the "snmpusername" option must be specified.

If "authNoPriv" is specified, the IDs will be checked and the messages to be sent will not be encrypted. In this case, the "snmpusername", "snmppassword" and "authprotocol" options must be specified.

If "authPriv" is specified, the IDs will be checked and the messages to be sent will be encrypted. In this case, the "snmpusername", "snmppassword", "authprotocol", "privpassword" and "privprotocol" options must be specified.

If this option is omitted, it will be set to "noAuthNoPriv".

(4) snmpusername

This is the SNMP user name for the host where the object value is to be sent.

This can be specified when the SNMP protocol version is v3. If the protocol version is v1 or v2, the specified content will be ignored. If the SNMP protocol version is "v3", this option cannot be omitted.

The maximum length of this option is 1,024 characters. An argument error occurs if this is exceeded.

(5) snmppassword

This is the SNMP user password for the host where the object value is to be sent.

This can be specified when the SNMP protocol version is v3. If the protocol version is v1 or v2, the specified content will be ignored.

This option cannot be omitted when the SNMP protocol version is v3 and the security level is authNoPriv or authPriv.

An argument error will occur if the password is less than 8 characters long.

The maximum length of the password is 1,024 characters. An argument error occurs if this is exceeded.

(6) authprotocol

This is the protocol which is used in the SNMP user ID check.

This can be specified when the SNMP protocol version is v3. If the protocol version is v1 or v2, the specified content will be ignored.

This option cannot be omitted when the SNMP protocol version is v3 and the security level is authNoPriv or authPriv.

For this option, specify either "MD5" or "SHA". In all other cases, an argument error occurs. This option is not case sensitive.

(7) privpassword

This is the password used when encrypting messages sent by the SNMP user for the host where the object value is to be sent.

This can be specified when the SNMP protocol version is v3. If the protocol version is v1 or v2, the specified content will be ignored.

This option cannot be omitted when the SNMP protocol version is v3 and the security level is authPriv.

An argument error will occur if the password is less than 8 characters long.

The maximum length of the password is 1,024 characters. An argument error occurs if this is exceeded.

(8) privprotocol

This is the protocol used to encrypt the SNMP message.

This can be specified when the SNMP protocol version is v3. If the protocol version is v1 or v2, the specified content will be ignored.

This option cannot be omitted when the SNMP protocol version is v3 and the security level is authPriv.

For this option, specify either "DES" or "AES". In all other cases, an argument error occurs. This option is not case sensitive.

(9) enterpriseid

This is the object ID which sends the trap information.

Example: 1.3.6.1.2.1.1.5.0

This option can be specified if the SNMP protocol version is "v1". This specification is ignored for v2 and v3.

This option cannot be omitted when the SNMP protocol version is v1.

The maximum length of this option is 1,024 characters. An argument error occurs if this is exceeded.

(10) traptype

This is the trap information type.

This option can be specified if the SNMP protocol version is "v1". This specification is ignored for v2 and v3.

The following table lists the trap information types that can be specified.

| type | Description |
|------|-------------|
| 0 | Cold Start |
| 1 | Warm Start |
| 2 | Link Down |
| 3 | Link Up |

| type | Description |
|------|------------------------|
| 4 | Authentication Failure |
| 5 | EGP Neighbor Loss |
| 6 | Enterprise Specific |

An argument error will occur if a value other than those listed above is specified.

If this option is omitted, it will be set to "0". "

(11) specifictype

This is the customized trap information type.

Example: CPU OverLoad: 7

This option can be specified if the SNMP protocol version is "v1". This specification is ignored for v2 and v3.

This option cannot be omitted when the SNMP protocol version is v1 and traptype is 6.

If traptype is not 6, the specified content will be ignored.

Values between 0 and 2147483647 can be specified. An argument error will occur if any other value is specified.

(12) snmptrapoid

This is the trap information flag.

Example: 1.3.6.1.2.1.1.5.0

This option can be specified if the SNMP protocol version is "v2" or "v3". This specification is ignored for v1.

If the SNMP protocol version is "v2" or "v3", this option cannot be omitted.

The maximum length of this option is 1,024 characters. An argument error occurs if this is exceeded.

(13) engineid

This is the SNMP engine identifier.

Example: 43:05:A8:3F:40:BC

This can be specified when the SNMP protocol version is v3. If the protocol version is v1 or v2, the specified content will be ignored.

The maximum length of this option is 1,024 characters. An argument error occurs if this is exceeded.

(14) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(15) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(16) retry_interval



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Success | 0 | The SNMP trap has been sent successfully. |
|  | Failure | 161 | An attempt to send the SNMP trap failed. If a retry count has been specified, retries will be attempted. |
| | | 197 | There is an error with the input information. |
| | | 200 | Sending of the SNMP trap terminated abnormally. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|---|
| message | This variable will be set to the following message if the SNMP trap is sent successfully. The operation component was Success. If sending the SNMP trap fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- Before using this operation component, ensure the SNMP Manager on the host (where this operation component is to be executed) is correctly installed and configured.
- This operation component uses UDP port number 162.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.

- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.6.5 Execute Web service



Description

This operation component connects to a host that provides the Web service and executes the service using Web Service Definition Language (WSDL).

Options

Basic Options

(1) wsdlpath

This is the URL address of the WSDL which executes the Web service.

The maximum length of the string for the URL address is 1,024 characters. An argument error occurs if this is exceeded.

An argument error will occur if the URL address is omitted.

Example For IPv4: `http:// 192.0.2.0/webservice?wsdl`

Example For IPv6: `http:// [2001:db8:20:3:1000:100:20:3]/webservice?wsdl`

(2) methodname

This is the method name for the Web service which is executed.

The maximum length of the method name for the Web service is 1,024 characters. An argument error occurs if this is exceeded.

An argument error will occur if the method name for the Web service is omitted.

The specified parameter value is converted to the UTF-8 character encoding before communications are performed.

Example: `getServerInfo`

Advanced Options

(1) parametername

This is the parameter for the method which is executed.

Multiple parameters can be specified.

The maximum number of parameters is 100. An argument error occurs if this is exceeded.

The specified parameter value is converted to the UTF-8 character encoding before communications are performed.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

If this option is specified, the `parametervalue` option must also be specified. An argument error occurs if the `parametervalue` option is omitted.

Specify the parameters as below.

Example: `serverURL,serverPort,serverUserName,serverPassword`

(2) parametervalue

This is the parameter value for the method which is executed.

Multiple parameter values can be specified. The order in which they are specified is the same as for parametername.

The maximum number of parameter values is 100. An argument error occurs if this is exceeded.

The specified parameter value is converted to the UTF-8 character encoding before communications are performed.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

If this option is specified, the parametername option must also be specified. An argument error occurs if the parametername option is omitted.

Specify the parameter values as below.

Example: 192.0.2.0,8080,RBA_ADMIN,systemwalker1

(3) returnpropname

This is the property name for the execution results of the executed Web service.

Multiple property names can be specified.

If the property name for the execution results of the Web service is omitted, the execution result target are returned directly.

The maximum number of property names is 100. An argument error occurs if this is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Specify the property names as below.

Example: driverName,memoryInfo,diskInfo

(4) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(5) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(6) retry_interval



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Success | 0 | The Web service has executed successfully. |
|  | Failure | 161 | The Web service failed to execute. If a retry count has been specified, retries will be attempted. |
| | | 177 | There is a problem with the WSDL file. |
| | | 180 | An attempt to acquire the execution result property failed. |
| | | 188 | Communications closed during execution. |
| | | 189 | An attempt to connect to the server failed. |
| | | 197 | There is an error with the input information. |
| | | 200 | Execution of the Web service terminated abnormally. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|--------------------|--|
| message | This variable will be set to the following message if the Web service is executed successfully. The operation component was successful. If the Web service fails to execute, the content of the error will be output as a string. |
| web_service_result | This variable is set to the execution results of the Web service, using the following format. [propname1],[propvalue1] [propname2],[propvalue2] [propname3],[propvalue3] Example: If the "returnpropname" option is "driverName,memoryInfo,diskInfo" "driverName","MS2000Driver" "memoryInfo","4000MB" "diskInfo","500GB" |
| returnCode | This variable is set to the return value. |

Notes

- Before using this operation component, ensure WSDL is set up on the host that provides the Web service.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.7 Service/Process Operation Components

3.7.1 Check that service/process has started



Description

This operation component confirms whether a service or process is running.

If the specified host is Windows, confirm whether the specified service is running.

If the specified host is Linux or Solaris, confirm whether the specified process is running.

Options

Basic Options

(1) hostname

Host name or IP address of the host that will confirm the start status of a service or process.

To start services or processes on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) service

Name of the service whose start status is to be confirmed. Specify the service name of windows.

An argument error occurs if the service name is omitted.

The maximum length of the service name is 1,024 characters. An argument error occurs if this is exceeded.

Specify service name to confirm the start status as follows:

For example: Dhcp

(3) process

Name of the process whose start status is to be confirmed.

An argument error occurs if the process name is omitted.

The maximum length of the process name is 1,024 characters. An argument error occurs if this is exceeded.

Specify process name to confirm the start status as follows:

For example: sshd

Advanced Options

(1) ostype

OS type of the host that will confirm that the service or process has started.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

Name of the user connecting with SSH to the host where the start status of a service or process is to be confirmed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(3) password

Password of the user connecting with SSH to the host where the start status of a service or process is to be confirmed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(4) execusername

Name of the user executing the confirmation of the start status on the host where the start status of a process is to be confirmed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(6) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(7) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(8) retry_interval




This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Running | 0 | The service or process is running. |
|  | Stop | 161 | The service or process has stopped. Retried if a retry count has been specified. |
|  | Failure | 179 | Failed to find the service. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 200 | Failed to confirm start status of service or process. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|---|
| message | <p>This variable is set to one of the following strings according to the status of the service or process.</p> <ul style="list-style-type: none"> - If the service or process is determined to be running: "Run" - If the service or process is determined to be not running: "Stop" - If the service does not exist: "None" <p>If an attempt to check whether the service or process is running fails, the content of the error will be output as a string.</p> |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.7.2 Check that service/process has stopped



Description

This operation component confirms whether a service or process has stopped.

If the specified host is Windows, confirm whether the specified service has stopped.

If the specified host is Linux or Solaris, confirm whether the specified process has stopped.

Options

Basic Options

(1) hostname

Host name or IP address of the host that will confirm the stop status of a service or process.

To confirm the stop status of a service or process on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) service

Name of the service whose stop status is to be confirmed. Specify the service name of windows.

An argument error occurs if the service name is omitted.

The maximum length of the service name is 1,024 characters. An argument error occurs if this is exceeded.

Specify service name to confirm the stop status as follows:

For example: Dhcp

(3) process

Name of the process whose stop status is to be confirmed.

An argument error occurs if the process name is omitted.

The maximum length of the process name is 1,024 characters. An argument error occurs if this is exceeded.

Specify process name to confirm the stop status as follows:

For example: sshd

Advanced Options

(1) ostype

OS type of the host that will confirm that the service or process has stopped.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

Name of the user connecting with SSH to the host where the stop status of a service or process is to be confirmed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(3) password

Password of the user connecting with SSH to the host where the stop status of a service or process is to be confirmed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(4) execusername

Name of the user executing the confirmation of the stop status on the host where the stop status of a process is to be confirmed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(6) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(7) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(8) retry_interval




This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Stop | 0 | The service or process is stopped. |
|  | Running | 161 | The service or process has running. Retried if a retry count has been specified. |
|  | Failure | 179 | Failed to find the service. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 200 | Failed to confirm stop status of service or process. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------|---|
| message | <p>This variable is set to one of the following strings according to the status of the service or process.</p> <ul style="list-style-type: none"> - If the service or process is determined to be stopped: "Stop" - If the service or process is determined to be not stopped: "Run" - If the service does not exist: "None" |

| Variable | Description |
|------------|--|
| | If an attempt to check whether the service or process is stopped fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.7.3 Check that service has started



Description

This operation component confirms whether a service is running.

This operation component can be used to check that the service has started after the server has started.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or ':::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) service

Name of the service whose start status is to be confirmed. Specify the service name of windows.

Multiple service names can be specified.

An argument error occurs if the service name is omitted.

The maximum number of service names that can be specified is 100. An argument error occurs if this is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Specify service name to confirm the start status as follows:

Example: Dhcp

Example: Dhcp,EventLog

Advanced Options

(1) ostype

Operating system of the host executing the operation component.

Specify Windows. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

Name of the user connecting with SSH to the host executing the operation component.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(3) password

Password of the user connecting with SSH to the host executing the operation component.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(4) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(5) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(6) retry_interval




This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Running | 0 | The service is running. |
|  | Stop | 161 | The service has stopped. Retried if a retry count has been specified. |
|  | Failure | 179 | Failed to find the service. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 200 | Failed to confirm start status of service. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------------------------|---|
| message | <ul style="list-style-type: none"> - If a single service name has been specified for the "service" option: This variable is set to one of the following strings according to the status of the service. <ul style="list-style-type: none"> - If the service is determined to be running: "Run" - If the service is determined to be not running: "Stop" - If the service does not exist: "None" <p>If an attempt to check whether the service is running fails, the content of the error will be output as a string.</p> <ul style="list-style-type: none"> - If multiple service names have been specified for the "service" option: If all services have been successfully verified as running, this variable will be set to the string "Run". If some or all services could not be verified as running, information for the services that could not be verified as running will be output using the same format as for the "service_start_check_result" variable. |
| service_start_check_result | This variable is set to the result of executing the check on the specified service. |
| returnCode | This variable is set to the return value. |

The output format for the "service_start_check_result" variable is as follows:

[service],[return value],[output data],[message]

For [output data], nothing will be output.

For [message], one of the following will be output..

- If the service is running, the string "Run" will be output.
- If the service is not running, the string "Stop" will be output.
- If the service does not exist, the string "None" will be output.
- If an attempt to check whether the service is running fails, the content of the error will be output as a string.

<Example>

If "service1, service2, service3" is specified for the "service" option, and service2 and service3 have not been verified as running

[Standard output]

"service",Return_code,"OutputStandard_output","MessageStandard_error"

"service1",0,"","Run"

"service2",161,"","Stop"

"service3",179,"","None"

If all services have been successfully verified as running, the string "Run" will be output to the standard error output.

If some or all services could not be verified as running, information for the services that could not be verified as running will be output using the same format as for the standard output.

In the example above, the following will be output to the "message" variable.

<Example>

```
"service",Return_code,"Output","Message"  
"service2",161,"","Stop"  
"service3",179,"","None"
```

Notes

- This operation component uses File Transfer Infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.7.4 Check that service has stopped



Description

This operation component confirms whether a service has stopped.

Options

Basic Options

(1) hostname

Host name or IP address of the host that will confirm the stop status of a service.

To confirm the stop status of a service on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) service

Name of the service whose stop status is to be confirmed. Specify the service name of windows.

An argument error occurs if the service name is omitted.

The maximum length of the service name is 1,024 characters. An argument error occurs if this is exceeded.

Specify service name to confirm the stop status as follows:

For example: Dhcp

Advanced Options

(1) ostype

OS type of the host that will confirm that the service has stopped.

Specify Windows. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

Name of the user connecting with SSH to the host where the stop status of a service is to be confirmed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

If it connects with file transfer infrastructure, the connected user name is invalid.

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(3) password

Password of the user connecting with SSH to the host where the stop status of a service is to be confirmed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(4) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(5) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(6) retry_interval




This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Stop | 0 | The service is stopped. |
|  | Running | 161 | The service has running. Retried if a retry count has been specified. |
|  | Failure | 179 | Failed to find the service. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 200 | Failed to confirm stop status of service. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------|---|
| message | This variable is set to one of the following strings according to the status of the service. <ul style="list-style-type: none"> - If the service is determined to be stopped: "Stop" - If the service is determined to be not stopped: "Run" - If the service does not exist: "None" |

| Variable | Description |
|------------|---|
| | If an attempt to check whether the service is stopped fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.7.5 Check that process has started



Description

This operation component confirms whether a process is running.

Options

Basic Options

(1) hostname

Host name or IP address of the host that will confirm the start status of a process.

To confirm that process has started on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or ':::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) process

Name of the process whose start status is to be confirmed.

An argument error occurs if the process name is omitted.

The maximum length of the process name is 1,024 characters. An argument error occurs if this is exceeded.

Specify process name to confirm the start status as follows:

For example: explorer.exe

Advanced Options

(1) ostype

OS type of the host that will confirm that the process is running.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

Name of the user connecting with SSH to the host where the start status of a process is to be confirmed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(3) password

Password of the user connecting with SSH to the host where the start status of a process is to be confirmed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(4) execusername

Name of the user executing the confirmation of the start status on the host where the start status of a process is to be confirmed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(6) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(7) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(8) retry_interval




This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Running | 0 | The process is running. |
|  | Stop | 161 | The process has stopped. Retried if a retry count has been specified. |
|  | Failure | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 200 | Failed to confirm start status of process. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable is set to one of the following strings according to the status of the process. <ul style="list-style-type: none"> - If the process is determined to be running: "Run" - If the process is determined to be not running: "Stop" If an attempt to check whether the process is running fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.7.6 Check that process has stopped



Description

This operation component confirms whether a process has stopped.

Options

Basic Options

(1) hostname

Host name or IP address of the host that will confirm the stop status of a process.

If the stop status of a process on the Management Server is to be confirmed, specify either 'localhost' or '127.0.0.1'.

To confirm that process has stopped on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) process

Name of the process whose stop status is to be confirmed.

An argument error occurs if the process name is omitted.

The maximum length of the process name is 1,024 characters. An argument error occurs if this is exceeded.

Specify process name to confirm the stop status as follows:

For example: explorer.exe

Advanced Options

(1) ostype

OS type of the host that will confirm that the process has stopped.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

Name of the user connecting with SSH to the host where the stop status of a process is to be confirmed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(3) password

Password of the user connecting with SSH to the host where the stop status of a process is to be confirmed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(4) execusername

Name of the user executing the confirmation of the stop status on the host where the stop status of a process is to be confirmed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If it is specified Windows host in **hostname** and it connects with file transfer infrastructure, it is executed as a SYSTEM user. Therefore, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) **excepassword**

This operation component does not use the value of "excepassword". The value of "excepassword" is ignored even if specified.

(6) **timeout**

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(7) **retry**

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(8) **retry_interval**




This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Stop | 0 | The process is stopped. |
|  | Running | 161 | The process has running. Retried if a retry count has been specified. |
|  | Failure | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | | Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 200 | Failed to confirm stop status of process. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable is set to one of the following strings according to the status of the process. <ul style="list-style-type: none"> - If the process is determined to be stopped: "Stop" - If the process is determined to be not stopped: "Run" If an attempt to check whether the process is stopped fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.7.7 Start service



Description

This operation component starts a service.

If the specified host is Windows, the Windows service is started.

If the specified host is Linux, the /etc/init.d subordinate script is started.

If the specified host is Solaris, starts the service with the command svcadm.

Options

Basic Options

(1) hostname

Host name or IP address of the service to be started.

To start services on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or ':::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) service

Name of the service to be started.

Specify the service name when the OS type is Windows.

Specify the allocated script in "etc/init.d" that will be started service command when the OS type is Linux.

If the Business Server is running on Solaris, specify one or more service names that can be started or stopped by using the "svcadm" command.

An argument error occurs if the service name is omitted.

The maximum length of the service name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) ostype

OS type of the host that will start the service.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

Name of the user connecting with SSH to the host that will start the service.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(3) password

Password of the user connecting with SSH to the host that will start the service.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(4) execusername

Name of the user starting the service on the host where the service is to be started.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(6) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(7) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(8) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Start of service was successful. |
|  | Failure | 161 | Failed to start of service. Retried if a retry count has been specified. |
| | | 179 | Service was not found. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 198 | There is an error in the option content. |
| | | 200 | Start of service terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------|--|
| message | This variable will be set to the following message if the service is started successfully. The operation component was successful. If the service does not exist, the string "None" will be set. |

| Variable | Description |
|------------|---|
| | If the service fails to start, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.7.8 Stop service



Description

This operation component stops a service.

If the specified host is Windows, the Windows service is stopped.

If the specified host is Linux, the /etc/init.d subordinate script started by the service command is stopped.

If the specified host is Solaris, stops the service with the command svcadm.

Options

Basic Options

(1) hostname

Host name or IP address of the service to be stopped.

To stop service on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) service

Name of the service to be stopped.

Specify the service name when the OS type is Windows.

Specify the allocated script in "etc/init.d" that will be stopped service command when the OS type is Linux.

If the Business Server is running on Solaris, specify one or more service names that can be started or stopped by using the "svcadm" command.

An argument error occurs if the service name is omitted.

The maximum length of the service name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) ostype

OS type of the host that will stop the service.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

Name of the user connecting with SSH to the host that will stop the service.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(3) password

Password of the user connecting with SSH to the host that will stop the service.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(4) execusername

Name of the user stopping the service on the host where the service is to be stopped.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" running on Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(6) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(7) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(8) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Stop of service was successful. |
|  | Failure | 161 | Failed to stop of service. Retried if a retry count has been specified. |
| | | 179 | Service was not found. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 198 | There is an error in the option content. |
| | | 200 | Stop of service terminated abnormally. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if the service is stopped successfully. The operation component was successful. If the service does not exist, the string "None" will be set. If the service fails to stop, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.7.9 Pause service



Description

This operation component pauses a Windows service.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) service

This is the name of the service to be paused. Specify the Windows service name.

An argument error occurs if the service name is omitted.

The maximum length of the service name is 1,024 characters. An argument error occurs if this is exceeded.

Specify the name of the service to be paused, as below.

Example: Dhcp

Advanced Options

(1) ostype

Operating system of the host executing the operation component.

Specify Windows. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

This is the name of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(3) password

This is the password of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with the file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(4) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(5) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(6) retry_interval



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "2.5 Definition File for Operation Components" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | The service has been paused successfully. |
|  | Failure | 161 | An attempt to pause the service failed. If a retry count has been specified, retries will be attempted. |
| | | 179 | The service has not been found. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | | Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error with the input information. |
| - | - | 200 | An attempt to pause the service terminated abnormally. |
| | | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |
| | | 205 | The operation component has not been executed. There is a problem with the input Information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output Information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|---|
| message | This variable will be set to the following message if the service is paused successfully. The operation component was successful. If the service fails to pause, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH. Specify settings so that communications can be performed using at least one of these methods. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.7.10 Change service account



Description

This operation component changes the logon account for a Windows service. This component also restarts the service after making changes.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) service

This is the name of the service for which the execution account is changed. Specify the Windows service name.

An argument error occurs if the service name is omitted.

The maximum length of the service name is 1,024 characters. An argument error occurs if this is exceeded.

Specify the name of the service for which the execution account is to be changed, as below.

Example: Dhcp

(3) accountname

This is the execution account which is changed.

An argument error occurs if the execution account is omitted.

The maximum length of the execution account is 1,024 characters. An argument error occurs if this is exceeded.

(4) accountpassword

This is the password for the execution account which is changed.

This option is invalid when the execution account is localsystem, localservice, or networkservice.

The maximum length of the password for the execution account is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) allowservice

This is "Allow interaction with Desktop in the service" when localsystem is specified for the execution account.

This is only valid when the execution account is localsystem.

If "on" was specified, interaction with Desktop is allowed in the service.

If "off" was specified, interaction with Desktop is not allowed in the service.

If nothing was specified, the setting will be "off". This option is not case sensitive.

(2) restart

This specifies whether the service is restarted after the execution account was changed.

If "on" was specified, the service is restarted. Only services with "Started" status are restarted.

If "off" was specified, the service is not restarted.

If nothing was specified, the setting will be "off". This option is not case sensitive.

(3) ostype

Operating system of the host executing the operation component.

Specify Windows. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(4) username

This is the name of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at the following name and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) password

This is the password of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with the file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(6) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(7) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(8) retry_interval



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | The execution account for the service has been changed successfully. |
|  | Failure | 161 | An attempt to change the execution account for the service failed. If a retry count has been specified, retries will be attempted. |
| | | 171 | An attempt to restart the service has failed. |
| | | 179 | The service has not been found. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error with the input information. |
| | | 200 | An attempt to change the execution account for the service terminated abnormally. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if the execution account for the service is changed successfully. The operation component was successful. If an attempt to change the execution account for the service fails, or if the service fails to restart, this variable will be set to the content of the error as a string. |
| returnCode | This variable is set to the return value. |

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH. Specify settings so that communications can be performed using at least one of these methods. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.7.11 Change service startup type



Description

This operation component changes the startup type for a Windows service.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) service

This is the name of the service for which the startup type is changed. Specify the Windows service name.

An argument error occurs if the service name is omitted.

The maximum length of the service name is 1,024 characters. In all other cases, an argument error occurs.

Specify the name of the service for which the startup type is to be changed, as below.

Example: Dhcp

(3) startmode

This is the startup type to be changed.

Specify "auto", "demand", "disable", "boot", "system" or "delayed-auto". This option is not case sensitive.

In all other cases, an argument error occurs.

An argument error occurs if the startup type is omitted.

The maximum length of the startup type is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) ostype

Operating system of the host executing the operation component.

Specify Windows. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

This is the name of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at the following name and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(3) password

This is the password of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with the file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(4) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(5) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(6) retry_interval



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "2.5 Definition File for Operation Components" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | The startup type for the service has been changed successfully. |
|  | Failure | 161 | An attempt to change the startup type for the service failed. If a retry count has been specified, retries will be attempted. |
| | | 179 | The service has not been found. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 197 | There is an error with the input information. |
| | | 200 | An attempt to change the startup type for the service terminated abnormally. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if the startup type for the service is changed successfully. The operation component was successful. If an attempt to change the startup type for the service fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH. Specify settings so that communications can be performed using at least one of these methods. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.7.12 Get service status



Description

This operation component acquires the status of a Windows service.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) service

This is the name of the service for which the status is to be obtained. Specify the Windows service name.

An argument error occurs if the service name is omitted.

The maximum length of the service name is 1,024 characters. An argument error occurs if this is exceeded.

Specify the name of the service to be paused, as below.

Example: Dhcp

Advanced Options

(1) ostype

Operating system of the host executing the operation component.

Specify Windows. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

This is the name of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at the following name and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(3) password

This is the password of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with the file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(4) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(5) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(6) retry_interval



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | The status of the service is "RUNNING". |
| | | 1 | The status of the service is "STOPPED". |
| | | 2 | The status of the service is "PAUSED". |
| | | 3 | The status of the service is "PENDING(StartPending,StopPending,PausePending,ContinuePending)". |
|  | Failure | 161 | An attempt to obtain the status of the service failed. If a retry count has been specified, retries will be attempted. |
| | | 179 | The service has not been found. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connected with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error with the input information. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 200 | An attempt to obtain the status of the service terminated abnormally. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------------|---|
| message | This variable will be set to the following message if the status of the service is obtained successfully. The operation component was successful. If an attempt to obtain the status of the service fails, the content of the error will be output as a string. |
| service_status | This variable is set to the status of the service. |
| returnCode | This variable is set to the return value. |

The following table lists the service statuses with their description.

| State | Description |
|------------------|-----------------------------|
| START_PENDING | Start processing underway |
| RUNNING | Start |
| STOP_PENDING | Stop processing underway |
| STOPPED | Stop |
| PAUSE_PENDING | Pause processing underway |
| PAUSED | Pause |
| CONTINUE_PENDING | Restart processing underway |

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH. Specify settings so that communications can be performed using at least one of these methods. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.

- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.7.13 End process



Description

This operation component terminates a running process with the specified process name or process ID.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) process

This is the process name or ID for the process to be ended.

An argument error occurs if the process name or process ID is omitted.

The maximum length of the process name or process ID is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) ostype

Operating system of the host executing the operation component.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

This is the name of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(3) password

This is the password of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with the file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(4) execusername

This is the name of the user that executes the command on the target host where the operation component is to be executed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value. If an administrator user has not been registered with the CMDB, the command will be executed using the name of the connected user.

If the host specified in "hostname" is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

The maximum length of the executing user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(6) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(7) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(8) retry_interval



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|--|--------------|---|
|  | Success | 0 | The process has been terminated successfully. |
|  | Failure | 161 | An attempt to terminate the process failed. If a retry count has been specified, retries will be attempted. |
| | | 179 | The process has not been found. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error with the input information. |
| | | 200 | An attempt to close the process terminated abnormally. |
| | | - | - |
| 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. | | |
| 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. | | |
| 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. | | |
| 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. | | |
| 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. | | |
| 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. | | |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if the process is terminated successfully. The operation component was successful. If an attempt to terminate the process fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH communications. Specify settings so that communications can be performed using at least one of these methods. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- If there are multiple processes with the specified process name, the operation component will terminate all of these processes.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.8 Load Balancing and Cluster Operation Components

3.8.1 Remove as load balancing target



Description

This operation component uses IPCOM to remove a server from a load balancing target.

Options

Basic Options

(1) hostname

Host name or IP address for connecting through an operation management network set in IPCOM.

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) lhostname

Host name or IP address of the server that is to be removed from a load balancing target managed by IPCOM.

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) removetime

Time period until the server is removed from a load balancing target managed by IPCOM.

Specify removetime in seconds.

Values between 0 and 3600 can be specified.

For example: If the removetime is 10 minutes: 600

An argument error occurs if a value outside the above range is entered.

If removetime is omitted, 0 (seconds) is specified.

(2) username

Name of the user connecting with SSH to the IP address for connecting through an operation management network set in IPCOM.

The connecting user name must have a user role of administrator.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(3) password

Password of the user connecting with SSH to the IP address for connecting through an operation management network set in IPCOM.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(4) execusername

The execusername value cannot be used in operation components.

Invalidated when the value of execusername is input.

(5) execpassword

Password for the command for transitioning to the administrator EXEC mode (admin command).

If the password necessary for "execusername" and transitioning to the administrator EXEC mode is omitted, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user password as the value.

The maximum length of the password for transitioning to the administrator EXEC mode is 1,024 characters. An argument error occurs if this is exceeded.

(6) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(7) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(8) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Removal from the load balancing target was successful. |
|  | Failure | 161 | Removal from the load balancing target failed. Retried if a retry count has been specified. |
| | | 187 | Authentication failed when an attempt was made to connect to the server over the network (using SSH). Alternatively, an error occurred during the processing of communications with server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the error output. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the option content. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------|---|
| message | This variable will be set to the following message if the server is successfully removed from the load balancing target, . The operation component was successful. |

| Variable | Description |
|------------|---|
| | If removing the server from the load balancing target fails, this variable will be set to the content of the error as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses SSH communication to perform its operations. Refer to "[3.16 Notes of Each Communication Method](#)" for the notes of SSH communication.
- This operation component relevant to following version of IPCOM.
 - IPCOM EX1000LB :EX LB series entry model
 - IPCOM EX1200LB :EX LB series middle range model
 - IPCOM EX2000LB :EX LB series hi-end model
 - IPCOM EX2200LB :EX LB series hi-end model
 - IPCOM EX2000IN :EX IN series hi-end model
 - IPCOM EX2200IN :EX IN series hi-end model
- With an operation component, if username, password, and execpassword are omitted, Systemwalker Runbook Automation automatically sets the values stored in the CMDB. Therefore, if values stored in CMDB are to be used, it is necessary to store the required information in CMDB beforehand by using the swpm_uaimport command. Do not omit the password if information is to be stored in the CMDB. Refer to "[1.4.2 swrba_uaimport \(User Information Import Command\)](#)" in the *Systemwalker Runbook Automation Reference Guide* for information on the swpm_uaimport command.
 - Example of input file (CSV format) specified by the swpm_uaimport command

```
"IP address for connecting through an operation management network set in IPCOM","OS","User name (user roll: administrator) of the user connecting with SSH","Password of the user connecting with SSH","false","true",,"comment"

"IP address for connecting through an operation management network set in IPCOM","OS","user name different to the above connecting user name","Password for the command for transitioning to the administrator EXEC mode (admin command)""true""false",,"comment"
```
- This operation component uses IPCOM. Refer to the relevant IPCOM documentation for information on how to set up IPCOM.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.8.2 Include as load balancing target



Description

This operation component uses IPCOM to add a server to a load balancing target.

Options

Basic Options

(1) hostname

Host name or IP address for connecting through an operation management network set in IPCOM.

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) lbhostname

Host name or IP address of the server that is to be added to a load balancing target managed by IPCOM.

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) username

Name of the user connecting with SSH to the IP address for connecting through an operation management network set in IPCOM.

The connecting user name must have a user role of administrator.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(2) password

Password of the user connecting with SSH to the IP address for connecting through an operation management network set in IPCOM.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(3) execusername

The execusername value cannot be used in operation components.

Invalidated when the value of execusername is input.

(4) execpassword

Password for the command for transitioning to the administrator EXEC mode (admin command).

If the password necessary for "execusername" and transitioning to the administrator EXEC mode is omitted, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user password as the value.

The maximum length of the password for transitioning to the administrator EXEC mode is 1,024 characters. An argument error occurs if this is exceeded.

(5) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(6) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(7) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Adding to a load balancing target was successful. |
|  | Failure | 161 | Adding to a load balancing target failed. Retried if a retry count has been specified. |
| | | 187 | Authentication failed when an attempt was made to connect to the server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | SSH connection to the Managed Server that is not implemented RBA Agent failed during execution. |
| | | 189 | An attempt to connect to the server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the option content. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if the server is successfully included in the load balancing target. The operation component was successful. If an attempt to include the server in the load balancing target fails, this variable will be set to the content of the error as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses SSH communication to perform its operations. Refer to "[3.16 Notes of Each Communication Method](#)" for the notes of SSH communication.
- This operation component relevant to following version of IPCOM.
 - IPCOM EX1000LB :EX LB series entry model
 - IPCOM EX1200LB :EX LB series middle range model
 - IPCOM EX2000LB :EX LB series hi-end model
 - IPCOM EX2200LB :EX LB series hi-end model
 - IPCOM EX2000IN :EX IN series hi-end model
 - IPCOM EX2200IN :EX IN series hi-end model
- With an operation component, if username, password, and execpassword are omitted, Systemwalker Runbook Automation automatically sets the values stored in the CMDB. Therefore, if values stored in CMDB are to be used, it is necessary to store the required information in CMDB beforehand by using the swpm_uaimport command. Do not omit the password if information is to be stored in the CMDB. Refer to "[1.4.2 swrba_uaimport \(User Information Import Command\)](#)" in the *Systemwalker Runbook Automation Reference Guide* for information on the swpm_uaimport command.
 - Example of input file (CSV format) specified by the swpm_uaimport command

```
"IP address for connecting through an operation management network set in IPCOM","OS","User name (user roll: administrator) of the user connecting with SSH","Password of the user connecting with SSH","false","true",,"comment"
"IP address for connecting through an operation management network set in IPCOM","OS","user name different to the above connecting user name","Password for the command for transitioning to the administrator EXEC mode (admin command)""true""false",,"comment"
```
- This operation component uses IPCOM. Refer to the relevant IPCOM documentation for information on how to set up IPCOM.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)

- Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.8.3 Get cluster resource status



Description

This operation component retrieves the resource status of a cluster system. Relevant cluster system is PRIMECLUSTER.

Options

Basic Options

(1) hostname

Host name or IP address of the host requesting acquisition of the resource status.

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) resource

Name of the resource whose status is to be acquired.

An argument error occurs if the resource name is omitted.

The maximum length of the resource name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) mwtype

Name of the cluster system for the linked product.

Specify PCL. This option is not case sensitive.

If the MW type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired mw type as a value.

(2) mwinstalledpath

Installation path of the command for the linked product.

If PRIMECLUSTER is specified to mwtype as a linked product for this operation component, Installation path is able to omit. Only PRIMECLUSTER can be specified as a linked product with this operation component.

The maximum length of the Installation path is 1,024 characters. An argument error occurs if this is exceeded.

(3) ostype

OS type of the host requesting the acquisition of the resource status of the cluster system.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(4) username

Name of the user connecting with SSH to the host requesting the acquisition of the resource status of the cluster system.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(5) password

Password of the user connecting with SSH to the host requesting the acquisition of the resource status of the cluster system.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with File Transfer Infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(6) execusername

Name of the user acquiring the resource status on the host requesting acquisition of the resource status of the cluster system.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(7) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(8) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(9) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(10) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to ["2.5 Definition File for Operation Components"](#) for details.

Return Values

| Icon | Name | Return value | Description |
|---|--|--------------|---|
|  | Success | 0 | Acquisition of the resource status of the cluster system was successful. |
|  | Failure | 159 | Specified resource was not detected. |
| | | 161 | Failed to acquire the resource status. Retried if a retry count has been specified. |
| | | 187 | Authentication failed when an attempt was made to connect to the server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 198 | There is an error in the option content. |
| | | 200 | Acquisition of resource status terminated abnormally. |
| | | - | - |
| 202 | The operation component was not executed. There is a problem in the setting to execute operation components. | | |
| 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. | | |
| 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. | | |
| 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. | | |
| 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. | | |
| 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. | | |

Output information

| Variable | Description |
|----------|---|
| message | This variable will be set to the following message if the resource status of the cluster system is obtained successfully. |

| Variable | Description |
|-------------------------|--|
| | The operation component was successful. If an attempt to obtain the resource status of the cluster system fails, the content of the error will be output as a string. |
| cluster_resource_result | This variable is set to the cluster system resource status that has been acquired. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- If specify logical host name or logical IP address to host name or IP address, information about this logical host is not registered to the Configuration Management Database (CMDB). It is necessary to take the following either appropriate action.
 - Specify following options at all times.
mwttype, username, password
 - Register the information on Configuration Management Database (CMDB) in advance.
 - Register the information about logical host to the Configuration Management Database (CMDB) in advance. Refer to "Administration of the configuration items" in the *Systemwalker Runbook Automation Operation Guide* on how to register the information.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

- This operation component relevant following cluster system.

Linux:

- PRIMECLUSTER Enterprise Edition 4.3A00 or later
- PRIMECLUSTER HA Server 4.3A00 or later
- PRIMECLUSTER Clustering Base 4.3A00 or later

Solaris:

- **PRIMECLUSTER Enterprise** Edition 4.3A10
- PRIMECLUSTER HA Server 4.3A10
- PRIMECLUSTER Clustering Base 4.3A10

3.8.4 Switch cluster resource



Description

This operation component switches the control node of a resource to other specified nodes. Relevant cluster system is PRIMECLUSTER.

Options

Basic Options

(1) hostname

Host name or IP address of the host that will switch the resource of the cluster system.

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) resource

Name of the resource to be switched.

An argument error occurs if the resource name is omitted.

The maximum length of the resource name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) nodename

Name of the node where the resource is to be placed.

If the node name is omitted, switch to the system node that is highest priority.

If the node name is omitted, the resource is not switched when the resource is operated on the highest priority system node.

The maximum length of the node name is 1,024 characters. An argument error occurs if this is exceeded.

(2) mwtype

Name of the cluster system for the linked product.

Specify PCL. This option is not case sensitive.

If the MW type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired mw type as a value.

(3) mwinstalledpath

Installation path of the command for the linked product.

If PRIMECLUSTER is specified to mwtype as a linked product for this operation component, Installation path is able to omit. The linked product is PRIMECLUSTER.

The maximum length of the Installation path is 1,024 characters. An argument error occurs if this is exceeded.

(4) ostype

OS type of the host that will switch the resource.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(5) username

Name of the user connecting with SSH to the host switch the resource.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(6) password

Password of the user connecting with SSH to the host switch the resource.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with File Transfer Infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(7) execusername

Name of the user switching the resource on the host switch the resource.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(8) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(9) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(10) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(11) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to ["2.5 Definition File for Operation Components"](#) for details.

Return Values

| Icon | Name | Return value | Description |
|---|--|--------------|---|
|  | Success | 0 | Switch the resource was successful. |
|  | Failure | 159 | Specified resource was not detected. |
| | | 161 | Failed to switch the resource status. Retried if a retry count has been specified. |
| | | 187 | Authentication failed when an attempt was made to connect to the server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 198 | There is an error in the option content. |
| | | 200 | Switch of the resource status terminated abnormally. |
| | | - | - |
| 202 | The operation component was not executed. There is a problem in the setting to execute operation components. | | |
| 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. | | |
| 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. | | |
| 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. | | |
| 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. | | |
| 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. | | |

Output information

| Variable | Description |
|----------|---|
| message | This variable will be set to the following message if the resources for the cluster system are switched successfully. |

| Variable | Description |
|------------|---|
| | The operation component was successful. If an attempt to switch the resources for the cluster system fails, the content of the error will be output as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File transfer infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- If specify logical host name or logical IP address to host name or IP address, information about this logical host is not registered to the Configuration Management Database (CMDB). It is necessary to take the following either appropriate action.
 - Specify following options at all times.
mwtpe, username, password
 - Register the information on Configuration Management Database (CMDB) in advance.
 - Register the information about logical host to the Configuration Management Database (CMDB) in advance. Refer to "Administration of the configuration items" in the *Systemwalker Runbook Automation Operation Guide* on how to register the information.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN
- Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.
- This operation component relevant following cluster system.
- This operation component relevant following cluster system.

Linux:

- PRIMECLUSTER Enterprise Edition 4.3A00 or later
- PRIMECLUSTER HA Server 4.3A00 or later
- PRIMECLUSTER Clustering Base 4.3A00 or later

Solaris:

- **PRIMECLUSTER Enterprise** Edition 4.3A10
- PRIMECLUSTER HA Server 4.3A10
- PRIMECLUSTER Clustering Base 4.3A10

3.9 Server Operation Components

3.9.1 Start the server



Description

This operation component starts servers.

This component uses IPMI to make requests to start servers.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed..

Multiple host names or IP addresses can be specified.

An argument error occurs if the host name or IP address is omitted.

The maximum allowable number of host names or IP addresses is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Advanced Options

(1) ipmiipaddress

IP address set in the IPMI of the server to be started.

If IPMI IP address is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired IPMI IP address as a value.

Multiple IP addresses can be specified. For the specification order, use the same order as for the host names or IP addresses specified for "hostname".

The maximum allowable number of IP addresses is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

(2) ipmiusername

User name set in the IPMI of the server to be started.

If the user name or password is not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired IPMI user name as a value.

Multiple connection user names can be specified. For the specification order, use the same order as for the host names or IP addresses specified for "hostname".

The maximum allowable number of user names is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

(3) ipmipassword

User password set in the IPMI of the server to be started.

If the user name or password is not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired IPMI user password as a value.

Multiple connection passwords can be specified. For the specification order, use the same order as for the host names or IP addresses specified for "hostname".

The maximum allowable number of passwords is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to ["3.17 Notes on Specifying Multiple Input Parameters"](#) for examples of multiple specifications.

(4) multiplicity

Specify the execution multiplicity for starting servers.

Values from 1 through 100 can be specified.

If a value greater than the number of host names or IP addresses specified for the "hostname" option is used, the operation component runs as though the "hostname" value has been specified for "multiplicity".

If this option is omitted, the operation component will run as though "1" has been specified.

If multiple different IP addresses are specified for "ipmiipaddress", specify the degree of execution multiplicity.

(5) operationmode

Specify the parts movement mode, for when multiple target host names or IP addresses executing the operation component are specified.

The valid values are:

continue : Execute to the end of the specified host.

abort : Suspend processing in the host where the error was discovered.

If omitted or some other value than the options listed above is specified, "continue" is used by default.

This option is not case sensitive.

If "abort" is specified and a multiplicity of 2 or higher is specified, the component will not be interrupted until the server processing that is executing at the time the error is detected completes.

This will be ignored if only one host name or IP address is specified for the server to be started.

(6) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(7) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

If multiple host names or IP addresses have been specified for the server to be started, retries will not be performed.

(8) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | A request to start the server has been successful. |
|  | Failure | 161 | A request to start the server failed. Retried if a retry count has been specified. If multiple host names have been specified, retries will not be performed. |
| | | 180 | Multiple operations failed. For the return values for the operations on each host, check the "Return_code" column in Output Data: server_start_result. |
| | | 189 | Connection to the server failed. |
| | | 197 | There is an error in the option content. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|---------------------|---|
| Message | <ul style="list-style-type: none"> - If only one host name or IP address has been specified for "hostname": This variable will be set to the following message if the server start request is successful. The operation component was successful. If the server start request fails, the content of the error will be set as a string. - If multiple host names or IP addresses have been specified for "hostname": This variable will be set to the following message if all of the server start requests are successful. The operation component was successful. If some or all of the server start requests fail, information for the servers that failed to start will be output using the same format as the "server_start_result" variable. |
| server_start_result | This variable is set to the result of executing the start request on the specified server. |
| server_start_list | This variable is set to a list of servers for which the startup request was successful. The specification is in the CSV format. |

| Variable | Description |
|-------------------------|---|
| server_start_fault_list | This variable is set to a list of servers for which the startup request was unsuccessful. The specification is in the CSV format. |
| returnCode | This variable is set to the return value. |

The output format for the "server_start_result" variable is as follows:

[hostname],[return value],[output data],[message]

For [output data], nothing will be output.

For [message], one of the following will be output:

- If the server start request is successful, the string "Success" will be output.
- If the server start request fails, the content of the error will be output as a string.

<Example>

If "host1,host2,host3" has been specified for the "hostname" option, and a request to start server "host3" has failed:

```
"hostname",Return_code,"Output","Message"
"host1",0,"","Success"
"host2",0,"","Success"
"host3",161,"","Lanplus RAKP2 HMAC does not match with BMC"
```

In the example above, the following will be output to the "message" variable.

<Example>

```
"hostname",Return_code,"Output","Message"
"host3",161,"","Lanplus RAKP2 HMAC does not match with BMC"
```

Notes

- If using this operation component to run the server, Business Server hardware must correspond to the following specifications:
 - IPMI V2.0

If the setting of IPMI of the Managed Server is not completed, set up IPMI.
- If ipmiipaddress, ipmiusername or ipmipassword are omitted, in this operation component, Systemwalker Runbook Automation automatically sets acquired values that are registered in the Configuration Management Database (CMDB). Therefore, if use information that is registered in the Configuration Management Database (CMDB), required information need to register to the Configuration Management Database (CMDB) by using swrba_ipmiimport command before use this operation component. If register the information to the Configuration Management Database (CMDB), don't omit the password. Refer to "swrba_ipmiimport (import command of the IPMI information) for details.
 - Example of the input file (CSV format) that is specified swrba_ipmiimport

"IP address that is operated server","IP address set in the IPMI","User name set in the IPMI","User password set in the IPMI"
- When use this operation component, the communication port which requires communication permission on the Business Server is UDP port 623.
- If multiple values are specified for the option, it is recommended that values be registered with the Configuration Management Database (CMDB) in advance.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.

- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.9.2 Stop the server



Description

This operation component stops servers.

This component uses IPMI to make requests to stop servers.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

Multiple host names or IP addresses can be specified. .

An argument error occurs if the host name or IP address is omitted.

An argument error will occur if a loopback interface host name or IP address, such as 'localhost', '127.0.0.1' or '::1' is specified.

The maximum allowable number of host names or IP addresses is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Advanced Options

(1) ipmiipaddress

IP address set in the IPMI of the server to be stopped.

If IPMI IP address is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired IPMI IP address as a value.

Multiple IP addresses can be specified. For the specification order, use the same order as for the host names or IP addresses specified for "hostname".

The maximum allowable number of IP addresses is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

(2) ipmiusername

User name set in the IPMI of the server to be stopped.

If the user name or password is not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired IPMI user name as the value.

Multiple connection user names can be specified. For the specification order, use the same order as the IP addresses set for the IPMI of the server to be stopped that are specified for "ipmiipaddress".

The maximum allowable number of user names is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to ["3.17 Notes on Specifying Multiple Input Parameters"](#) for examples of multiple specifications.

(3) ipmipassword

User password set in the IPMI of the server to be stopped.

If either the user name or the password is not entered, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired IPMI user password as a value.

Multiple connection passwords can be specified. For the specification order, use the same order as the IP addresses set for the IPMI of the server to be stopped that are specified for "ipmiipaddress".

The maximum allowable number of passwords is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to ["3.17 Notes on Specifying Multiple Input Parameters"](#) for examples of multiple specifications.

(4) multiplicity

Specify the execution multiplicity for stopping servers.

Values between 1 and 100 can be specified.

If a value greater than the number of host names or IP addresses specified for the "hostname" option is used, the operation component runs as though the "hostname" value has been specified for "multiplicity".

If this option is omitted, the operation component will run as though "1" has been specified.

If multiple different IP addresses are specified for "ipmiipaddress", specify the degree of execution multiplicity.

(5) operationmode

Specify the component operation mode to be used when multiple host names/IP addresses are specified for the server to be stopped. This option is not case sensitive.

The valid values are:

continue : Execute to the end of the specified host.

abort : Suspend processing in the host where the error was discovered.

If omitted or some other value than the options listed above is specified, "continue" is used by default.

If "abort" is specified and a multiplicity of 2 or higher is specified, the component will not be interrupted until the server processing that is executing at the time the error is detected completes.

This will be ignored if only one host name or IP address is specified for the server to be stopped.

(6) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(7) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

If multiple host names or IP addresses have been specified for the server to be stopped, retries will not be performed.

(8) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Success | 0 | A request to stop the server has been successful. |
|  | Failure | 161 | A request to stop the server failed. Retried if a retry count has been specified. If multiple host names have been specified, retries will not be performed. |
| | | 180 | Multiple operations failed. For the return values for the operations on each host, check the "Return_code" column in .Output Data: server_stop_result |
| | | 189 | Connection to the server failed. |
| | | 197 | There is an error in the option content. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------|--|
| message | <ul style="list-style-type: none">- If only one host name or IP address has been specified for "hostname": This variable will be set to the following message if the server stop request is successful. The operation component was successful. If the server stop request fails, the content of the error will be set as a string.- If multiple host names or IP addresses have been specified for "hostname": This variable will be set to the following message if all of the server stop requests are successful. The operation component was successful. |

| Variable | Description |
|------------------------|---|
| | If some or all of the server stop requests fail, information for the servers that failed to stop will be output using the same format as the "server_stop_result" variable. |
| server_stop_result | This variable is set to the result of executing the stop request on the specified server. |
| server_stop_list | This variable is set to a list of servers for which the stop request was successful. This specification is in the CSV format. |
| server_stop_fault_list | This variable is set to a list of servers for which the stop request was unsuccessful. This specification is in the CSV format. |
| returnCode | This variable is set to the return value. |

The output format for the "server_stop_result" variable is as follows:

[hostname],[return value],[output data],[message]

For [output data], nothing will be output.

For [message], one of the following will be output:

- If the server stop request is successful, the string "Success" will be output.
- If the server stop request fails, the content of the error will be output as a string.

<Example>

If "host1,host2,host3" has been specified for the "hostname" option, and a request to stop server "host3" has failed

```
"hostname",Return_code,"Output","Message"
"host1",0,"","Success"
"host2",0,"","Success"
"host3",161,"","Lanplus RAKP2 HMAC does not match with BMC"
```

In the example above, the following will be output to the "message" variable.

<Example>

```
"hostname",Return_code,"Output","Message"
"host3",161,"","Lanplus RAKP2 HMAC does not match with BMC"
```

Notes

- If using this operation component to stop the server, Business Server hardware must correspond to the following specifications:
 - IPMI V2.0

If the setting of IPMI of the Managed Server is not completed, set up IPMI.
- If ipmiaddress, ipmiusername or ipmipassword are omitted, in this operation component, Systemwalker Runbook Automation automatically sets acquired values that are registered in the Configuration Management Database (CMDB). Therefore, if use information that is registered in the Configuration Management Database (CMDB), required information need to register to the Configuration Management Database (CMDB) by using swrba_ipmiimport command before use this operation component. If register the information to the Configuration Management Database (CMDB), don't omit the password. Refer to [1.4.12 swrba_ipmiimport \(IPMI Information Import Command\)](#) for details.
 - Example of the input file (CSV format) that is specified swrba_ipmiimport

"IP address that is operated server","IP address set in the IPMI","User name set in the IPMI","User password set in the IPMI"
- When use this operation component, the communication port which requires communication permission on the Business Server is UDP port 623.

- If multiple values are specified for the option, it is recommended that values be registered with the Configuration Management Database (CMDB) in advance.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.9.3 Stop OS



Description

This operation component stops the operating system of servers.

Run OS stop request using the shutdown command.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

Multiple host names or IP addresses can be specified.

An argument error occurs if the host name or IP address is omitted.

An argument error will occur if a loopback interface host name or IP address, such as 'localhost', '127.0.0.1' or '::1' is specified.

The maximum allowable number of host names or IP addresses is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Advanced Options

(1) deferringtime

Deferring time (minutes) to begin the OS stop.

Values between 1 and 1,440 (1 day) can be specified.

Because of the specific of the shutdown command, there is a case that cannot defer for 1,440 minutes.

Confirm the specific of the each OS shutdown command for detail.

For example: When begin the OS stop after 10 minutes: 10

If deferring time is omitted, 1 minute is specified.

(2) ostype

OS type of the server that will stop the OS.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

Multiple operating system types can be specified. For the specification order, use the same order as for the host names or IP addresses specified for "hostname".

The maximum allowable number of operating system types is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

(3) username

Name of the user connecting with SSH to the host executing the operation component.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

Multiple connected user names can be specified. For the specification order, use the same order as for the host names or IP addresses specified for "hostname".

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum allowable number of connection user names is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

(4) password

Password of the user connecting with SSH to the host executing the operation component. .

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

Multiple passwords required for connections can be specified. For the specification order, use the same order as for the host names or IP addresses specified for "hostname".

If it connects with File Transfer Infrastructure, the connected user password is invalid.

The maximum allowable number of passwords required for connections is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

(5) execusername

Name of the user executing the shutdown command on the target host where the operation component is to be executed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

Multiple executing user names can be specified. For the specification order, use the same order as for the host names or IP addresses specified for "hostname".

The maximum allowable number of execution user names is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

(6) `execpassword`

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(7) `multiplicity`

Specify the execution multiplicity for stopping operating systems.

Values between 1 and 100 can be specified.

If a value greater than the number of host names or IP addresses specified for the "hostname" option is used, the operation component runs as though the "hostname" value has been specified for "multiplicity".

If this option is omitted, the operation component will run as though "10" has been specified.

(8) `operationmode`

Specify the component operation mode to be used when multiple host names/IP addresses are specified for the server to be stopped.

The valid values are:

`continue` : Execute to the end of the specified host.

`abort` : Suspend processing in the host where the error was discovered.

If omitted or some other value than the options listed above is specified, "continue" is used by default.

This option is not case sensitive.

If "abort" is specified and a multiplicity of 2 or higher is specified, the component will not be interrupted until the server processing that is executing at the time the error is detected completes.

The specification for this option will be ignored if only one host name or IP address is specified for the server where the operating system is to be stopped.

(9) `timeout`

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(10) `retry`

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

If multiple host names or IP addresses have been specified for the server for which the operating system is to be stopped, retries will not be performed.

(11) `retry_interval`



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and `retry_interval` is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to ["2.5 Definition File for Operation Components"](#) for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Running the OS stop request was successful. |
|  | Failure | 161 | Failed to run the OS stop request. Retried if a retry count has been specified. If multiple host names have been specified, retries will not be performed. |
| | | 180 | Multiple operations failed. For the return values for the operations on each host, check the "Return_code" column in Output Data: os_stop_result. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When the operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection to the Business Server has been disrupted. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the option content, or there is a problem in the registered information in the Configuration Management Database (CMDB). |
| | | 200 | Stop of OS terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation components were not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------|--|
| message | - If only one host name or IP address has been specified for "hostname": |

| Variable | Description |
|--------------------|--|
| | <p>This variable will be set to the following message if the operating system stop request is successful.</p> <p>The operation component was successful.</p> <p>If the operating system stop request fails, the content of the error will be set as a string.</p> <ul style="list-style-type: none"> - If multiple host names or IP addresses have been specified for "hostname": <p>This variable will be set to the following message if all of the operating system stop requests are successful.</p> <p>The operation component was successful.</p> <p>If some or all of the operating system stop requests fail, information for the operating system stop requests that failed will be output using the same format as the "os_stop_result" variable.</p> |
| os_stop_result | This variable is set to the result of executing the stop request on the specified server. |
| os_stop_list | This variable is set to a list of servers for which the stop request was successful. This specification is in the CSV format. |
| os_stop_fault_list | This variable is set to a list of servers for which the stop request was unsuccessful. This specification is in the CSV format. |
| returnCode | This variable is set to the return value. |

The output format for the "os_stop_result" variable is as follows:

[hostname],[return value],[output data],[message]

For [output data], nothing will be output.

For [message], one of the following will be output:

- If the operating system stop request is successful, the string "Success" will be output.
- If the operating system stop request fails, the content of the error will be output as a string.

<Example>

If "host1,host2,host3" has been specified for the "hostname" option, and a request to stop the operating system for host3 has failed

```
"hostname",Return_code,"Output","Message"
"host1",0,"","Success"
"host2",0,"","Success"
"host3",161,"","-bash: shutdown: command not found"
```

In the example above, the following will be output to the "message" variable.

<Example>

```
"hostname",Return_code,"Output","Message"
"host3",161,"","-bash: shutdown: command not found"
```

Notes

- This operation component uses File Transfer Infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to ["3.16 Notes of Each Communication Method"](#) for information on communication methods.
- Refer to ["3.16.7 Notes When Connected User And Executing User Are Different"](#) for information on different connected and executing users.

- If multiple values are specified for the option, it is recommended that values be registered with the Configuration Management Database (CMDB) in advance.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.9.4 Restart OS



Description

This operation component restarts the operating system of servers.

Run OS restart request using the shutdown command.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

Multiple host names or IP addresses can be specified.

An argument error occurs if the host name or IP address is omitted.

An argument error will occur if a loopback interface host name or IP address, such as 'localhost', '127.0.0.1' or '::1' is specified.

The maximum allowable number of host names or IP addresses is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Advanced Options

(1) deferringtime

Deferring time (minutes) to begin the OS restart.

Values between 1 and 1,440 (1 day) can be specified for the deferring time.

Because of the specific of the shutdown command, there is a case that cannot defer for 1,440 minutes.

Confirm the specific of the each OS shutdown command for detail.

For example: When begin the OS restart after 10 minutes: 10

If deferring time is omitted, 1 minute is specified.

(2) ostype

OS type of the server that will restart the OS.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

Multiple operating system types can be specified. For the specification order, use the same order as for the host names or IP addresses specified for "hostname".

The maximum allowable number of operating system types is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

(3) username

Name of the user connecting with SSH to the host executing the operation component.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

Multiple connection user names can be specified. For the specification order, use the same order as for the host names or IP addresses specified for "hostname".

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum allowable number of connection user names is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

(4) password

Password of the user connecting with SSH to the host executing the operation component.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

Multiple passwords required for connections can be specified. For the specification order, use the same order as for the host names or IP addresses specified for "hostname".

If it connects with File Transfer Infrastructure, the connected user password is invalid.

The maximum allowable number of passwords required for connections is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

(5) execusername

Name of the user executing the shutdown command on the target host where the operation component is to be executed. .

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

Multiple executing user names can be specified. For the specification order, use the same order as for the host names or IP addresses specified for "hostname".

The maximum allowable number of execution user names is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

(6) exepassword

This operation component does not use the value of exepassword. The value of exepassword will be ignored even if it is specified.

(7) multiplicity

Specify the execution multiplicity for restarting operating systems.

Values between 1 and 100 can be specified.

If a value greater than the number of host names or IP addresses specified for the "hostname" option is used, the operation component runs as though the "hostname" value has been specified for "multiplicity".

If this option is omitted, or a value higher than the range is specified, it will operate with "10" as the default.

(8) operationmode

Specify the component operation mode to be used when multiple host names/IP addresses are specified for the server to be started.

The valid values are:

continue : Execute to the end of the specified host.

abort : Suspend processing in the host where the error was discovered.

If omitted or some other value than the options listed above is specified, "continue" is used by default.

This option is not case sensitive.

If "abort" is specified and a multiplicity of 2 or higher is specified, the component will not be interrupted until the server processing that is executing at the time the error is detected completes.

The specification for this option will be ignored when there is only one host name or IP address for the server for which the operating system is to be restarted.

(9) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(10) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

If multiple host names or IP addresses have been specified for the server for which the operating system is to be restarted, retries will not be performed.

(11) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to ["2.5 Definition File for Operation Components"](#) for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Running the OS restart request was successful. |
|  | Failure | 161 | Failed to run the OS restart request. Retried if a retry count has been specified. If multiple host names have been specified, retries will not be performed. |
| | | 180 | Multiple operations failed. For the return values for the operations on each host, check the "Return_code" column in Output Data: os_reboot_result |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When the operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection to the Business Server has been disrupted. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the option content, or there is a problem in the registered information in the Configuration Management Database (CMDB). |
| | | 200 | Restart of OS terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------|--|
| message | - If only one host name or IP address has been specified for "hostname": |

| Variable | Description |
|----------------------|---|
| | <p>This variable will be set to the following message if the operating system restart request is successful.</p> <p>The operation component was successful.</p> <p>If the operating system restart request fails, the content of the error will be set as a string.</p> <ul style="list-style-type: none"> - If multiple host names or IP addresses have been specified for "hostname": <p>This variable will be set to the following message if all of the operating system restart requests are successful.</p> <p>The operation component was successful.</p> <p>If some or all of the operating system restart requests fail, information for the operating system restart requests that failed will be output using the same format as the "os_reboot_result" variable.</p> |
| os_reboot_result | This variable is set to the result of executing the restart request on the specified server. |
| os_reboot_list | This variable is set to a list of servers for which the restart request was successful. This specification is in the CSV format. |
| os_reboot_fault_list | This variable is set to a list of servers for which the restart request was unsuccessful. This specification is in the CSV format. |
| returnCode | This variable is set to the return value. |

The output format for the "os_reboot_result" variable is as follows:

[hostname],[return value],[output data],[message]

For [output data], nothing will be output.

For [message], one of the following will be output:

- If the operating system restart request is successful, the string "Success" will be output.
- If the operating system restart request fails, the content of the error will be output as a string.

<Example>

If "host1,host2,host3" has been specified for the "hostname" option, and a request to restart the operating system for host3 has failed

```
"hostname",Return_code,"Output","Message"
"host1",0,"","Success"
"host2",0,"","Success"
"host3",161,"","-bash: shutdown: command not found"
```

In the example above, the following will be output to the "message" variable.

<Example>

```
"hostname",Return_code,"Output","Message"
"host3",161,"","-bash: shutdown: command not found"
```

Notes

- This operation component uses File transfer infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to ["3.16 Notes of Each Communication Method"](#) for information on communication methods.

- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- If multiple values are specified for the option, it is recommended that values be registered with the Configuration Management Database (CMDB) in advance.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.9.5 Start WorkUnit



Description

This operation component starts the WorkUnit or IJ Server cluster on the Application Server. Relevant Application Server is Interstage. If the relevant option is registered as a work unit, then a work unit is started. If not, the IJ Server cluster is started.

Options

Basic Options

(1) hostname

The host name or IP address of the host that starts the WorkUnit or the IJServer cluster.

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) wuname

The name of the IJServer cluster or the WorkUnit to be started.

An argument error occurs if the WorkUnit name or IJ Server cluster name is omitted.

The maximum length of the WorkUnit name or IJ Server cluster name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) operationtype

Specify either "wu" or "ijs" to start the WorkUnit or the IJServer cluster, respectively.

These values are not case sensitive.

If nothing is specified, the WorkUnit starts.

If the WorkUnit does not exist, the IJServer cluster starts.

The maximum length of the string is 1,024 characters. An argument error occurs if this limit is exceeded.

For IJ Server clusters, the relevant middleware version is V9.2.0 or later. An error will occur if middleware older than V9.2.0 is used.

(2) **systemname**

Name of the system where the WorkUnit is to be started.

If the system name is omitted, default system is specified.

The specification of the system name is effective, if the server is Solaris system only. The specification of the system name is invalid, if the server is Windows system or Linux system.

The specification is invalid if an IJ Server cluster name is specified in wuname.

The maximum length of the system name is 1,024 characters. An argument error occurs if the exceeded.

(3) **mwtype**

Name of the Application Server for the linked product.

Specify IAPS, IBAS or IWS. This option is not case sensitive.

IAPS: Interstage Application Server

IBAS: Interstage Business Application Server

IWS : Interstage Web Server Express or Interstage Web Server

If the MW type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired mw type as a value.

The maximum length of the mw type is 1,024 characters. An argument error occurs if this exceeded.

(4) **mwinstalledpath**

Installation path of the command for the linked product.

If Interstage is specified to mwtype as a linked product for this operation component, Installation path is able to omit. Only Interstage can be specified as a linked product with this operation component

The maximum length of the Installation path is 1,024 characters. An argument error occurs if this is exceeded.

(5) **ostype**

The operating system of the host that starts the WorkUnit or the IJServer cluster.

Specify Windows, Linux, or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(6) **username**

Name of the user connecting with SSH to the host start WorkUnit or IJ Server cluster.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(7) **password**

The password for connecting via SSH to the host that starts the WorkUnit or the IJServer cluster.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with File Transfer Infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(8) execusername

The user name for executing the command to start the WorkUnit or the IJServer cluster on the host.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(9) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(10) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(11) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(12) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | WorkUnit or IJ Server cluster startup was successful. |
|  | Failure | 159 | Specified WorkUnit or IJ Server cluster was not detected. Alternatively, the service required for IJ Server cluster operation was not started. |
| | | 161 | Failed to start the WorkUnit or IJ Server cluster. Retried if a retry count has been specified. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | | Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 198 | There is an error in the option content. |
| | | 200 | Startup of WorkUnit or IJ Server cluster terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|---|
| message | This variable will be set to the following message if the WorkUnit or IJ Server cluster starts successfully. The operation component was successful. If the WorkUnit or IJ Server cluster fails to start, the content of the error will be set as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- To operate the IJ Server cluster, start the following service on the relevant operating server:
 - Interstage Java EE Node Agent service
- If the WorkUnit or IJServer cluster specified in wuname has been already started or it is degenerate state, the operation component exit successfully without starting IJServer cluster.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

- This operation component relevant following middleware.
- Windows/Linux/Solaris
 - Interstage Application Server Enterprise Edition V9.0.0 or later.
 - Interstage Application Server Standard-J Edition V9.0.0 or later.
 - Interstage Business Application Server Enterprise Edition V9.0.0 or later.
 - Interstage Business Application Server Standard Edition V9.0.0 or later.
 - Interstage Web Server V9.0.0 or later.
 - Interstage Web Server Express V11.0.0 or later.
 - For IJ Server clusters, the relevant middleware version is V9.2.0 or later. An error will occur if middleware older than V9.2.0 is used.

3.9.6 Stop WorkUnit



Description

This operation component stops the WorkUnit or IJ Server cluster on the Application Server. Relevant Application Server is Interstage. If the relevant option is registered as a work unit, then the work unit is stopped. If not, the IJ Server cluster is stopped.

Options

Basic Options

(1) hostname

Host name or IP address of the host that will stop the WorkUnit or IJ Server cluster.

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) **wuname**

Name of the WorkUnit or IJ Server cluster to be stopped.

An argument error occurs if the WorkUnit name or IJ Server cluster name is omitted.

The maximum length of the WorkUnit name or IJ Server cluster name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) **operationtype**

Specify either "wu" or "ijs" to stop the WorkUnit or the IJServer cluster, respectively.

These values are not case sensitive.

If nothing is specified, the WorkUnit stops.

If the WorkUnit does not exist, the IJServer cluster stops.

The maximum string length is 1,024 characters. An argument error occurs if this limit is exceeded.

For IJ Server clusters, the relevant middleware version is V9.2.0 or later. An error will occur if middleware older than V9.2.0 is used.

(2) **systemname**

Name of the system where the WorkUnit is to be stopped.

If the system name is omitted, default system is specified.

The specification of the system name is effective, if the server is Solaris system only. The specification of the system name is invalid, if the server is Windows system or Linux system.

The specification is invalid if an IJ Server cluster name is specified in wuname.

The maximum length of the system name is 1,024 characters. An argument error occurs if the exceeded.

(3) **stopmode**

The stop mode of the WorkUnit or the IJServer cluster.

Specify "gen", "syn" or "fc". This option is not case sensitive.

If "gen" is specified, it is stopped generally.

If "syn" is specified, it is stopped synchronously.

If "fc" is specified, it is stopped forcedly.

If a value is not specified for the WorkUnit, "syn" is used by default.

If specify "gen" to IJServer WorkUnit, it is stopped synchronously.

If a value is not specified for the IJServer cluster or if "syn" is used, "gen" is set by default.

Refer to Interstage documentation for information of each stop mode for detail.

(4) **mwtype**

Name of the Application Server for the linked product. This option is not case sensitive.

Specify IAPS, IBAS or IWS.

IAPS: Interstage Application Server

IBAS: Interstage Business Application Server

IWS : Interstage Web Server Express or Interstage Web Server

If the MW type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired mw type as a value.

The maximum length of the mw type is 1,024 characters. An argument error occurs if this exceeded.

(5) **mwinstalledpath**

Installation path of the command for the linked product.

If Interstage is specified to mwtype as a linked product for this operation component, Installation path is able to omit. Only Interstage can be specified as a linked product with this operation component.

The maximum length of the Installation path is 1,024 characters. An argument error occurs if this is exceeded.

(6) **ostype**

OS type of the host that will stop the WorkUnit or IJ Server cluster.

Specify Windows, Linux, or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(7) **username**

Name of the user connecting with SSH to the host stop WorkUnit or IJ Server cluster.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(8) **password**

Password of the user connecting with SSH to the host stop WorkUnit or IJ Server cluster.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with File Transfer Infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(9) **execusername**

Name of the user stopping the WorkUnit or IJ Server cluster on the host where the WorkUnit or IJ Server cluster is to be stopped.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(10) **execpassword**

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(11) **timeout**

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(12) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(13) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | WorkUnit or IJ Server cluster stop was successful. |
|  | Failure | 159 | Specified WorkUnit or IJ Server cluster was not detected. Alternatively, the service required for IJ Server cluster operation was not started. |
| | | 161 | Failed to stop the WorkUnit or IJ Server cluster. Retried if a retry count has been specified. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the input information. |
| | | 198 | There is an error in the option content. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 200 | Stop of WorkUnit or IJ Server cluster terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|---|
| message | This variable will be set to the following message if the WorkUnit or IJ Server cluster stops successfully. The operation component was successful. If the WorkUnit or IJ Server cluster fails to stop, the content of the error will be set as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File transfer infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- To operate the IJ Server cluster, start the following service on the relevant operating server:
 - Interstage Java EE Node Agent service
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

- This operation component relevants following middleware.

- Windows/Linux/Solaris
 - Interstage Application Server Enterprise Edition V9.0.0 or later.
 - Interstage Application Server Standard-J Edition V9.0.0 or later.
 - Interstage Business Application Server Enterprise Edition V9.0.0 or later.
 - Interstage Business Application Server Standard Edition V9.0.0 or later.
 - Interstage Web Server V9.0.0 or later.
 - Interstage Web Server Express V11.0.0 or later.
 - For IJ Server clusters, the relevant middleware version is V9.2.0 or later. An error will occur if middleware older than V9.2.0 is used.

3.9.7 Restart WorkUnit



Description

This operation component restarts the WorkUnit or IJ Server cluster on the Application Server. Relevant Application Server is Interstage. If the relevant option is registered as a work unit, then a work unit is restarted. If not, the IJ Server cluster is restarted.

Options

Basic Options

(1) hostname

Host name or IP address of the host that will restart the WorkUnit or IJ Server cluster.

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) wuname

Name of the WorkUnit or IJ Server cluster to be restarted.

An argument error occurs if the WorkUnit name or IJ Server cluster name is omitted.

The maximum length of the WorkUnit name or IJ Server cluster name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) operationtype

Specify either "wu" or "ijs" to restart the WorkUnit or the IJServer cluster, respectively.

These values are not case sensitive.

If nothing is specified, the WorkUnit restarts.

If the WorkUnit does not exist, the IJServer cluster restarts.

The maximum string length is 1,024 characters. An argument error occurs if this limit is exceeded.

For IJ Server clusters, the relevant middleware version is V9.2.0 or later. An error will occur if middleware older than V9.2.0 is used.

(2) systemname

Name of the system where the WorkUnit is to be restarted.

If the system name is omitted, default system is specified.

The specification of the system name is effective, if the server is Solaris system only.

The specification of the system name is invalid, if the server is Windows system or Linux system.

The specification is invalid if an IJ Server cluster is specified in wuname.

The maximum length of the system name is 1,024 characters. An argument error occurs if the exceeded.

(3) stopmode

Restart mode of the WorkUnit or IJ Server cluster.

Specify "gen", "syn" or "fc". This option is not case sensitive.

If "gen" is specified, it is stopped generally.

If "syn" is specified, it is stopped synchronously.

If "fc" is specified, it is stopped forcedly.

If a value is not specified for the WorkUnit, "syn" is used by default.

If specify "gen" to IJServer WorkUnit, it is stopped synchronously.

If a value is not specified for the IJServer cluster or if "syn" is used, "gen" is set by default.

Refer to Interstage documentation for information of each stop mode for detail.

(4) mwtype

Name of the Application Server for the linked product.

Specify IAPS, IBAS or IWS. This option is not case sensitive.

IAPS: Interstage Application Server

IBAS: Interstage Business Application Server

IWS : Interstage Web Server Express or Interstage Web Server

If the MW type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired mw type as a value.

The maximum length of the mw type is 1,024 characters. An argument error occurs if this exceeded.

(5) mwinstalledpath

Installation path of the command for the linked product.

If Interstage is specified to mwtype as a linked product for this operation component, Installation path is able to omit. Only Interstage can be specified as a linked product with this operation component.

The maximum length of the Installation path is 1,024 characters. An argument error occurs if this is exceeded.

(6) ostype

OS type of the host that will restart the WorkUnit or IJ Server cluster.

Specify Windows, Linux, or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(7) username

Name of the user connecting with SSH to the host restart WorkUnit or IJ Server cluster.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. Argument error occurs if this is exceeded.

(8) password

Password of the user connecting with SSH to the host restart WorkUnit or IJ Server cluster.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with File Transfer Infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. Argument error occurs if this is exceeded.

(9) execusername

Name of the user restarting the WorkUnit or IJ Server cluster on the host where the WorkUnit or IJ Server cluster is to be restarted.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the user name is 1,024 characters. An argument error occurs if this is exceeded.

(10) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(11) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(12) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(13) retry_interval

This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description | | |
|------|--|--------------|---|-----|--|
| | Success | 0 | WorkUnit or IJ Server cluster restart was successful. | | |
| | Failure | 159 | Specified WorkUnit or IJ Server cluster was not detected. Alternatively, the service required for IJ Server cluster operation was not started. | | |
| | | 161 | Failed to restart the WorkUnit or IJ Server cluster. Retried if a retry count has been specified. | | |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. | | |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, the network communications (SSH) with the Business Server was closed. | | |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. | | |
| | | 197 | There is an error in the input information. | | |
| | | 198 | There is an error in the option content. | | |
| | | 200 | Restart of WorkUnit or IJ Server cluster terminated abnormally. | | |
| | | - | - | 201 | Execution of operation component timed out. |
| | | | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. | | | | |
| 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. | | | | |
| 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. | | | | |
| 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. | | | | |
| 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. | | | | |

Output information

| Variable | Description |
|----------|--|
| message | This variable will be set to the following message if the WorkUnit or IJ Server cluster restarts successfully. |

| Variable | Description |
|------------|---|
| | The operation component was successful. If the WorkUnit or IJ Server cluster fails to restart, the content of the error will be set as a string. |
| returnCode | This variable is set to the return value. |

Notes

- This operation component uses File Transfer Infrastructure or SSH communication to perform its operations when specify the host name other than the Management Server. It is necessary to be able to connect at least each one. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- To operate the IJ Server cluster, start the following service on the relevant operating server:
 - Interstage Java EE Node Agent service
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

- This operation component relevants following middleware.
- Windows/Linux/Solaris
 - Interstage Application Server Enterprise Edition V9.0.0 or later.
 - Interstage Application Server Standard-J Edition V9.0.0 or later.
 - Interstage Business Application Server Enterprise Edition V9.0.0 or later.
 - Interstage Business Application Server Standard Edition V9.0.0 or later.
 - Interstage Web Server V9.0.0 or later.
 - Interstage Web Server Express V11.0.0 or later.
 - For IJ Server clusters, the relevant middleware version is V9.2.0 or later. An error will occur if middleware older than V9.2.0 is used.

3.9.8 Start virtual server



Description

This operation component connects to the virtual environment management product and starts a virtual server.

The component establishes connection by using the information registered in the Configuration Management Database (CMDB).

Options

Basic Options

(1) servername

Multiple names can be specified for the name of the server to be started. Specify the virtual server name that is registered in the Virtual Environment Management Server.

If the virtual environment is managed by ServerView Resource Orchestrator, specify the L-Server name.

An argument error occurs if the virtual server name is omitted.

The maximum allowable server names is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Advanced Options

(1) multiplicity

Specify the execution multiplicity for restarting virtual servers.

Values between 1 and 100 can be specified.

If a value greater than the number of server names specified for the "servername" option is used, the operation component runs as though the "servername" value has been specified for "multiplicity".

If this option is omitted, the operation component will run as though "10" has been specified.

If a large value is specified for this option, there may be a burden on the managed product in the virtual environment.

(2) operationmode

Specify the parts movement mode for when multiple servers to be started are specified.

The valid values are below, and these option are not case sensitive.:

continue : Execute to the end of the specified host.

abort : Suspend processing in the host where the error was discovered.

If omitted or some other value than the options listed above is specified, "continue" is used by default.

If "abort" is specified and a multiplicity of 2 or higher is specified, the component will not be interrupted until the server processing that is executing at the time the error is detected completes.

This will be ignored if only one server will be started.

(3) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(4) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

Note that the specification for this option is ignored if multiple server names have been specified.

(5) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|--|--------------|---|
|  | Success | 0 | Virtual server startup was successful. |
| | | 173 | The virtual server is already stopped. |
|  | Failure | 161 | Connection error occurred between the Virtual Environment Management Server. Retried if a retry count has been specified. If multiple server names have been specified, retries will not be performed. |
| | | 171 | Authentication failed to connect the Virtual Environment Management Server. |
| | | 172 | Failed to start the virtual server. |
| | | 180 | Multiple operations failed. For the return values for the operations on each server, check the "Return_code" column in Output Data: "server_start_result". |
| | | 188 | Connection to the Virtual Environment Management Server failed during execution. |
| | | 189 | An attempt to connect to the Virtual Environment Management Server has failed. If the virtual environment is not being managed by ServerView Resource Orchestrator, an error will occur in the communication process with the server (file transfer infrastructure) if an operation component executes an operation to a server that has an agent installed. In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the option content. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. | | |

Output information

| Variable | Description |
|----------|--|
| Message | - If a single server name has been specified for "servername": |

| Variable | Description |
|---------------------------|--|
| | <p>This variable is set to a message that indicates the execution result.</p> <ul style="list-style-type: none"> - If multiple server names have been specified for "servername": <p>This variable will be set to the following message if all of the servers are restarted successfully.</p> <p>The operation component was successful.</p> <p>If some or all of the servers fail to restart, information for the servers that failed to restart will be output using the same format as the "server_restart_result" variable.</p> |
| server_restart_result | This variable is set to the result of executing the restart request on the specified server. |
| server_restart_list | This variable is set to a list of servers that started successfully. This specification is in the CSV format. |
| server_restart_fault_list | This variable is set to a list of servers that failed to start. This specification is in the CSV format. |
| returnCode | This variable is set to the return value. |

The output format for the "server_restart_result" variable is as follows:

[hostname],[return value],[output data],[message]

For [output data], one of the following will be output:

- If the servers are restarted successfully, the names of the servers that have been restarted will be output.
- If restarting the servers fails, nothing will be output.

For [message], one of the following will be output:

- If the server restarts successfully, the string "Success" will be output.
- If the server fails to restart, the content of the error will be output as a string.

<Example>

If "server1,server2,server3" has been specified for the "servername" option, and server "server3" has failed to restart

```
"servername",Return_code,"Output","Message"
"server1",0,"server1","The virtual server reactivation processing has been completed.
VirtualServerName=<server1>"
"server2",0,"server2","The virtual server reactivation processing has been completed.
VirtualServerName=<server2>"
"server3",161,"","Error occurred. VirtualServerName=<server3> detail=<Message='Invalid servername specified
or information registered in CMDB is wrong.'>"
```

Note: This example has been split over multiple lines to make it easier to read, but information for a single server will be output on a single line.

In the example above, the following will be output to the "message" variable.

<Example>

```
"servername",Return_code,"Output","Message"
"server3",161,"","Error occurred. VirtualServerName=<server3> detail=<Message='Invalid servername specified or information
registered in CMDB is wrong.'>"
```

Note: This example has been split over multiple lines to make it easier to read, but information for a single server will be output on a single line.

Notes

- With this operation component, it is necessary to register the managed product information or the managed product's Management Server authentication information with CMDB beforehand.
If the virtual environment is being managed by ServerView Resource Orchestrator, register the ServerView Resource Orchestrator information.
If not managing the virtual environment with ServerView Resource Orchestrator, register the virtualization software information. Refer to "[3.18 Information Registration to CMDB \(Management Product of Virtual Environment\)](#)" for information on registration.
- If information for both the ServerView Resource Orchestrator and the virtualization software are registered in CMDB, first check whether the specified virtual server name is being managed by ServerView Resource Orchestrator.
- If not managing the virtual environment with ServerView Resource Orchestrator, an agent must be installed on the vCenter Server in order to display the VM host operations using this operation component. The following software is required for vCenter Server:
 - VMware vSphere Power CLI
 - Windows PowerShell

On vCenter Server, environment settings to use the above software are required. Refer to "[3.19 vCenter Server Settings](#)" for details.

- These operational components are relevant to the systems in which Systemwalker Software Configuration Manager is not installed.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

- This operation component relevants following middleware and virtualization software.
 - ServerView Resource Orchestrator V2.2.0 to V3.1.1
Relevant virtualization software is VMware and Hyper-V.
 - VMware vSphere 4.0, 4.1, 5.0, or 5.1.

3.9.9 Stop virtual server



Description

This operation component connects to the virtual environment management product and stops a virtual server.

The component establishes connection by using the information registered in the Configuration Management Database (CMDB).

Options

Basic Options

(1) `servername`

Name of the virtual server to be stopped. Specify the virtual server name that is registered in the Virtual Environment Management Server.

Multiple names can be specified for the name of the server to be restarted.

If the virtual environment is managed by ServerView Resource Orchestrator, specify the L-Server name.

An argument error occurs if the virtual server name is omitted.

The maximum allowable server names is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Advanced Options

(1) forcestop

Virtual server stop operation force option.

Specify "on" to stop the virtual server forcibly, without using virtual server OS shutdown processing.

Specify "off" if you do not want forced stop to be used.

If the stop mode is omitted, "off" is set. This option is not case sensitive.

(2) multiplicity

Specify the execution multiplicity for stopping virtual servers.

Values between 1 and 100 can be specified.

If a value greater than the number of server names specified for the "servername" option is used, the operation component runs as though the "servername" value has been specified for "multiplicity".

If this option is omitted, the operation component will run as though "10" has been specified.

If a large value is specified for this option, there may be a burden on the managed product in the virtual environment.

(3) operationmode

Specify the parts movement mode for when multiple servers to be stopped are specified.

The valid values are below, and these option are not case sensitive. :

continue : Execute to the end of the specified host.

abort : Suspend processing in the host where the error was discovered.

If omitted or some other value than the options listed above is specified, "continue" is used by default.

If "abort" is specified and a multiplicity of 2 or higher is specified, the component will not be interrupted until the server processing that is executing at the time the error is detected completes.

This will be ignored if only one server will be stopped.

(4) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(5) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

Note that the specification for this option is ignored if multiple server names have been specified.

(6) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If timeout, retry and retry interval are omitted, and the value beyond the limits is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|--|--------------|---|
|  | Success | 0 | Virtual server stop was successful. |
| | | 173 | The virtual server is already stopped. |
|  | Failure | 161 | Connection error occurred between the Virtual Environment Management Server. Retried if a retry count has been specified. If multiple server names have been specified, retries will not be performed. |
| | | 171 | Authentication failed to connect the Virtual Environment Management Server. |
| | | 172 | Failed to stop the virtual server. |
| | | 180 | Multiple operations failed. For the return values for the operations on each server, check the "Return_code" column in output information "server_stop_result". |
| | | 188 | Connection to the Virtual Environment Management Server failed during execution. |
| | | 189 | An attempt to connect to the Virtual Environment Management Server has failed. If the virtual environment is not being managed by ServerView Resource Orchestrator, an error will occur in the communication process with the server (file transfer infrastructure) if an operation component executes an operation to a server that has an agent installed. In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the option content. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. | | |

Output information

| Variable | Description |
|----------|---|
| message | <ul style="list-style-type: none"> - If a single server name has been specified for "servername": This variable is set to a message that indicates the execution result. - If multiple server names have been specified for "servername": |

| Variable | Description |
|------------------------|--|
| | <p>This variable will be set to the following message if all of the servers are stopped successfully.</p> <p>The operation component was successful.</p> <p>If some or all of the servers fail to stop, information for the servers that failed to stop will be output using the same format as the "server_stop_result" variable.</p> |
| server_stop_result | This variable is set to the result of executing the stop request on the specified server. |
| server_stop_list | This variable is set to a list of servers that stopped successfully. This specification is in the CSV format. |
| server_stop_fault_list | This variable is set to a list of servers that failed to stop. This specification is in the CSV format. |
| returnCode | This variable is set to the return value. |

The output format for the "server_stop_result" variable is as follows:

[hostname],[return value],[output data],[message]

For [output data], one of the following will be output:

- If the servers are stopped successfully, the names of the servers that have been stopped will be output.
- If the servers fail to stop, nothing will be output.

For [message], one of the following will be output:

- If the servers are stopped successfully, the string "Success" will be output.
- If the servers fail to stop, the content of the error will be output as a string.

<Example>

If "server1,server2,server3" has been specified for the "servername" option, and server "server3" has failed to stop.

```
"servername",Return_code,"Output","Message"
"server1",0,"server1","The virtual server termination processing has been completed.
VirtualServerName=<server1>"
"server2",0,"server2","The virtual server termination processing has been completed.
VirtualServerName=<server2>"
"server3",161,"","Error occurred. VirtualServerName=<server3> detail=<Message='Invalid servername specified
or information registered in CMDB is wrong.'>"
```

Note: This example has been split over multiple lines to make it easier to read, but information for a single server will be output on a single line.

In the example above, the following will be output to the "message" variable.

<Example>

```
"servername",Return_code,"Output","Message"
"server3",161,"","Error occurred. VirtualServerName=<server3> detail=<Message='Invalid servername specified
or information registered in CMDB is wrong.'>"
```

Note: This example has been split over multiple lines to make it easier to read, but information for a single server will be output on a single line.

Notes

- With this operation component, it is necessary to register the managed product information or the managed product's Management Server authentication information with CMDB beforehand.

If the virtual environment is being managed by ServerView Resource Orchestrator, register the ServerView Resource Orchestrator information.

If not managing the virtual environment with ServerView Resource Orchestrator, register the virtualization software information. Refer to "[3.18 Information Registration to CMDB \(Management Product of Virtual Environment\)](#)" for information on registration

- If information for both the ServerView Resource Orchestrator and the virtualization software are registered in CMDB, first check whether the specified virtual server name is being managed by ServerView Resource Orchestrator.
 - If not managing the virtual environment with ServerView Resource Orchestrator, an agent must be installed on the vCenter Server in order to display the VM host operations using this operation component. The following software is required for vCenter Server:
 - VMware vSphere Power CLI
 - Windows PowerShell
 - On vCenter Server, environment settings to use the above software are required. Refer to "[3.19 vCenter Server Settings](#)" for details.
 - These operational components are relevant to the systems in which Systemwalker Software Configuration Manager is not installed.
 - Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
 - When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN
- Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.
- This operation component relevant following middleware and virtualization software.
 - ServerView Resource Orchestrator V2.2.0 to V3.1.1
Relevant virtualization software is VMware and Hyper-V.
 - VMware vSphere 4.0, 4.1, 5.0, or 5.1.

3.9.10 Restart virtual server



Description

This operation component connects to the virtual environment management product and restarts a virtual server.

The component establishes connection by using the information registered in the Configuration Management Database (CMDB).

Options

Basic Options

(1) `servername`

Name of the virtual server to be restarted. Specify the virtual server name that is registered in the Virtual Environment Management Server.

Multiple names can be specified for the name of the server to be restarted.

If the virtual environment is managed by ServerView Resource Orchestrator, specify the L-Server name.

An argument error occurs if the virtual server name is omitted.

The maximum allowable server names is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to ["3.17 Notes on Specifying Multiple Input Parameters"](#) for examples of multiple specifications.

Advanced Options

(1) forcestop

Virtual server stop operation force option.

Specify "on" to restart the virtual server forcibly, without using virtual server OS shutdown processing.

Specify "off" if you do not want forced stop to be used.

If the stop mode is omitted, "off" is set. This option is not case sensitive.

(2) multiplicity

Specify the execution multiplicity for restarting virtual servers.

Values between 1 and 100 can be specified.

If a value greater than the number of server names specified for the "servername" option is used, the operation component runs as though the "servername" value has been specified for "multiplicity".

If this option is omitted, the operation component will run as though "10" has been specified.

(3) operationmode

Specify the parts movement mode for when multiple servers to be restarted are specified.

The valid values are below, and these option are not case sensitive.:

continue : Execute to the end of the specified host

abort : Suspend processing in the host where the error was discovered.

If omitted or some other value than the options listed above is specified, "continue" is used by default.

If "abort" is specified and a multiplicity of 2 or higher is specified, the component will not be interrupted until the server processing that is executing at the time the error is detected completes.

This will be ignored if only one server will be restarted.

(4) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(5) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

Note that the specification for this option is ignored if multiple server names have been specified.

(6) retry_interval

This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If timeout, retry and retry interval are omitted, and the value beyond the limits is input, the value specified with the operation components definition file becomes effective. Refer to ["2.5 Definition File for Operation Components"](#) for details.

Return Values

| Icon | Name | Return value | Description |
|------|---------|--------------|--|
| | Success | 0 | Virtual server restart was successful. |
| | Failure | 161 | Connection error occurred between the Virtual Environment Management Server. Retried if a retry count has been specified. If multiple server names have been specified, retries will not be performed. |
| | | 171 | Authentication failed to connect the Virtual Environment Management Server. |
| | | 172 | Failed to restart the virtual server. |
| | | 173 | The virtual server is stopping. |
| | | 180 | Multiple operations failed. For the return values for the operations on each server, check the "Return_code" column in the standard output. |
| | | 188 | Connection to the Virtual Environment Management Server failed during execution. |
| | | 189 | An attempt to connect to the Virtual Environment Management Server has failed. |
| | | 197 | There is an error in the option content. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation components was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|-----------------------|--|
| message | <ul style="list-style-type: none"> - If a single server name has been specified for "servername": This variable is set to a message that indicates the execution result. - If multiple server names have been specified for "servername": This variable will be set to the following message if all of the servers are restarted successfully. The operation component was successful. If some or all of the servers fail to restart, information for the servers that failed to restart will be output using the same format as the "server_restart_result" variable. |
| server_restart_result | This variable is set to the result of executing the restart request on the specified server. |

| Variable | Description |
|---------------------------|---|
| server_restart_list | This variable is set to a list of servers that restarted successfully. This specification is in the CSV format. |
| server_restart_fault_list | This variable is set to a list of servers that failed to restart. This specification is in the CSV format. |
| returnCode | This variable is set to the return value. |

The output format for the "server_restart_result" variable is as follows:

[hostname],[return value],[output data],[message]

For [output data], one of the following will be output:

- If the servers are restarted successfully, the names of the servers that have been restarted will be output.
- If the servers fail to restart, nothing will be output.

For [message], one of the following will be output:

- If the server restarts successfully, the string "Success" will be output.
- If the server fails to restart, the content of the error will be output as a string.

<Example>

If "server1,server2,server3" has been specified for the "servername" option, and server "server3" has failed to restart

```

"servername",Return_code,"Output","Message"
"server1",0,"server1","The virtual server reactivation processing has been completed.
VirtualServerName=<server1>"
"server2",0,"server2","The virtual server reactivation processing has been completed.
VirtualServerName=<server2>"
"server3",161,"","Error occurred. VirtualServerName=<server3> detail=<Message='Invalid servername specified
or information registered in CMDB is wrong.'>"

```

Note: This example has been split over multiple lines to make it easier to read, but information for a single server will be output on a single line.

In the example above, the following will be output to the "message" variable.

<Example>

```

"servername",Return_code,"Output","Message"
"server3",161,"","Error occurred. VirtualServerName=<server3> detail=<Message='Invalid servername specified or information
registered in CMDB is wrong.'>"

```

Note: This example has been split over multiple lines to make it easier to read, but information for a single server will be output on a single line.

Notes

- If manage a virtual environment by ServerView Resource Orchestrator, management product information and authentication information of the Management Server need to register to the Configuration Management Database (CMDB) before use this operation component. Refer to "[3.18 Information Registration to CMDB \(Management Product of Virtual Environment\)](#)" for the registration method.
- These operational components are relevant to the systems in which Systemwalker Software Configuration Manager is not installed.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.

- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

- This operation component relevants following middleware.
 - ServerView Resource Orchestrator V2.2.0 to V3.1.1
Relevant virtualization software is VMware and Hyper-V.

3.9.11 Build virtual server



Description

This operation component connects to the virtual environment management product and creates a virtual server.

Options

Basic Options

(1) templatename

Template name of the virtual sever to be built.

An argument error occurs if the template name is omitted.

The maximum length of the template name is 1,024 characters. An argument error occurs if this is exceeded.

(2) imagename

Image name of the virtual server to be built.

An argument error occurs if the image name is omitted.

The maximum length of the image name is 1,024 characters. An argument error occurs if this is exceeded.

(3) servername

Name assigned to the virtual server to be built.

If the virtual environment is managed by ServerView Resource Orchestrator, specified virtual server name will be registered as L-Server name.

An argument error occurs if the virtual serve name is omitted.

The maximum length of the virtual server name is 1,024 characters. An argument error occurs if this is exceeded.

(4) serverpassword

administrator password of the virtual server to be built.

Specify the administrator password that is set to apply image.

If the OS of the virtual server to be built is Windows, specified value will be set as the administrator password when the administrator password is not set to apply image.

An argument error occurs if the administrator password is omitted.

The maximum length of the administrator password is 1,024 characters. An argument error occurs if this is exceeded.

(5) network

Network resource name to set the network environment of the virtual server to be built.

The network resource name can be specified for three network environments or less. .

If set the same network resource to a number of network environment, specify network resource name same number as network environment.

An argument error occurs if the network resource name is omitted.

The maximum length of the network resource name is 1,024 characters. An argument error occurs if this is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

For example 1: When specify to network environment 1: network_a, specify to network environment 2: network_b
network_a,network_b.

For example 2: When specify to network environment 1: network_a, specify to network environment 2: network_a, specify to network environment 3: network_b.

network_a,network_a,network_b

(6) manageserver

IP address of the Virtual Environment Management Server.

If the management Server of the virtual environment and Systemwalker Runbook Automation are same, specify '127.0.0.1'.

An argument error occurs, if IP address of the Virtual Environment Management Server is omitted.

The maximum length of the IP address of the Virtual Environment Management Server is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) numofprocessor

Virtual server CPU number.

If the virtual server CPU number is changed from the template configuration environment information, specify the new CPU number.

CPU number can be specified in a range between 1 and 8. If any other value is specified, an argument error occurs.

(2) processorspeed

Virtual server CPU performance.

If the virtual server CPU performance is changed from the template configuration environment information, specify the new CPU performance.

GHz can be specified as a unit in a range between 0.1 and 8, up to one decimal place. A unit (GHz) does not need to specify.

The maximum length of the CPU performance is 1,024 characters. An argument error occurs if this is exceeded.

(3) memorysize

Virtual server memory size.

If the virtual server memory size is changed from the template configuration environment information, specify the new memory size.

Gbyte can be specified as a unit in a range between 0.1 and 255, up to one decimal place. A unit (Gbyte) does not need to specify.

The maximum length of the memory size is 1,024 characters. An argument error occurs if this is exceeded.

(4) serveripaddress

IP address allocated to the virtual server to be built.

Specify this option when allocating a specific IP address to the virtual server to be built.

The IP address can be specified for three network environments or less. Specification order is the same as "network: network resource name".

The maximum length of the IP address is 1,024 characters. An argument error occurs if this is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

(5) productkey

The product key allocated to the virtual server to be built.

Specify this option when the OS type of the virtual server to be built is Windows.

If the OS type is other than Windows, this specification is invalid.

If the product key is omitted, the value that sets to the property definitions file of ServerView Resource Orchestrator will be used.

For example: AAAAAA-BBBBBB-CCCCC-DDDDD-EEEE

(6) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(7) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(8) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Building of virtual server was successful. |
|  | Failure | 161 | Connection error occurred between the Virtual Environment Management Server. Retried if a retry count has been specified. |
| | | 171 | Authentication failed to connect the Virtual Environment Management Server. |
| | | 172 | Failed to build the virtual server. |
| | | 188 | Connection to the Virtual Environment Management Server failed during execution. |
| | | 189 | An attempt to connect to the Virtual Environment Management Server has failed. |
| | | 197 | There is an error in the option content. |
| - | - | 201 | Execution of operation component timed out. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem in with the specification of the input information specification of the operation components. |
| | | 206 | The operation component was not executed normally. There is a problem in with the specification of the output information specification of the operation components. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|---|
| message | This variable will be set to the following message if the virtual server is created successfully. The operation component was successful. If an attempt to create a virtual server fails, the content of the error will be set as a string. |
| returnCode | This variable is set to the return value. |

Notes

- If manage a virtual environment by ServerView Resource Orchestrator, management product information and authentication information of the Management Server need to register to the Configuration Management Database (CMDB) before use this operation component. Refer to "[3.18 Information Registration to CMDB \(Management Product of Virtual Environment\)](#)" on how to register information.
- If manage a virtual environment by ServerView Resource Orchestrator, OS property definition file is needed to define OS setting information before use this operation component. Refer to *ServerView Resource Orchestrator Users Guide* for details.
- These operational components are relevant to the systems in which Systemwalker Software Configuration Manager is not installed.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

- This operation component relevants following middleware.
 - ServerView Resource Orchestrator V2.2.0 to V3.1.1

Relevant virtualization software is VMware and Hyper-V.

3.9.12 Delete virtual server



Description

This operation component connects to the virtual environment management product and deletes a virtual server.

The component establishes connection by using the information registered in the Configuration Management Database (CMDB).

Options

Basic Options

(1) `servername`

Name of the virtual server to be deleted. Specify the virtual server name that is registered in the Virtual Environment Management Server.

If the virtual environment is managed by ServerView Resource Orchestrator, specify L-Server name.

An argument error occurs if the virtual server name is omitted.

The maximum length of the virtual server name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) `timeout`

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(2) `retry`

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(3) `retry_interval`



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the `timeout`, `retry` and `retry_interval` is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Success | 0 | Deletion of virtual server was successful. |
|  | Failure | 161 | Connection error occurred between the Virtual Environment Management Server. Retried if a retry count has been specified. |
| | | 171 | Authentication failed to connect the Virtual Environment Management Server. |
| | | 172 | Failed to delete the virtual server. |
| | | 173 | The virtual server is running. |
| | | 188 | Connection to the Virtual Environment Management Server failed during execution. |
| | | 189 | An attempt to connect to the Virtual Environment Management Server has failed. |
| | | 197 | There is an error in the option content. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|---|
| Message | This variable will be set to the following message if a virtual server is deleted successfully. The operation component was successful. If an attempt to delete a virtual server fails, the content of the error will be set as a string. |
| returnCode | This variable is set to the return value. |

Notes

- If manage a virtual environment by ServerView Resource Orchestrator, management product information and authentication information of the Management Server need to register to the Configuration Management Database (CMDB) before use this operation component. Refer to "[3.18 Information Registration to CMDB \(Management Product of Virtual Environment\)](#)" on how to register information.
- These operational components are relevant to the systems in which Systemwalker Software Configuration Manager is not installed.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)

- Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

- This operation component relevants following middleware.
 - ServerView Resource Orchestrator V2.2.0 to V3.1.1

Relevant virtualization software is VMware and Hyper-V.

3.9.13 Change virtual server system



Description

This operation component connects to the virtual environment management product and changes a virtual server system.

The component establishes connection by using the information registered in the Configuration Management Database (CMDB).

Options

Basic Options

(1) servername

Name of the virtual server where the system is to be changed. Specify the virtual server name that is registered in the Virtual Environment Management Server.

If the virtual environment is managed by ServerView Resource Orchestrator, specify L-Server name.

An argument error occurs if the virtual server name is omitted.

The maximum length of the virtual server name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) newservername

Virtual server name.

Specify the virtual server name after changed, if change the virtual server name.

If the virtual environment is managed by ServerView Resource Orchestrator, change L-Server name to specify name. The maximum length of the virtual server name is 1,024 characters. An argument error occurs if this is exceeded.

(2) numofprocessor

Virtual server CPU number.

If the virtual server CPU number is changed, specify the new CPU number.

CPU number can be specified in a range between 1 and 8. In all other cases, an argument error occurs.

(3) processorspeed

Virtual server CPU performance.

If the virtual server CPU performance is changed, specify the new CPU performance.

GHz can be specified as a unit in a range between 0.1 and 8, up to one decimal place. A unit (GHz) does not need to specify.

The maximum length of the CPU performance is 1,024 characters. An argument error occurs if this is exceeded.

(4) memorysize

Virtual server memory size.

If the virtual server memory size is changed, specify the new memory size.

Gbyte can be specified as a unit in a range between 0.1 and 255, up to one decimal place. A unit (Gbyte) does not need to specify.

The maximum length of the memory size is 1,024 characters. An argument error occurs if this is exceeded.

(5) **disksize**

Disk size allocated to the virtual server.

If the virtual server disk size is added, specify the disk size to be added.

Gbyte can be specified as a unit in a range between 0.1 and 2048, up to one decimal place. A unit (Gbyte) does not need to specify.

The maximum length of the disk size is 1,024 characters. An argument error occurs if this is exceeded.

(6) **timeout**

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(7) **retry**

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(8) **retry_interval**



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to ["2.5 Definition File for Operation Components"](#) for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Changing of virtual server system was successful. |
|  | Failure | 161 | Connection error occurred between the Virtual Environment Management Server. Retried if a retry count has been specified. |
| | | 171 | Authentication failed to connect the Virtual Environment Management Server. |
| | | 172 | Failed to change the virtual server system. |
| | | 173 | The virtual server is running. |
| | | 188 | Connection to the Virtual Environment Management Server failed during execution. |
| | | 189 | An attempt to connect to the Virtual Environment Management Server has failed. |
| | | 197 | There is an error in the option content. |
| - | - | 201 | Execution of operation component timed out. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|---------------------|---|
| message | This variable will be set to the following message if the virtual server system is changed successfully. The operation component was successful. If an attempt to change the virtual server system fails, the content of the error will be set as a string. |
| changed_server_name | This variable is set to the new (changed) server name. |
| returnCode | This variable is set to the return value. |

Notes

- If manage a virtual environment by ServerView Resource Orchestrator, management product information and authentication information of the Management Server need to register to the Configuration Management Database (CMDB) before use this operation component. Refer to "[3.18 Information Registration to CMDB \(Management Product of Virtual Environment\)](#)" on how to register information.
 - The virtual server to be changed is necessary to have been stopped when execute this operation component.
 - These operational components are relevant to the systems in which Systemwalker Software Configuration Manager is not installed.
 - Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
 - When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of Management Server (when the Management Server is Windows(R))
 - System log of Management Server (when the Management Server is Linux)
 - Custom message of BPMN
- Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.
- This operation component relevants following middleware.
 - ServerView Resource Orchestrator V2.2.0 to V3.1.1
 - Relevant virtualization software is VMware and Hyper-V.

3.9.14 Get virtual server list



Description

This operation component connects to the virtual environment management product and obtains a list of virtual servers.

The component establishes connection by using the information registered in the Configuration Management Database (CMDB).

Options

Basic Options

There is no option.

Advanced Options

(1) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(2) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(3) retry_interval

This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|------|---------|--------------|--|
| | Success | 0 | Obtaining a list of virtual server was successful. |
| | Failure | 161 | Connection error occurred between the virtual environment management servers. Retried if a retry count has been specified. |
| | | 171 | Authentication failed to connect the virtual environment management server. |
| | | 172 | Failed to Obtain a list of virtual server. |
| | | 188 | Connection to the virtual environment management server failed during execution. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 189 | An attempt to connect to the virtual environment management server has failed. |
| | | 197 | There is an error in the option content. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the management server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|-------------|--|
| message | This variable will be set to the following message if a list of virtual servers is obtained successfully. The operation component was successful. If an attempt to obtain a list of virtual servers fails, the content of the error will be set as a string. |
| server_list | This variable is set to a list of the virtual servers that have been obtained. |
| returnCode | This variable is set to the return value. |

Output the list in the form of the following.

```
<?xml version="1.0" encoding="UTF-8"?>
<Resources>
<ManagerServer name="[Management Server name of virtual environment]" >
<VirtualServerName>[Virtual Server name]</VirtualServerName>
<VirtualServerName>[Virtual Server name]</VirtualServerName>
. . .
</ManagerServer>
<ManagerServer name="[Management Server name of virtual environment]" >
. . .
</ManagerServer>
</Resources>
```

Notes

- If manage a virtual environment by ServerView Resource Orchestrator, management product information and authentication information of the management server need to register to the Configuration Management Database (CMDB) before use this operation component. Refer to "[3.18 Information Registration to CMDB \(Management Product of Virtual Environment\)](#)" on how to register information.
- These operational components are relevant to the systems in which Systemwalker Software Configuration Manager is not installed.

- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of management server (when the management server is Windows(R))
 - System log of management server (when the management server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

- This operation component relevants following middleware.
 - ServerView Resource Orchestrator V2.2.0 to V3.1.1
Relevant virtualization software is VMware and Hyper-V.

3.9.15 Get detailed virtual server information



Description

This operation component connects to the virtual environment management product and obtains detailed information about a virtual server. The component establishes connection by using the information registered in the CMDB.

Options

Basic Options

(1) servename

Name of the virtual server for which the detailed information is to be obtained.

Specifies the name of the virtual server registered with the virtual environment management product.

If managing a virtual environment with ServerView Resource Orchestrator, specify "L-Server".

An argument error occurs if the virtual server name is omitted.

The maximum length of the virtual server name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) detail

Specify whether all the detailed information managed by the virtual server management product will be output.

Specify "on" to add the management product output information to the list information.

Specify "off" if you do not want the output information to be added.

The default value is "off". This option is not case sensitive.

(2) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(3) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(4) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Success | 0 | Obtaining detailed information about the virtual server was successful. |
|  | Failure | 161 | Connection error occurred between the virtual environment management server. Retried if a retry count has been specified. |
| | | 171 | Authentication failed to connect the virtual environment management server. |
| | | 172 | Failed to Obtain detailed information about the virtual server. |
| | | 188 | Connection to the virtual environment management server failed during execution. |
| | | 189 | An attempt to connect to the virtual environment management server has failed. |
| | | 197 | There is an error in the option content. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the management server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|---------------|--|
| message | This variable will be set to the following message if detailed information for virtual servers is obtained successfully. The operation component was successful. If an attempt to obtain detailed information for virtual servers fails, the content of the error will be set as a string. |
| server_detail | This variable is set to detailed information for virtual servers that has been obtained. |
| returnCode | This variable is set to the return value. |

Output the list in the form of the following.

```
<?xml version="1.0" encoding="UTF-8"?>
<Resources>
<VirtualServerName>[Virtual Server name]</VirtualServerName>
<OSType>[OS Type]</OSType>
<PowerStatus>[Power Status]</PowerStatus>
<Processor>
<ProcessorArch>[Processor Architecture]</ProcessorArch>
<ProcessorSpeed>[Processor Speed]</ProcessorSpeed>
<NumOfProcessors>[Number of Processors]</NumOfProcessors>
</Processor>
<Memory>
<MemorySize>[Memory Size]</MemorySize>
</Memory>
<Disks>
<Disk>
<DiskSize>[Disk Size]</DiskSize>
</Disk>
... (Output it repeating each disk)
</Disks>
<Networks>
<Network>
<MacAddress>[MAC Address]</MacAddress>
<IpAddress>[IP Address]</IpAddress>
</Network>
... (Output it repeating each connected network card)
</Networks>
</Resources>
```

If specify "on" for the detail parameter, output the output information on the management product of the virtual environment following the above-mentioned network information.

```
<?xml version="1.0" encoding="UTF-8"?>
<Resources>
...
</Networks>
<AdditionalInfomation>
<Software>[ServerView Resource Orchestrator]</Software>
<OutputData>
[Output information of ServerView Resource Orchestrator]
</OutputData>
</AdditionalInfomation>
</Resources>
```

Return Values

- If manage a virtual environment by ServerView Resource Orchestrator, management product information and authentication information of the management server need to register to the Configuration Management Database (CMDB) before use this operation

component. Refer to "[3.18 Information Registration to CMDB \(Management Product of Virtual Environment\)](#)" on how to register information.

- These operational components are relevant to the systems in which Systemwalker Software Configuration Manager is not installed.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of management server (when the management server is Windows(R))
 - System log of management server (when the management server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

- This operation component relevants following middleware.
 - ServerView Resource Orchestrator V2.2.0 to V3.1.1
 - Relevant virtualization software is VMware and Hyper-V.

3.9.16 Create virtual server snapshot



Description

This operation component connects to the virtual environment management product and creates a snapshot of a virtual server.

The component establishes connection by using the information registered in the Configuration Management Database (CMDB).

Options

Basic Options

(1) servername

Name of the virtual server for which the snapshot is to be created.

Specify the virtual server name that is registered in the virtual environment management server.

If the virtual environment is managed by ServerView Resource Orchestrator, specify L-Server name.

An argument error occurs if the virtual server name is omitted.

The maximum length of the virtual server name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(2) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(3) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Success | 0 | Creating snapshot of virtual server was successful. |
|  | Failure | 161 | Connection error occurred between the virtual environment management server. Retried if a retry count has been specified. |
| | | 171 | Authentication failed to connect the virtual environment management server. |
| | | 172 | Failed to create snapshot of virtual server. |
| | | 188 | Connection to the virtual environment management server failed during execution. |
| | | 189 | An attempt to connect to the virtual environment management server has failed. |
| | | 197 | There is an error in the option content. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the management server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------|---|
| message | This variable will be set to the following message if a snapshot for the virtual server is created successfully. The operation component was successful. |

| Variable | Description |
|------------|--|
| | If an attempt to create a snapshot for the virtual server fails, the content of the error will be set as a string. |
| returnCode | This variable is set to the return value. |

Notes

- If manage a virtual environment by ServerView Resource Orchestrator, management product information and authentication information of the management server need to register to the Configuration Management Database (CMDB) before use this operation component. Refer to "[3.18 Information Registration to CMDB \(Management Product of Virtual Environment\)](#)" on how to register information.
- These operational components are relevant to the systems in which Systemwalker Software Configuration Manager is not installed.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of management server (when the management server is Windows(R))
 - System log of management server (when the management server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

- This operation component relevant following middleware.
 - ServerView Resource Orchestrator V2.2.0 to V3.1.1

Relevant virtualization software is VMware and Hyper-V.

3.9.17 Restore virtual server snapshot



Description

This operation component connects to the virtual environment management product and restores a snapshot of a virtual server.

The component establishes connection by using the information registered in the Configuration Management Database (CMDB).

Options

Basic Options

(1) servername

Name of the virtual server for which the snapshot is to be restored.

Specify the virtual server name that is registered in the virtual environment management server.

If the virtual environment is managed by ServerView Resource Orchestrator, specify L-Server name. An argument error occurs if the virtual server name is omitted.

The maximum length of the virtual server name is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is interrupted in return value 201.

(2) retry

This is the retry count for the execution of operation components.

When the operation components end in return value 161, the retry count is specified. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended by the return values other than 161, the execution of the operation components ends even if it doesn't reach the specified retry count. The return values of the operation components become the value executed at the end.

For example: When retries are to be performed twice: 2

(3) retry_interval



This is the retry interval (seconds) for operation components.

When the operation components end in return value 161, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "2.5 Definition File for Operation Components" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Restoring snapshot of virtual server was successful. |
|  | Failure | 161 | Connection error occurred between the virtual environment management server. Retried if a retry count has been specified. |
| | | 171 | Authentication failed to connect the virtual environment management server. |
| | | 172 | Failed to restore snapshot of virtual server. |
| | | 173 | Virtual server is running. |
| | | 188 | Connection to the virtual environment management server failed during execution. |
| | | 189 | An attempt to connect to the virtual environment management server has failed. |
| | | 197 | There is an error in the option content. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Automation Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation components were not executed. There is a possibility that the operation components are not registered in the management server. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|---|
| message | This variable will be set to the following message if a snapshot for the virtual server is restored successfully. The operation component was successful. If an attempt to restore a snapshot for the virtual server fails, the content of the error will be set as a string. |
| returnCode | This variable is set to the return value. |

Notes

- If manage a virtual environment by ServerView Resource Orchestrator, management product information and authentication information of the management server need to register to the Configuration Management Database (CMDB) before use this operation component. Refer to "[3.18 Information Registration to CMDB \(Management Product of Virtual Environment\)](#)" on how to register information.
- The virtual server restoring snap shot is necessary to have been stopped when execute this operation component.
- These operational components are relevant to the systems in which Systemwalker Software Configuration Manager is not installed.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of management server (when the management server is Windows(R))
 - System log of management server (when the management server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

- This operation component relevants following middleware.
 - ServerView Resource Orchestrator V2.2.0 to V3.1.1

Relevant virtualization software is VMware and Hyper-V.

3.9.18 Change host name



Description

This operation component changes either the computer name (for Windows) or host name (for Linux or Solaris) of the specified host.

To change host names using this operation component, the target host must be restarted.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

An argument error will occur if the host name or IP address is omitted.

An argument error will occur if a loopback interface host name or IP address, such as 'localhost', '127.0.0.1' or '::1' is specified.

The maximum length of the host name or IP address is 1,024 characters. An argument error will occur if this limit is exceeded.

(2) newhostname

Specify the host name after the specified host was modified.

An argument error will occur if the new host name is omitted.

The maximum length of the new host name is 1,024 characters. An argument error will occur if this limit is exceeded.

Advanced Options

(1) cmdbupdate

Specify whether the defined content will be reflected in the Configuration Management Database (CMDB).

To reflect the content in CMDB, specify "on".

To avoid reflecting the content in CMDB, specify "off".

If omitted or some other value than the options listed above is specified, "off" is used by default. This option is not case sensitive.

(2) ostype

Operating system of the host executing the operation component.

Specify either Windows or Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the operation component will search the Configuration Management Database (CMDB) based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the value for the OS type that has been acquired from the CMDB.

The maximum length of the OS type is 1,024 characters. An argument error will occur if this limit is exceeded.

(3) domainusername

User connecting to the domain.

Both this option and domainpassword must be specified if the host where the operation component will be executed is running Windows and participates in a domain.

This option is ignored if the host is running Linux or Solaris or is not participating in a domain.

The maximum length of the user name is 1,024 characters. An argument error will occur if this limit is exceeded.

(4) domainpassword

Password of the user connecting to the domain.

Both this option and domainusername domainpassword must be specified if the host where the operation component will be executed is running Windows and participates in a domain.

This option is ignored if the host is running Linux or Solaris or is not participating in a domain.

The maximum length of the password is 1,024 characters. An argument error will occur if this limit is exceeded.

(5) username

Name of the user connecting with SSH to the host executing the operation component.

If the connected user name and password required for connection are not specified, the command searches the Configuration Management Database (CMDB) based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the value for the connected user name that has been acquired from the CMDB.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error will occur if this limit is exceeded.

(6) password

Password of the user connecting with SSH to the host executing the operation component.

If the connected user name and password required for connection are not specified, the command searches the Configuration Management Database (CMDB) based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the value for the connected user password that has been acquired from the CMDB.

If the connection is made using the file transfer infrastructure, the user name will not take effect even if it is specified.

The maximum length of the connected user password is 1,024 characters. An argument error will occur if this limit is exceeded.

(7) execusername

Name of the user that will execute the processing on the target host where the operation component is to be executed.

If the "execusername" and "execpassword" are not specified, the command searches the Configuration Management Database (CMDB) based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the value for the administrator user that has been acquired from the CMDB.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the executing user name is 1,024 characters. An argument error will occur if this limit is exceeded.

(8) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(9) timeout

This is the completion timeout (in seconds) for executing the operation component.

Values between 300 and 86400 (1 day) can be specified.

Example: If the completion timeout is 10 minutes: 600

If the operation component has not finished executing when the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(10) retry

This is the retry count for executing the operation component.

Specify the number of retry attempts to be used when the operation component terminates with return value 161. Values between 0 and 5 can be specified.

If the operation component terminates with a return value other than "161" as a result of being re-executed from a retry, the execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example: To retry twice: 2

(11) retry_interval



This is the retry interval (in seconds) for the operation component.

Specify the time to wait before a retry is attempted if the operation component terminates with return value 161. Values between 1 and 14400 can be specified.

Example: To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return Value | Description |
|---|---------|--------------|---|
|  | Success | 0 | The host name has been successfully changed. |
|  | Failure | 161 | Changing the host name has failed. If a retry count has been specified, retries will be performed. |
| | | 174 | Saving data to the Configuration Management Database (CMDB) has failed. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When the operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection to the Business Server has been disrupted. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error with the input information. |
| | | 198 | There is an error with an option specification. |
| - | - | 201 | The execution of the operation component has timed out. |
| | | 202 | The operation component has not been executed due to a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the environment for the Management Server. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|---|
| message | This variable will be set to the following message if the host name is changed successfully. The operation component was successful. If an attempt to change the host name fails, the content of the error will be set as a string. |
| returnCode | This variable is set to the return value. |

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH communications. Specify settings so that communications can be performed using at least one of these methods. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- To change a host name using this operation component, edit the following files.

If the relevant host is Linux:

- /etc/sysconfig/network
- /etc/hosts

If the relevant host is Solaris:

- /etc/hosts

However, if IP address in an IPv6 environment is specified in hostname and IP address of host name changed by /etc/hosts file is described by the format "x:x:x:x:d.d.d.d" ("d" part in 4 low-order is IPv4 address), the execution of operation components may be failed.

- Alphanumeric characters and hyphens "-" can be specified for the new host name. Specify a letter for the first character of the host name, and an alphanumeric character for the last character of the host name.
- If "on" is specified for the cmdbupdate option, an error with return value "174" will occur if the information for the server specified by the hostname option has not been registered in the CMDB.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value of 201-208 has been output, the Automated Operation Process enters an abort or error state, and error messages will be output to the following locations.
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check the messages in one of these locations, and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.9.19 Stop virtual server on the VM host



Description

Stops virtual server on VMhost

Options

Basic Options

(1) hostname

The host name or IP address of the vCenter Server.

If the host name or IP address is omitted, an argument error will occur.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this limit is exceeded.

(2) vmhost

This is the ESX server name of the relevant operating VMhost.

ESX Server name can have multiple specifications.

If the ESX Server name is omitted, an argument error will occur.

The upper limit for ESX Server names is 100. An argument error occurs if this limit is exceeded.

ESX Server name multiple specifications are in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Advanced Options

(1) vmusername

The user name for executing operations on the vCenter Server.

If input of the execution username is omitted, an argument error will occur. However, if both the execution username and password are omitted, the configuration management database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired user linked to the VMware vCenter Server as the value.

The maximum length of the execution user name is 1,024 characters. An argument error occurs if this limit is exceeded.

(2) vmpassword

The password for executing operations on the vCenter Server.

If input of the password required for execution is omitted, an argument error will occur. However, if both the execution username and password are omitted, the configuration management database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired password linked to the VMware vCenter Server as the value.

The maximum length of the password required for execution is 1,024 characters. An argument error occurs if this limit is exceeded.

(3) notarget

The name of the virtual server that must not be stopped.

A maximum of 100 virtual server names can be specified. Use a comma (,) to separate each virtual server name. If "," (comma) or "\" are included in the virtual server name, use "\" to escape.

For example, if the virtual server names are "server,A" and "server\B" then: server\,A,server\B

If this option is omitted, all virtual servers operating on the specified VM host stop.

The maximum length of the virtual server name string is 4,000 characters. An argument error occurs if this limit is exceeded.

(4) multiplicity

Specify the execution concurrency level of the VM host if multiple ESX Servers are specified for the "vmhost" option.

Values from 1 through 100 can be specified.

If a value is specified that exceeds the number of server names on the VM host, the number of server names on the VM host will be used.

If this option is omitted, 10 is used as the default.

If a large value is specified for this option, there may be a burden on the vCenter Server.

(5) operationmode

Specify the operating mode of the operation component if multiple ESX Server names are specified for the "vmhost" option.

This option is not case sensitive, and the following values can be used:

continue: Executes the processing till the last VM host specified

abort: Suspends the processing at the VM host where an error is detected

The default value is "continue".

If "abort" is specified, and more than 2 multiple operations are specified, processes on the operating server are stopped at the error detection stage and then cancelled.

If there is one ESX Server name, any value specified in this option will be ignored.

(6) timeout

This is the completion timeout (in seconds) for executing the operation component.

Values between 300 and 86400 (1 day) can be specified.

Example: If the completion timeout is 10 minutes: 600

If the operation component has not finished executing when the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(7) retry

This is the retry count for executing the operation component.

Specify the number of retry attempts to be used when the operation component terminates with return value 161. Values between 0 and 5 can be specified.

If the operation component terminates with a return value other than "161" as a result of being re-executed from a retry, the execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example: To retry twice: 2

(8) retry_interval



This is the retry interval (in seconds) for the operation component.

Specify the time to wait before a retry is attempted if the operation component terminates with return value 161. Values between 1 and 14400 can be specified.

Example: To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to ["2.5 Definition File for Operation Components"](#) for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Success | 0 | The virtual server was stopped successfully. |
|  | Failure | 42 | PowerShell could not be executed. There is a problem in vCenter Server's PowerShell execution environment. |
| | | 161 | Failed to connect to or operate the vCenter Server. Retry if a retry count has been specified. However, if multiple ESX Server names are specified, there is no retry. |
| | | 171 | An authentication error occurred in the communications process with the vCenter Server. |
| | | 180 | Multiple operations failed. For return values for operations on each server, check "Return code" in "vmhost_vmstop_result" output information. |
| | | 189 | An error occurred in the communication process with the server (file transfer infrastructure) when an operation component executed an operation to a server that has an agent installed. In this case, the error code for the file transfer infrastructure is output to the standard error output results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 197 | An invalid content is specified. |
| - | - | 201 | The execution of the operation component has timed out. |
| | | 202 | The operation component has not been executed due to a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the environment for the Management Server. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output Information

| Variable | Description |
|--------------------------|--|
| message | <ul style="list-style-type: none"> - If one ESX Server name is specified for the vmhost Set the message to display the execution results. - If multiple ESX Server names are specified for the vmhost When all VM host operations are successful, set the following message: The operation component was successful. When a part or all of the VM host operations failed, the failed VM host information is output in the same format as vmhost_vmstop_result. |
| vmhost_vmstop_result | Set the execution result for the specified VM host. |
| vmhost_vmstop_list | Set the list of servers which successfully operated on the VM host in CSV format. |
| vmhost_vmstop_fault_list | Set the list of servers which failed to operate on the VM host in CSV format. |
| returnCode | Set the return values. |

Output format for vmhost_vmstop_result is as follows:

[hostname], [return values], [output information], [message]

Nothing is output to [output information].

The following is output to [message]:

- If the VM host operation is successful, "Success" is output.
- If the VM host operation fails, the error content is output.

<Example>

If "esx1,esx2,esx3" are specified for VM host and stopping the virtual server on esx3 fails:

```
"vmhost",Return_code,"Output","Message"
```

```
"esx1",0,"","Success"
```

```
"esx2",0,"","Success"
```

```
"esx3",161,"","2012/03/01 14:00:00 Get-VMHost VMHost with name 'esx3' was not found, using the specified filter(s)."
```

In the case of the above example, the following is output to 'message':

<Example>

```
"hostname",Return_code,"Output","Message"
```

```
"esx3",161,"","2012/03/01 14:00:00 Get-VMHost VMHost with name 'esx3' was not found, using the specified filter(s)."
```

Notes

- If using this operation component to specify VM host operations, then an agent needs to be installed on vCenter Server. The following software is required for vCenter Server:

- VMware vSphere Power CLI
- Windows PowerShell

On vCenter Server, environment settings to use the above software are required. Refer to "[3.19 vCenter Server Settings](#)" for details.

- With this operation component, if input of vmusername and vmpassword are omitted, Systemwalker Runbook Automation automatically sets the value stored in CMDB. For that reason, if using the value stored in CMDB, it is necessary to set the required information beforehand. Refer to "If not managing with ServerView Resource Orchestrator" in "[3.18.1 Information of Management Product of Virtual Environment](#)" for information on the settings.

- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.

- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places:

- Event log of management server (when the management server is Windows(R))
- System log of management server (when the management server is Linux)
- Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

- The following virtualization software is relevant to this operation component:

- VMware vSphere 4.0, 4.1, 5.0, or 5.1.

3.9.20 Set the maintenance mode of the VM host



Description

Set VMhost maintenance mode

Options

Basic Options

(1) hostname

The host name or IP address of the vCenter Server.

If the host name or IP address is omitted, an argument error will occur.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this limit is exceeded.

(2) vmhost

This is the ESX server name of the relevant operating VM host.

ESX Server name can have multiple specifications.

If the ESX Server name is omitted, an argument error will occur.

The upper limit for ESX Server names is 100. An argument error occurs if this limit is exceeded.

ESX Server name multiple specifications are in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Advanced Options

(1) vmusername

The user name for executing operations on the vCenter Server.

If input of the execution username is omitted, an argument error will occur. However, if both the execution username and password are omitted, the configuration management database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired user linked to the VMware vCenter Server as the value.

The maximum length of the execution user name is 1,024 characters. An argument error occurs if this limit is exceeded.

(2) vmpassword

The password for executing operations on the vCenter Server.

If input of the password required for execution is omitted, an argument error will occur. However, if both the execution username and password are omitted, the configuration management database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired password linked to the VMware vCenter Server as the value.

The maximum length of the password required for execution is 1,024 characters. An argument error occurs if this limit is exceeded.

(3) mode

This is the maintenance mode set for the VM host.

Click "on" to set the maintenance mode or "off" to disable the maintenance mode.

Default value is "on".

(4) multiplicity

Specify the execution concurrency level of the VM host if multiple ESX Servers are specified for the "vmhost" option.

Values from 1 through 100 can be specified.

If a value is specified that exceeds the number of server names on the VM host, the number of server names on the VM host will be used.

If this option is omitted, 10 is used as the default.

If a large value is specified for this option, there may be a burden on the vCenter Server.

(5) operationmode

Specify the operating mode of the operation component if multiple ESX Server names are specified to the "vmhost" option.

This option is not case sensitive, and the following values can be used:

continue: Executes the processing till the last VM host specified

abort: Suspends the processing at the VM host where an error is detected

The default value is "continue".

If "abort" is specified, and more than 2 multiple operations are specified, processes on the operating server are stopped at the error detection stage and then cancelled.

If there is one ESX Server name, any value specified in this option will be ignored.

timeout

This is the completion timeout (in seconds) for executing the operation component.

Values between 300 and 86400 (1 day) can be specified.

Example: If the completion timeout is 10 minutes: 600

If the operation component has not finished executing when the specified time has passed, the processing for the operation component will be interrupted with return value 201.

retry

This is the retry count for executing the operation component.

Specify the number of retry attempts to be used when the operation component terminates with return value 161. Values between 0 and 5 can be specified.

If the operation component terminates with a return value other than "161" as a result of being re-executed from a retry, the execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example: To retry twice: 2

retry_interval



This is the retry interval (in seconds) for the operation component.

Specify the time to wait before a retry is attempted if the operation component terminates with return value 161. Values between 1 and 14400 can be specified.

Example: To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Success | 0 | Successfully set maintenance mode. |
|  | Failure | 42 | PowerShell could not be executed. There is a problem in vCenter Server's PowerShell execution environment. |
| | | 161 | Failed to connect to or operate the vCenter Server. Retry if a retry count has been specified. However, if multiple ESX Server names are specified, there is no retry. |
| | | 171 | An authentication error occurred in the communications process with the vCenter Server. |
| | | 180 | Multiple operations failed. For return values for operations on each server, check "Return code" in "vmhost_vmstop_result" output information. |
| | | 189 | An error occurred in the communication process with the server (file transfer infrastructure) when an operation component executed an operation to a server that has an agent installed. In this case, the error code for the file transfer infrastructure is output to the standard error output results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | An invalid content is specified. |
| - | - | 201 | The execution of the operation component has timed out. |
| | | 202 | The operation component has not been executed due to a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the environment for the Management Server. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output Information

| Variable | Description |
|-------------------------------|---|
| message | <ul style="list-style-type: none"> - If one ESX Server name is specified for the vmhost Set the message to display the operation results. - If multiple ESX Server names are specified for the vmhost When all VM host operations are successful, set the following message: The operation component was successful. When a part or all of the VM host operations failed, the failed VM host information is output in the same format as vmhost_maintenance_result. |
| vmhost_maintenance_result | Set the execution result for the specified VM host. |
| vmhost_maintenance_list | Set the list of servers which successfully operated on the VM host in CSV format. |
| vmhost_maintenance_fault_list | Set the list of servers which failed to operate on the VM host in CSV format. |
| returnCode | Set the return values. |

Vmhost_maintenance_result output format is as follows:

[hostname], [return values], [output information], [message]

Nothing is output to [output information].

The following is output to [message]:

- If the VM host operation is successful, "Success" is output.
- If the VM host operation fails, the error content is output.

<Example>

If "esx1, esx2, esx3" are specified for VM host and setting the maintenance mode on esx3 fails:

```
"vmhost",Return_code,"Output","Message"
```

```
"esx1",0,"","Success"
```

```
"esx2",0,"","Success"
```

```
"esx3",161,"","2012/03/01 15:00:00 Get-VMHost VMHost with name 'esx3' was not found, using the specified filter(s)."
```

In the case of the above example, the following is output to 'message':

<Example>

```
"hostname",Return_code,"Output","Message"
```

```
"esx3",161,"","2012/03/01 15:00:00 Get-VMHost VMHost with name 'esx3' was not found, using the specified filter(s)"
```

Notes

- If using this operation component to specify VM host operations, then an agent needs to be installed on vCenter Server. The following software is required for vCenter Server:

- VMware vSphere Power CLI
- Windows PowerShell

On vCenter Server, environment settings to use the above software are required. Refer to "[3.19 vCenter Server Settings](#)" for details.

- With this operation component, if input of `vmusername` and `vmpassword` are omitted, Systemwalker Runbook Automation automatically sets the value stored in CMDB. For that reason, if using the value stored in CMDB, it is necessary to set the required information beforehand. Refer to "If not managing with ServerView Resource Orchestrator" in "[3.18.1 Information of Management Product of Virtual Environment](#)" for information on the settings.

- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.

- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places:

- Event log of management server (when the management server is Windows(R))
- System log of management server (when the management server is Linux)
- Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

- The following virtualization software is relevant to this operation component:

- VMware vSphere 4.0, 4.1, 5.0, or 5.1.

3.9.21 Stop VM host forcibly



Description

Forces VMhost to stop

Options

Basic Options

(1) `hostname`

The host name or IP address of the vCenter Server.

If the host name or IP address is omitted, an argument error will occur.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this limit is exceeded.

(2) `vmhost`

This is the ESX server name of the relevant operating VM host.

ESX Server name can have multiple specifications.

If the ESX Server name is omitted, an argument error will occur.

The upper limit for ESX Server names is 100. An argument error occurs if this limit is exceeded.

ESX Server name multiple specifications are in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Advanced Options

(1) vmusername

The user name for executing operations on the vCenter Server.

If input of the execution username is omitted, an argument error will occur. However, if both the execution username and password are omitted, the configuration management database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired user linked to the VMware vCenter Server as the value.

The maximum length of the execution user name is 1,024 characters. An argument error occurs if this limit is exceeded.

(2) vmpassword

The password for executing operations on the vCenter Server.

If input of the password required for execution is omitted, an argument error will occur. However, if both the execution username and password are omitted, the configuration management database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired password linked to the VMware vCenter Server as the value.

The maximum length of the password required for execution is 1,024 characters. An argument error occurs if this limit is exceeded.

(3) multiplicity

Specify the execution concurrency level of the VM host if multiple ESX Servers are specified for the "vmhost" option.

Values from 1 through 100 can be specified.

If a value is specified that exceeds the number of server names on the VM host, the number of server names on the VM host is used.

If this option is omitted, 10 is used as the default.

If a large value is specified for this option, there may be a burden on the vCenter Server.

(4) operationmode

Specify the operating mode of the operation component if multiple ESX Server names are specified for the "vmhost" option.

This option is not case sensitive, and the following values can be used:

continue: Executes the processing till the last VM host specified

abort: Suspends the processing at the VM host where an error is detected

The default value is "continue".

If "abort" is specified, and more than 2 multiple operations are specified, processes on the operating server are stopped at the error detection stage and then cancelled.

If there is one ESX Server name, any value specified in this option will be ignored.

(5) timeout

This is the completion timeout (in seconds) for executing the operation component.

Values between 300 and 86400 (1 day) can be specified.

Example: If the completion timeout is 10 minutes: 600

If the operation component has not finished executing when the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(6) retry

This is the retry count for executing the operation component.

Specify the number of retry attempts to be used when the operation component terminates with return value 161. Values between 0 and 5 can be specified.

If the operation component terminates with a return value other than "161" as a result of being re-executed from a retry, the execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example: To retry twice: 2

(7) retry_interval



This is the retry interval (in seconds) for the operation component.

Specify the time to wait before a retry is attempted if the operation component terminates with return value 161. Values between 1 and 14400 can be specified.

Example: To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to ["2.5 Definition File for Operation Components"](#) for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Success | 0 | Successfully stopped VM host. |
|  | Failure | 42 | PowerShell could not be executed. There is a problem in vCenter Server's PowerShell execution environment. |
| | | 161 | Failed to connect to or operate the vCenter Server. Retry if a retry count has been specified. However, if multiple ESX Server names are specified, there is no retry. |
| | | 171 | An authentication error occurred in the communications process with the vCenter Server. |
| | | 180 | Multiple operations failed. For return values for operations on each server, check "Return code" in "vmhost_vmstop_result" output information. |
| | | 189 | An error occurred in the communication process with the server (file transfer infrastructure) when an operation component executed an operation to a server that has an agent installed. In this case, the error code for the file transfer infrastructure is output to the standard error output results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 197 | An invalid content is specified. |
| - | - | 201 | The execution of the operation component has timed out. |
| | | 202 | The operation component has not been executed due to a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the environment for the Management Server. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output Information

| Variable | Description |
|----------|--|
| message | <ul style="list-style-type: none">- If one ESX Server name is specified to the vmhost Set the message to display operation result.- If multiple ESX Server names are specified for the vmhost |

| Variable | Description |
|------------------------|--|
| | When all VM host operations are successful, set the following message: The operation component was successful. When a part or all of the VM host operations failed, the failed VM host information is output in the same format as vmhost_stop_result. |
| vmhost_stop_result | Set the execution result for the specified VM host. |
| vmhost_stop_list | Set list of servers which successfully operated on the VM host in CSV format. |
| vmhost_stop_fault_list | Set list of servers which failed to operate on the VM host in CSV format. |
| returnCode | Sets return values. |

Output format for vmhost_stop_result is as follows:

[hostname], [return values], [output information], [message]

Nothing is output to [output information].

The following is output to [message]:

- If the VM host operation is successful, "Success" is output.
- If the VM host operation fails, the error content is output.

<Example>

If "esx1, esx2, esx3" are specified for VM host and forced stopping of the virtual server on esx3 fails:

```
"vmhost",Return_code,"Output","Message"
"esx1",0,"","Success"
"esx2",0,"","Success"
"esx3",161,"","2012/03/01 16:00:00 Get-VMHost VMHost with name 'esx3' was not found, using the specified filter(s)."
```

In the case of the above example, the following is output to 'message':

<Example>

```
"hostname",Return_code,"Output","Message"
"esx3",161,"","2012/03/01 16:00:00 Get-VMHost VMHost with name 'esx3' was not found, using the specified filter(s)."
```

Notes

- If using this operation component to specify VM host operations, then an agent needs to be installed on vCenter Server. The following software is required for vCenter Server:
 - VMware vSphere Power CLI
 - Windows PowerShell

On vCenter Server, environment settings to use the above software are required. Refer to "[3.19 vCenter Server Settings](#)" for details.

- With this operation component, if input of vmusername and vmpassword are omitted, Systemwalker Runbook Automation automatically sets the value stored in CMDB. For that reason, if using the value stored in CMDB, it is necessary to set the required information beforehand. For details on settings see "If not managing with ServerView Resource Orchestrator" in "[3.18.1 Information of Management Product of Virtual Environment](#)"
- With this operation component, ESX Server is forced to stop if a virtual server is operating on the ESX Server specified in the "vmhost" options, or if the ESX Server is not set to maintenance mode.
- Confirm the return values with the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.

- When the return value of 201-208 is output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of management server (when the management server is Windows(R))
 - System log of management server (when the management server is Linux)
 - Custom message of BPMN

Confirm the message in either of the above-mentioned place, and take an appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

- The following virtualization software is relevant to this operation component:
 - VMware vSphere 4.0, 4.1, 5.0, or 5.1.

3.10 Monitoring Operation Components

3.10.1 Check for hardware errors



Description

This operation component uses IPMI to check for hardware errors based on the sensor information for the specified hardware.

Options

Basic Options

(1) ipmiipaddress

IP address defined for the server IPMI.

An argument error will occur if this is omitted.

The maximum length of the IP address is 1,024 characters. An argument error will occur if this limit is exceeded.

(2) ipmiusername

Name of the user defined for the server IPMI.

An argument error will occur if this is omitted.

The maximum length of the user name is 1,024 characters. An argument error will occur if this limit is exceeded.

(3) ipmipassword

Password of the user defined for the server IPMI.

An argument error will occur if this is omitted.

The maximum length of the password is 1,024 characters. An argument error will occur if this limit is exceeded.

Advanced Options

(1) timeout

This is the completion timeout (in seconds) for executing the operation component.

Values between 300 and 86400 (1 day) can be specified.

Example: If the completion timeout is 10 minutes: 600

If the operation component has not finished executing when the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(2) retry

This is the retry count for executing the operation component.

Specify the number of retry attempts to be used when the operation component terminates with return value 161. Values between 0 and 5 can be specified.

If the operation component terminates with a return value other than "161" as a result of being re-executed from a retry, the execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example: To retry twice: 2

(3) retry_interval




This is the retry interval (in seconds) for the operation component.

Specify the time to wait before a retry is attempted if the operation component terminates with return value 161. Values between 1 and 14400 can be specified.

Example: To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|------------------------|--------------|--|
|  | Normal | 0 | Successfully checked for hardware errors. No errors have been found. |
| | | 2 | Successfully checked for hardware errors. No errors were detected, but information could not be acquired from some sensors. |
|  | Abnormality discovered | 1 | Successfully checked for hardware errors. Either an error was detected or information could not be acquired from any sensors. |
|  | Failure | 161 | Failed to check for hardware errors. If a retry count has been specified, retries will be performed. |
| | | 197 | There is an error with the content of an option. |
| - | - | 201 | The execution of the operation component has timed out. |
| | | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the environment for the Management Server. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------------------|---|
| message | This variable will be set to the following message if hardware problems are checked successfully. The operation component was successful. If an attempt to check hardware problems fails, the content of the error will be set as a string. |
| sensor_status_result | This variable is set to a list of the sensor information that has been obtained. |
| returnCode | This variable is set to the return value. |

A list of the sensor information acquired is output to the sensor_status_result using the following format.

```
<sensor name>|<current state>|<threshold evaluation result>
```

[Output example]

| | | |
|-----------------|--------------|----|
| CPU Fan 1 | 5709.72 RPM | ok |
| CPU Fan 2 | 5709.72 RPM | ok |
| System 5V | 4.91 Volts | ok |
| System 3.3V | 3.29 Volts | ok |
| CPU0 Dmn 0 Temp | 48 degrees C | ok |

- If the current state is "no reading", this indicates that information could not be acquired.
- The "threshold evaluation results" categories area as follows:
 - ok: Normal state
 - ns: The sensors have either been disabled or do not exist. Normal state.
 - cr: Abnormal state ("critical")
 - nr: Abnormal state ("non-recoverable")
 - nc: Abnormal state ("non-critical")

Notes

- To check for hardware errors using this operation component, the hardware for the Business Server must comply with the following specifications:
 - IPMI V2.0

For environments where IPMI has not been set up, set up IPMI.
- The communications port for which communications must be allowed on the server to be checked using this operation component is UDP 623.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process enters an abort or error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check the messages in one of these locations, and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.10.2 Get server power status



Description

This operation component retrieves the power status of servers.

Options

Mandatory Options

(1) hostname

Host name or IP Address of a server where the power status will be obtained.

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 bytes. An argument error occurs if the length is larger than 1,024 bytes.

Advanced Options

(1) ipmiipaddress

IP address set in the IPMI of a server where the power status is obtained.

If the IP address is omitted, the Configuration Management Database (CMDB) will be searched based on the specified hostname or IP address, the Systemwalker Runbook Automation automatically sets the obtained IP address as the value.

The maximum length of the IP address is 1,024 bytes. An argument error occurs if the length is larger than 1,024 bytes.

(2) ipmiusername

Name of the user set in the IPMI of a server where the power status is obtained.

If the user name or password is not specified, the Configuration Management Database (CMDB) is searched based on the specified hostname or IP address and Systemwalker Runbook Automation automatically sets the obtained user name as the value.

The maximum length of the user name is 1,024 bytes. An argument error occurs if the length is larger than 1,024 bytes.

(3) ipmipassword

Password of the user set in the IPMI of a server where the power status is obtained.

If the user name or password is not specified, the Configuration Management Database (CMDB) is searched based on the specified hostname or IP address and Systemwalker Runbook Automation automatically sets the obtained password as the value.

The maximum length of the user name is 1,024 bytes. An argument error occurs if the length is larger than 1,024 bytes.

(4) timeout

This is the completion timeout (seconds) for the execution of the Operation Component.

Values between 300 and 86400 (1day) can be specified.

For example: when waiting for 10 minutes until completion:600

If the execution of Operation Components is not completed after passing the specified time, the Operation Component stops its processing with the return value:201.

(5) retry

This is the retry count for the execution of the Operation Component.

Specify retry count when operation components ended with the return value:161. Values between 0 and 5 can be specified.

If the Operation Component ended with return value except 161 as a result of a retry, the execution of the Operation Component stops at retry count less than the specified value. The return value of Operation Components is the value of the last execution.

For example: when retries are performed twice: 2




(6) retry_interval

This is the retry interval (seconds) of Operation Components.

Specify interval until retry is to be performed when Operation Components ended with the return value:161. Values between 1 and 14400 can be specified.

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|-----------|--------------|--|
|  | Power OFF | 0 | Obtaining power status was successful. The power is OFF. |
|  | Power ON | 1 | Obtaining power status was successful. The power is ON |
|  | Failure | 161 | Obtaining power status failed. If retry count is specified, retries are to be performed. |
| | | 189 | Failed to connect to a server. |
| | | 197 | There is an error in the option content. |
| - | - | 201 | Execution of Operation Components timed out. |
| | | 202 | The Operation Component was not executed. There is a problem in the setting for executing Operation Components. |
| | | 203 | The Operation Component was not executed normally. There is a problem in the Management Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed. There is a problem with the output information specification of the operation component. |
| | | 207 | The Operation Component was not executed. The Operation Component may not be registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|---|
| message | This variable will be set to one of the following strings if the power status of the server is acquired successfully. <ul style="list-style-type: none">- If the power is ON: "ON"- If the power is OFF: "OFF" If an attempt to acquire the power status of the server fails, the content of the error will be set as a string. |
| returnCode | This variable is set to the return value. |

Notes

- When obtaining the power status of a server using this Operation Component, the hardware for the Business Server must comply with the following specifications:

- IPMI V2.0

In the environment where IPMI is not configured, configure IPMI.

- If `imiipaddress`, `ipmiusername` or `ipmipassword` is omitted, this Operation Component automatically sets the values stored in the CMDB. So when using the values stored in the CMDB, necessary information should be stored to the CMDB using `swrba_ipmiimport` command in advance. If storing any information to the CMDB, do not omit the password. For the detail of the `swrbd_ipmiimport` command, see "`swrba_ipmiimport` (IPMI Information Import Command)".

- Example of the input file(CSV format) specified for `swrba_ipmiimport` command

"Server IP address where processing is performed", "IP address of IPMI", "user name of IPMI", " password of IPMI"

- When using this Operation Component, the communication port which requires communication permission on the Business Server is UDP port 623.
- To check the return value, use Web console. Refer to the "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If the return value is between 201 and 208, the Automated Operation Process enters an abort or error state, and error messages are output to the places below.
 - The event log of Management Server(in case Windows(R) Management Server)
 - The syslog of Management Server(in case Linux Management Server)
 - BPMN custom messages

Check error messages in one of the places above and take the appropriate measures. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.10.3 Check server running normally



Description

This operation component checks whether a server is operating normally.

Specifically, this operation component checks whether:

- The specified service is running
- A TCP connection can be made to the specified port

If the Management Server is running on Windows(R), this operation will be happened as below when you set the port basic option.

- With setting a value in "service" basic option
The content specified for the "port" basic option will be ignored.
- Without setting a value in "service" basic option
The execution of this operation component will be error.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

However, if the Management Server is on SELinux features and the operation component is executed on its Management Server, specify host name or IP address of the Management Server.

An argument error will occur if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error will occur if this limit is exceeded.

(2) service

Name of the service whose start status is to be confirmed. Specify the service name of windows.

This will be ignored if the host for which the start status is confirmed is running Linux or Solaris.

If the service name is omitted, the command will search the Configuration Management Database (CMDB) based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the value for the service name that has been acquired from the CMDB.

Multiple service names can be specified.

The maximum allowable service names is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Specify the name of the service for which the operable status is to be checked, as follows:

Example: Dhcp

Example: Dhcp,EventLog

(3) port

Port number or service name for which the possibility of use for connection is checked.

If you specify a service name, check its corresponding port number registered at /etc/services on the Management Server.

If the port number or service name is omitted, the command will search the Configuration Management Database (CMDB) based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the value for the port number or service name that has been acquired from the CMDB.

Multiple port numbers or service names can be specified. You may specify the port number and service name collectively.

The maximum allowable number of port numbers is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

For the port number or service name for which the connection is to be checked, specify as follows:

Example: To check whether a connection can be made via SSH: "ssh"

Example: To check whether connections can be made via ports 22 and 25: "22,25"

Advanced Options

(1) ostype

Operating system of the host executing the operation component.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the command will search the Configuration Management Database (CMDB) based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the value for the OS type that has been acquired from the CMDB.

The maximum length of the OS type is 1,024 characters. An argument error will occur if this limit is exceeded.

(2) username

Name of the user connecting with SSH to the host executing the operation component.

If the connected user name and password required for connection are not specified, the command searches the Configuration Management Database (CMDB) based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the value for the connected user name that has been acquired from the CMDB.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error will occur if this limit is exceeded.

(3) password

Password of the user connecting with SSH to the host executing the operation component.

If the connected user name and password required for connection are not specified, the command searches the Configuration Management Database (CMDB) based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the value for the connected user password that has been acquired from the CMDB.

If the connection is made using the file transfer infrastructure, the password will not take effect even if it is specified.

The maximum length of the connected user password is 1,024 characters. An argument error will occur if this limit is exceeded.

(4) timeout

This is the completion timeout (in seconds) for executing the operation component.

Values between 300 and 86400 (1 day) can be specified.

Example: If the completion timeout is 10 minutes: 600

If the operation component has not finished executing when the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(5) retry

This is the retry count for executing the operation component.

Specify the number of retry attempts to be used when the operation component terminates with return value 161. Values between 0 and 5 can be specified.

If the operation component terminates with a return value other than "161" as a result of being re-executed from a retry, the execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example: To retry twice: 2

(6) retry_interval


This is the retry interval (in seconds) for the operation component.



Specify the time to wait before a retry is attempted if the operation component terminates with return value 161. Values between 1 and 14400 can be specified.

Example: To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return Value | Description |
|---|------------------|--------------|------------------------------------|
|  | Operation normal | 0 | The service is operating normally. |

| Icon | Name | Return Value | Description |
|---|--------------------|--------------|---|
|  | Operation abnormal | 161 | The service has stopped or the port connection confirmation has failed. If a retry count has been specified, retries will be performed. |
|  | Failure | 179 | The service has not been found. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When the operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection to the Business Server has been disrupted. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 196 | An option that cannot be specified when the Management Server is running on Windows has been specified. |
| | | 197 | There is an error with the content of an option. |
| | | 200 | Failed to confirm that the service is running. |
| - | - | 201 | The execution of the operation component has timed out. |
| | | 202 | The operation component has not been executed. |
| | | 203 | Failed to execute the operation component. There is a problem with the environment for the Management Server. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------|--|
| message | This variable will be set to the following message if an attempt to check that all services are running and that port connections can be made is successful. The operation component was successful. If some or all of the checks fail, information for the services and ports that failed to be checked will be output using the same format as the "server_check_result" variable. |

| Variable | Description |
|----------------------|---|
| | If an attempt to check whether the server is running normally fails, the content of the error will be set as a string. |
| server_check_result | This variable is set to the result of executing the check on the specified service and port. |
| service_stop_list | This variable is set to a list of services where the service status is "Stop". The specification is in the CSV format. |
| port_disconnect_list | This variable is set to a list of port numbers for which connections cannot be established. The specification is in the CSV format. |
| returnCode | This variable is set to the return value. |

The output format for the "server_check_result" variable is as follows:

[service],[return value],[output data],[message]

[port],[return value],[output data],[message]

For [output data], nothing will be output.

For [message], one of the following will be output:

For [service]

- If the service is determined to be running, the string "Run" will be output.
- If the service is determined to be not running, the string "Stop" will be output.
- If an attempt to check whether the service is running fails, the content of the error will be output as a string.

For [port]

- If the operation component checks the port connection successfully, and it is possible to connect to the port, the string "Success" will be output.
- If the operation component fails to check the port connection, the content of the error will be output as a string.

<Example>

If "service1, service2, service3" has been specified for the "service" option, and "22, 25" has been specified for the "port" option

"service",Return_code,"Output","Message"

"service1",0,"","Run"

"service2",0,"","Run"

"service3",161,"","Stop"

"port","Return_code","Output","Message"

"22",0,"","Success"

"25",161,"","Connection refused."

In the example above, the following will be output to the "message" variable.

<Example>

"service",Return_code,"Output","Message"

"service3",161,"","Stop"

"port","Return_code","Output","Message"

"25",161,"","Connection refused."

Notes

- Use SYN scan to check the ports used by this operation part.
- When checking the ports used by this operation component, the port scan may be detected as a threat by security countermeasures. Therefore, please use it within the following range.
 - Please execute this operation parts only for the business server that are target of operation/monitoring with Systemwalker Runbook Automation, when you do scan for used ports.
- When two or more portnumbers or service names are specified, the SYN scanning will be performed in a short time from the management server. Therefore, please set security countermeasures of the business server so as not to detect an abnormality even if there is multiple SYN scanning from the management server.
- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH communications. Specify settings so that communications can be performed using at least one of these methods. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- In this operation component, if service option and port option are omitted, Systemwalker Runbook Automation set the value which registered to CMDB automatically. Therefore, if using value which registered to CMDB, it is required to register necessary information to CMDB in advance. Refer to "[3.20 Information Registration to CMDB \(Confirm Information of Normal Running Status of Server\)](#)" for information on how to register.
- If there are no options in both "service" and "port" option, it will be error. When collecting information from CMDB, but there are no information in them, it will be also error.
- To specify the name of a service for the "port" option, the service must be registered with the operating system for the Management Server. For specifiable service names, check the settings of the operating system below:
 - For Linux/Solaris: /etc/services file
- For the service name specified for the "port" option, use only alphanumeric characters, hyphens ("-") and underscores ("_").
- The only protocol for which port connections can be confirmed using this operation component is TCP.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process enters an abort or error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check the messages in one of these locations, and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.10.4 Notify event to monitored product



Description

This operation component generates an event to the event database on the server that is performing event monitoring via an operation management product, such as Systemwalker Centric Manager.

If event monitoring is being performed using Systemwalker Centric Manager, a message will be created using the "*label: error type: message text*" format and then notified to the Systemwalker Centric Manager system monitoring agent.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

If event monitoring is being performed using Systemwalker Centric Manager, specify the host name or IP address of the Systemwalker Centric Manager Operation Management Server.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error will occur if this limit is exceeded.

(2) label

This is the label which is displayed in the event.

When event monitoring is used in Systemwalker Centric Manager, the upper limit for the number of characters is as follows. If the upper limit is exceeded, an argument error occurs.

If the operating system for the server used to execute event monitoring is Windows, the number of characters is 80.

If the operating system type for the server used to execute event monitoring is Linux or Solaris, the number of characters is 8.

A suffix colon (":") is added automatically.

If the label was omitted, the format is "error type:message text", and the label is not displayed.

(3) errorkind

This is the error type displayed in the event.

If event monitoring is performed by Systemwalker Centric Manager, specify one of the strings in the "String specified" column. This option is not case sensitive.

If the operating system type for the server performing event monitoring is Windows:

| String specified | Error type | Importance |
|------------------|------------|----------------|
| HALT | HALT | Very important |
| ERROR | ERROR | Important |
| WARNING | WARNING | Warning |
| NOTICE | INFO | Notification |
| INFO | INFO | General |

If the operating system type for the server performing event monitoring is Linux or Solaris:

| String specified | Error type | Importance |
|------------------|-------------|----------------|
| HALT | Halt | Very important |
| ERROR | error | Important |
| WARNING | Warning | Warning |
| NOTICE | Information | Notification |
| INFO | Information | General |

If the error type is omitted, "ERROR" will be used for Windows and "error" will be used for Linux or Solaris.

(4) text

This is the message text displayed in the event.

When event monitoring is used in Systemwalker Centric Manager, the upper limit for the number of characters is as follows. If the upper limit is exceeded, an argument error occurs.

The upper limit which can be specified for the message text is 600, including label and errorkind. If this number is exceeded, an argument error occurs.

An argument error occurs if the message text is omitted.

If the message text contains a line feed, it is converted to a blank space.

The following string will be added to the start of the message text.

"[RBAXXXXX]", where "XXXXXX" is the process ID for the operation process

Advanced Options

(1) ostype

Operating system of the host executing the operation component.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

This is the name of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(3) password

This is the password of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(4) execusername

This is the name of the user that executes the command on the target host where the operation component is to be executed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator as the value. If an administrator has not been registered with the CMDB, the command is executed using the name of the connected user.

If the host specified in the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

The maximum length of the executing user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) `execpassword`

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(6) `mwtype`

Specify the name of the operation management product that performs event monitoring and is to be linked to this operation component.

If event monitoring is performed by Systemwalker Centric Manager, specify "CMGR". This option is not case sensitive.

At this point, the only operation management product that can be linked to this operation component is Systemwalker Centric Manager.

If the name of the operation management product is omitted, the command will search the Configuration Management Database (CMDDB) based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the value that has been acquired from the CMDDB.

The maximum length of the string that can be specified for the name of the operation management product is 1,024 characters. An argument error occurs if this is exceeded.

(7) `mwinstallpath`

Specify the installation path of the command that will be linked to this operation component.

If event monitoring is performed by Systemwalker Centric Manager, specify the absolute pathname of the `opfmt` command installation directory.

This option can be omitted if the "mwtype" option specifies that the operation management product linked to this operation component is Systemwalker Centric Manager.

At this point, the only operation management product that can be linked to this operation component is Systemwalker Centric Manager.

The maximum length of the installation path that can be specified is 1,024 characters. An argument error occurs if this is exceeded.

(8) `timeout`

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(9) `retry`

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(10) `retry_interval`



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the `timeout`, `retry` and `retry_interval` is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | The event has been notified successfully. |
|  | Failure | 161 | Notification of the event has failed. If a retry count has been specified, retries will be attempted. |
| | | 187 | Authentication failed when an attempt was made to connect to the event monitoring server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the event monitoring server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on an event monitoring server where an RBA Agent has not been installed, an SSH network connection with the event monitoring server was closed. |
| | | 189 | An attempt to connect to the event monitoring server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the event monitoring server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error with an option specification. Alternatively, there is a problem with the information registered in the Configuration Management Database (CMDB). |
| | | 200 | Notification of the event terminated abnormally. |
| | | 201 | Execution of the operation component timed out. |
| - | - | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| | | 203 | Failed to execute the operation component. There is a problem with the Management Server environment. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification for the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|---------------|---|
| message | This variable will be set to the following message if the event is notified successfully. The operation component was successful. If notification of the event fails, the content of the error will be set as a string. |
| event_message | This variable is set to a message that is displayed for the event. The message varies depending on the operation management product that is performing event monitoring. |

| Variable | Description |
|------------|---|
| | If event monitoring is performed by Systemwalker Centric Manager, the message will be output by the opfmt command. Refer to the <i>Systemwalker Centric Manager Reference Manual</i> for details on the output format and the output items. |
| returnCode | This variable is set to the return value. |

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH. Specify settings so that communications can be performed using at least one of these methods. Refer to "3.16 Notes of Each Communication Method" for information on communication methods.
- Refer to "3.16.7 Notes When Connected User And Executing User Are Different" for information on different connected and executing users.
- If event monitoring is being performed by Systemwalker Centric Manager, this operation component can be linked to V13.1.0 or later.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.10.5 Check whether an event has occurred in the monitored product



Description

This operation component checks the occurrence of events.

Using operation management products such as Systemwalker Centric Manager enables you to search the event DB on the server where event monitoring is performed and to check if the specified event message exists in the specified time.

Options

Mandatory Options

(1) hostname

Host name or IP address of a server where the event monitoring is performed.

Specify host name or IP address of Operation Management Server if event monitoring is used in Systemwalker Centric Manager,

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 bytes. An argument error occurs if the length is larger than 1,024 bytes.

(2) eventmessage

Specify a character string to search an event to check the occurrence of the event.

An argument error occurs if the event message is omitted.

The maximum length of the whole event message is 2,048 bytes. An argument error occurs if the length is larger than 2,048 bytes.

How to specify a search string may be different depending on the operation management product for which event monitoring is used.

If event monitoring is used in Systemwalker Centric Manager, up to 5 search strings can be specified. If the search string includes spaces, enclose the string in double quotes ("").

Advanced Options

(1) ostype

OS type of a server where the event monitoring is performed.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified hostname or IP address, the Systemwalker Runbook Automation automatically sets the obtained os type as the value.

The maximum length of the os type is 1,024 bytes. An argument error occurs if the length is larger than 1,024 bytes.

(2) username

User name who connects using SSH to the server where the event monitoring is performed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified hostname or IP address and Systemwalker Runbook Automation automatically sets the obtained connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 bytes. An argument error occurs if the length is larger than 1,024 bytes.

(3) password

Password of a user who connects using SSH to the server where the event monitoring is performed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified hostname or IP address and Systemwalker Runbook Automation automatically sets the obtained password as the value.

If connecting to the server using File Transfer library, specifying password is not effective.

The maximum length of the password is 1,024 bytes. An argument error occurs if the length is larger than 1,024 bytes.

(4) execusername

User name who executes the check of the event occurrence on the server where the event monitoring is performed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified hostname or IP address and Systemwalker Runbook Automation automatically sets the obtained administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the executing user name is 1,024 bytes. An argument error occurs if the length is larger than 1,024 bytes.

(5) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(6) mwtype

Specify the name of the operation management product for which event monitoring is performed with this Operation Component.

If event monitoring is used in Systemwalker Centric Manager, specify "CMGR". This option is not case sensitive.

This Operation Component can be linked with only Systemwalker Centric Manager.

If the operation management product name is omitted, the Configuration Management Database (CMDB) will be searched based on the specified hostname or IP address, the Systemwalker Runbook Automation automatically sets the obtained value.

The maximum length of the operation management product name is 1,024 bytes. An argument error occurs if the length is larger than 1,024 bytes.

(7) mwinstalledpath

Specify the installation path of the command which linked with this Operation Component.

If event monitoring is used in Systemwalker Centric Manager, specify the full path name of the opmtcsv command installation directory.

If the operation management product in linkage with this Operation Component is Systemwalker Centric Manager by mwtype setting, this argument can be omitted.

The Operation Components can be linked with only Systemwalker Centric Manager.

The maximum length of the installation path is 1,024 bytes. An argument error occurs if the length is larger than 1,024 bytes.

(8) startdate

Specify the 'From' year, month and day for checking the occurrence of the event. The format is 4 digits for year, 2 digits each for month and day (YYYYMMDD).

Specify the year, month and day when the Operation Management Server received the event if event monitoring is used in Systemwalker Centric Manager,

startdate must be specified with starttime. startdate cannot be specified on its own, nor can it be omitted.

If startdate and starttime are omitted, checking is performed from the oldest monitored event stored in the monitored event DB.

(9) starttime

Specify the 'From' time which is the starting point for checking the occurrence of the event.

The format is 2 digits each for hour, minute and second (hhmmss).

Specify the time when the Operation Management Server received the event if event monitoring is used in Systemwalker Centric Manager.

starttime must be specified with startdate. starttime cannot be specified on its own, nor can it be omitted.

If startdate and starttime are omitted, checking is performed from the oldest monitored event stored in the monitored event DB.

(10) enddate

Specify the 'To' year, month and day for checking the occurrence of the event.

The format is 4 digits for year, 2 digits each for month and day (YYYYMMDD).

Specify the year, month and day when the Operation Management Server received the event if event monitoring is used in Systemwalker Centric Manager.

enddate must be specified with endtime. enddate cannot be specified on its own, nor can it be omitted.

If enddate and endtime are omitted, checking is performed to the final monitored event stored in the monitored event DB.

(11) endtime

Specify the 'To' time for the checking the occurrence of the event..

The format is 2 digits each for hour, minute and second (hhmmss).

Specify the time when the Operation Management Server received the event if event monitoring is used in Systemwalker Centric Manager.

endtime must be specified with enddate. endtime cannot be specified on its own, nor can it be omitted.

If enddate and endtime are omitted, checking is performed to the final monitored event stored in the monitored event DB.

(12) targethostname

Specify the host name where the event has occurred.

Specify this to identify the place the event occurred. If this is omitted, all host events stored in the monitored event DB will be checked.

The format of targethostname may be different depending on the operation management product for which event monitoring is performed.

If event monitoring is performed in Systemwalker Centric Manager, specify ""host*"" (prefix search), ""*host"" (suffix search), or ""*host*"" (meet-in-the-middle search).

The maximum length of the host name where the event has occurred is 1,024 bytes. An argument error occurs if the length is larger than 1,024 bytes.

(13) extendedoptions

When event will be acquired, specify options and parameters to pass the command of the linked product other than dates that is to be used as the start point and end point in acquire the event.

- 'From' time

- 'To' time

- Event's machine host name.

The format may be different depending on the operation management product for which event monitoring is performed.

If event monitoring is used in Systemwalker Centric Manager, the following options for the opmtrcsv command can be specified:

| Options | Content of specification |
|---|--|
| -s <output lead monitoring event number> | Start number for the monitoring event for the search target. |
| -e <output final monitoring event number> | Final number for the monitoring event for the search target. |
| -a | Set string search condition to AND. |
| -I <item name 1> <item name 2>... | Log items to be added to the event information that will be the search target. |
| -If <file name> | Specify log items to be added to the event information that will be the search target by file. |
| -j | Add job number to the event information that will be the search target. |

The maximum length of the options and parameters string is 2,048 bytes. An argument error occurs if the length is larger than 2,048 bytes.

(14) timeout

This is the completion timeout (seconds) for the execution of Operation Components.

Values between 300 and 86400 (1day) can be specified.

For example: when waiting for 10 minutes until completion: 600

If the execution of Operation Components is not completed after passing the specified time, the processing of Operation Components is stopped with the return value:201.

(15) retry

This is the retry count for the execution of operation components.

Specify retry count when operation components ended with the return value:161. Values between 0 and 5 can be specified.

If the processing of Operation Components ended with return value except 161 as a result of a retry, the execution of Operation Components stops at retry count less than the specified value. The return value of Operation Components is the value of the last execution.

For example: when retries are performed twice: 2

(16)retry_interval




This is the retry interval (seconds) of Operation Components.

Specify interval until retry is to be performed when Operation Components ended with the return value:161. Values between 1 and 14400 can be specified.

For example: when retries are performed with 300 second interval: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|----------------|--------------|---|
|  | Issued event | 0 | Checking the occurrences of events was successful. The checked event has occurred. |
|  | Unissued event | 1 | Checking the occurrences of events was successful. The checked event has not occurred. |
|  | Failure | 161 | Checking the occurrences of events failed. If retry count is specified, retries are to be performed. |
| | | 187 | Authentication failed when an attempt was made to connect to the event monitoring server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the event monitoring server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | Network communication (SSH communication) to the event monitoring server was disconnected when the operation using Operation Components is performed to the event monitoring server which RBA Agent is not installed. |
| | | 189 | An attempt to connect to the event monitoring server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the event monitoring server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There was an error in option setting or there may be a problem on the information registered in the Configuration Management Database (CMDB). |
| | | 200 | Checking the occurrences of events ended abnormally. |
| - | - | 201 | Execution of Operation Component timed out. |
| | | 202 | The Operation Component was not executed. There is a problem in the setting for executing the Operation Component. |
| | | 203 | The Operation Component was not executed. There is a problem in the Management Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 206 | The operation component was not executed. There is a problem with the output information specification of the operation component. |
| | | 207 | The Operation Component was not executed. Operation Component may not be registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|---------------------|---|
| message | <p>This variable will be set to the following message if the operation component successfully checks the occurrence of events monitored by the monitoring product.</p> <p>The operation component was successful.</p> <p>If the operation component fails to check the occurrence of events monitored by the monitoring product, the content of the error will be set as a string.</p> |
| event_search_result | <p>This variable is set to a string that indicates the result of searching the monitored event database. This variable is only set to the search result if the specified event message has been found.</p> <p>The output format varies depending on the operation management product that is performing event monitoring.</p> <p>If event monitoring is performed by Systemwalker Centric Manager, the <code>opmtcsv</code> command is used to set the search results in CSV format. Refer to the <i>Systemwalker Centric Manager Reference Manual</i> for details on the setting format and the setting items.</p> <p>Note that if there are delays in receiving events on the Systemwalker Centric Manager Operation Management Server then this variable may be set to an event that occurred before the date and time specified by the "startdate" and "starttime" options.</p> |
| returnCode | This variable is set to the return value. |

Notes

- The Operation Component uses File Transfer Library or SSH communication to perform its operation if hostname is entered with information other than Management Server. Set to enable either File Transfer Library or SSH communication at least. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- If RBA Agent is not installed on the Business Server, specifying Japanese character on the eventmessage option may cause a problem on the operation result of the Operation Components. For specifying Japanese character, install the RBA Agent on the Business Server.
- To check the return value, use Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If the return value is between 201 and 208, the Automated Operation Process enters an abort or error state, and error messages are output to the places below.
 - The event log of Management Server(in case Windows(R) Management Server)
 - The syslog of Management Server(in case Linux Management Server)
 - BPMN custom messages

Check error messages in one of the places above and take the appropriate measures. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.10.6 Change monitored product event status



Description

This operation component changes the status of events.

Change the status of the event in event DB on the server that monitors the event with the operation management product such as Systemwalker Centric Manager.

Options

Basic Options

(1) hostname

Host name or IP address of the server that is performing event monitoring.

If event monitoring is used in Systemwalker Centric Manager, specify the host name or IP address of the operation management server of the Systemwalker Centric Manager.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) eventnumber

Specify the event number whose status is to be changed.

For an event number, specify the management number in event DB.

If event monitoring is used in Systemwalker Centric Manager, specify the monitoring event number of the Systemwalker Centric Manager.

An argument error occurs if the event number is omitted.

The maximum length of the event number is 1,024 characters. An argument error occurs if this is exceeded.

(3) eventstatus

Specify the new status.

The character string to be specified is different at the operation management product that is monitoring the event.

If event monitoring is used in Systemwalker Centric Manager, specify Trouble, Dealt, Deferred, or Replied. This option is not case sensitive.

An argument error occurs if the new status omitted.

The maximum length of the new status is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) ostype

OS type of the server that performs event monitoring.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

Name of the user connecting with SSH to the host monitoring the event.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(3) password

Password of the user connecting with SSH to the host monitoring the event.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

When connecting by using the file transfer infrastructure, it becomes invalid even if the password of the user is specified.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(4) execusername

Name of the user changing status of the event on the host monitoring the event.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the executing user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(6) mwtype

Specify the name of the operation management product performing event monitoring which is linked to this operation component.

If event monitoring is used in Systemwalker Centric Manager, specify "CMGR". This option is not case sensitive.

Only Systemwalker Centric Manager can be specified as a linked product with this operation component.

If the operation management product name is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired operation management product name as the value.

The maximum length of the operation management product name that can be specified is 1,024 characters. An argument error occurs if this is exceeded.

(7) mwinstalledpath

Specify the command installation path for the linked product to this operation component.

If event monitoring is used in Systemwalker Centric Manager, specify the full path name of the evtutlnt command installation directory.

If Systemwalker Centric Manager is specified to mwtype as a linked product for this operation component, installation path is able to omit.

Only Systemwalker Centric Manager can be specified as a linked product with this operation component.

The maximum length of the installation path that can be specified is 1,024 characters. An argument error occurs if this is exceeded.

(8) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 0 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is stopped in return value 201.

(9) retry

This is the retry count for the execution of operation components.

Specify the count that will be retried when the operation component is finished in return value 161. Values between 0 and 5 can be specified.

When the operation components is terminated in return values other than 161 as a result of the retrying, the operation components will be terminated even if it doesn't reach the specified retry counts. The return value of the operation components returns the value executed at the end.

For example: When retries are to be performed twice: 2

(10)retry_interval



This is the retry interval (seconds) for operation components.

Specify the interval that will be retried when the operation component is terminated in return value 161. Values between 1 and 14400 can be specified.

For example: When retries are to be performed at 300 seconds interval: 300

If the specification of the timeout, retry and retry_interval is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "2.5 Definition File for Operation Components" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Changing of the event status was successful. |
|  | Failure | 161 | Failed to change the event status. When the retry count is specified, it will be retried. |
| | | 187 | Authentication failed when an attempt was made to connect to the event monitoring server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the event monitoring server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 188 | When the operation of the operation component are executing to the event monitoring server into which the RBA Agents have not been introduced, the network communication (SSH communication) with the event monitoring server was disconnected. |
| | | 189 | An attempt to connect to the event monitoring server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the event monitoring server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | | results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the specification of the option. Or there is a problem in the registered information of the Configuration Management Database (CMDB). |
| | | 200 | Changing of the event status terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute the operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Management Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component was not executed. There is a possibility that the operation components have not been registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|---|
| message | This variable will be set to the following message if the status of the event monitored by the monitoring product is changed successfully. The operation component was successful. If an attempt to change the status of the event monitored by the monitoring product fails, the content of the error will be set as a string. |
| returnCode | This variable is set to the return value. |

Notes

- If the information except for the Management Server has been entered for 'hostname', this operation component uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- To check the return value, use Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When return values between 201 and 208 are output, the Automated Operation Process become an abort or error state, and the error message is output to the following places.
 - Event log of the Management Server (When the Management Server is Windows(R))
 - System log of the Management Server (When the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in any of the above-mentioned place, and execute appropriate measures. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.10.7 Get monitored product event



Description

This operation component retrieves events occurring at a certain time.

The event that occurred in the specified time is acquired from event DB of the server that is monitoring the event with the operation management product such as Systemwalker Centric Manager and it is saved as a file.

Options

Basic Options

(1) hostname

Host name or IP address of the server that is performing event monitoring.

If event monitoring is used in Systemwalker Centric Manager, specify the host name or IP address of the operation management server of the Systemwalker Centric Manager.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) targetfile

Specify the name (full path) of the file where the acquired event is to be saved.

An error occurs if the file name (full path) to be saved is omitted.

The maximum length of the file name (full path) to be saved is 1,024 characters. An argument error occurs if this is exceeded.

The event acquired is saved to the file specified as the file name (full path) to be saved on the server that is monitoring the event.

The form of the file where event is saved is different at the operation management product that is monitoring the event.

If event monitoring is used in Systemwalker Centric Manager, events are acquired by the `opmtcsv` command, and the events are saved as the file of the CSV format. The specified file will be overwritten if it already exists.

If the delay of the event reception is occurring on the operation management server of Systemwalker Centric Manager, previous event of the specified date to `startdate` option or `starttime` option might be saved.

Advanced Options

(1) startdate

Specify the date to start obtaining events.

Use the YYYYMMDD format to specify the date (four numbers for the year, and two numbers each for the month and day).

If event monitoring is used in Systemwalker Centric Manager, specify the date when the operation management server received the event.

Start date is necessary to specify with start time. Start date alone cannot be specified or omitted.

If `startdate` and `starttime` are omitted together with `starttime`, it will be obtained from the oldest monitored event stored in the monitored event DB.

(2) starttime

Specify the time that is to be used as the start point in the check for event occurrences.

Use the hhmmss format to specify the time (two numbers each for the hour, minutes and seconds).

If event monitoring is used in Systemwalker Centric Manager, specify the time when the operation management server received the event.

Start time is necessary to specify with start date. Start time alone cannot be specified or omitted.

If startdate and starttime are omitted with start date, acquiring the monitoring event from most oldest one that is stored in the monitoring event DB.

(3) enddate

Specify the date to end obtaining events.

Use the YYYYMMDD format to specify the date (four numbers for the year, and two numbers each for the month and day).

If event monitoring is used in Systemwalker Centric Manager, specify the date when the operation management server received the event.

End date is necessary to specify with end time. End date alone cannot be specified or omitted.

If enddate and endtime are omitted together with endtime, up to the last monitored event stored in the monitored event DB will be obtained.

(4) endtime

Specify the time that is to be used as the end point in the check for event occurrences.

Use the hhmmss format to specify the time (two numbers each for the hour, minutes and seconds).

If event monitoring is used in Systemwalker Centric Manager, specify the time when the operation management server received the event.

End time is necessary to specify with end date. End time alone cannot be specified or omitted.

If enddate and endtime are omitted with end date, acquiring the monitoring event from most latest one that is stored in the monitoring event DB.

(5) extendedoptions

When event will be acquired, specify options and parameters to pass the command of the linked product other than dates that is to be used as the start point and end point in acquire the event.

The format that can be specified is different at the operation management product that is monitoring the event.

If event monitoring is used in Systemwalker Centric Manager, the following options for the opmtcsv command can be specified:

| Options | Content of specification |
|---|--|
| -s <output lead monitoring event number> | Start number for monitoring event to be obtained. |
| -e <output final monitoring event number> | Final number for monitoring event to be acquired. |
| -n <host name> | Originating host for the monitoring event for the acquired target. |
| -I <item name 1> <item name 2>... | Log items for additional acquisitions. |
| -If <file name> | Specify log items for additional acquisitions by file. |
| -j | Add job number to the monitoring event to be acquired. |

The maximum length of the options and the parameters that can be specified is 2,048 characters. An argument error occurs if this is exceeded.

(6) mwtype

Specify the name of the operation management product performing event monitoring which is linked to this operation component.

If event monitoring is used in Systemwalker Centric Manager, specify "CMGR". This option is not case sensitive.

Only Systemwalker Centric Manager can be specified as a linked product with this operation component.

If the operation management product name is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired operation management product name as the value.

The maximum length of the operation management product name that can be specified is 1,024 characters. An argument error occurs if this is exceeded.

(7) `mwinstalledpath`

Specify the command installation path for the linked product to this operation component.

If event monitoring is used in Systemwalker Centric Manager, specify the full path name of the `opmtrcsv` command installation directory.

If Systemwalker Centric Manager is specified to `mwtype` as a linked product for this operation component, installation path is able to omit.

Only Systemwalker Centric Manager can be specified as a linked product with this operation component.

The maximum length of the installation path that can be specified is 1,024 characters. An argument error occurs if this is exceeded.

(8) `ostype`

OS type of the server that performs event monitoring.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(9) `username`

Name of the user connecting with SSH to the host monitoring the event.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name is fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(10) `password`

Password of the user connecting with SSH to the host monitoring the event.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

When connecting by using the file transfer infrastructure, it becomes invalid even if the password of the user is specified.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(11) `execusername`

Name of the user checking occurrence of the event on the host monitoring the event.

If the "`execusername`" and "`execpassword`" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "`hostname`" is running on Windows and it connects with file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the executing user name is 1,024 characters. An argument error occurs if this is exceeded.

(12) `execpassword`

This operation component does not use the value of "`execpassword`". The value of "`execpassword`" is ignored even if specified.

(13) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 0 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is stopped in return value 201.

(14) retry

This is the retry count for the execution of operation components.

Specify the count that will be retried when the operation component is finished in return value 161. Values between 0 and 5 can be specified.

When the operation components is terminated in return values other than 161 as a result of the retrying, the operation components will be terminated even if it doesn't reach the specified retry counts. The return value of the operation components returns the value executed at the end.

For example: When retries are to be performed twice: 2

(15) retry_interval



This is the retry interval (seconds) for operation components.

Specify the interval that will be retried when the operation component is terminated in return value 161. Values between 1 and 14400 can be specified.

For example: When retries are to be performed at 300 seconds interval: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "2.5 Definition File for Operation Components" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Acquisition of the event was successful. |
|  | Failure | 161 | Failed the acquisition of the event. When the retry count is specified, it will be retried. |
| | | 187 | Authentication failed when an attempt was made to connect to the event monitoring server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the event monitoring server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to "3.21 Detailed Code of File Transfer Infrastructure" for information on error codes. |
| | | 188 | When the operation of the operation component are executing to the event monitoring server into which the RBA Agents have not been introduced, the network communication (SSH communication) with the event monitoring server was disconnected. |
| | | 189 | An attempt to connect to the event monitoring server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the event monitoring server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | | results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the setting of the option. Or there is a problem in the registered information of the Configuration Management Database (CMDB). |
| | | 200 | Acquisition of the event terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute the operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Management Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation components was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component was not executed. There is a possibility that the operation components have not been registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|---|
| message | This variable will be set to the following message if the events that the monitoring product discovered during the specified time are obtained successfully. The operation component was successful. If an attempt to obtain the events that the monitoring product discovered during the specified time fails, the content of the error will be set as a string. |
| returnCode | This variable is set to the return value. |

Notes

- If the information except for the Management Server has been entered for 'hostname', this operation component uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- This operation component saves the acquired event as the file on the event monitoring server. If necessary, transfer or delete the file where it is to be saved.
- Use alphanumeric characters for the name of the file to be created.
- Symbols that can be used: "!", "~", "_", "-", ".".
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When return values from 201 through 208 are output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of the Management Server (When the Management Server is Windows(R))

- System log of the Management Server (When the Management Server is Linux)
- Custom message of BPMN

Confirm the message in any of the above-mentioned place, and execute appropriate measures. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.10.8 Disable server monitoring



Description

This operation component suppresses monitoring of a server that is part of the monitoring target.

This component is used to manipulate the monitoring suppression settings by specifying a server that is being monitored by an operation management product such as Systemwalker Centric Manager.

This component is used to set up monitoring suppression for a monitored server when a monitored server is stopped temporarily due to maintenance or a planned power outage, for example.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

If event monitoring is being performed using Systemwalker Centric Manager, specify the host name or IP address of the Systemwalker Centric Manager Operation Management Server.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error will occur if this limit is exceeded.

(2) deterrenceipaddress

This is the IP address for the disable monitoring setting.

If event monitoring is used in Systemwalker Centric Manager, specify the IP address for the disable monitoring setting.

Multiple IP addresses can be specified. Specify IP addresses in the same order as the host names for which monitoring suppression is to be set up (as specified by the "deterrencehostname" option).

An argument error will occur if both this option and the "deterrencehostname" option are omitted.

If this option is omitted, the operation component will search the Configuration Management Database (CMDB) based on the specification for the "deterrencehostname" option, and then Systemwalker Runbook Automation will automatically set the value that has been acquired from the CMDB.

The maximum number of IP addresses is 100. An argument error occurs if this is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

(3) deterrencehostname

The names of hosts for which monitoring suppression is to be set up.

If event monitoring is performed by Systemwalker Centric Manager, specify the names of the hosts for which monitoring suppression is to be set up.

Multiple host names can be specified. Specify host names in the same order as the IP addresses for which monitoring suppression is to be set up (as specified by the "deterrenceipaddress" option). An argument error will occur if both this option and the "deterrenceipaddress" option are omitted.

If this option is omitted, the operation component will search the Configuration Management Database (CMDB) based on the specification for the "deterrenceipaddress" option, and then Systemwalker Runbook Automation will automatically set the value that has been acquired from the CMDB.

The maximum number of host names is 100. An argument error occurs if this is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Advanced Options

(1) ostype

Operating system of the host executing the operation component.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

This is the name of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name is fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(3) password

This is the password of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with the file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(4) execusername

This is the name of the user that executes the command on the target host where the operation component is to be executed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value. If an administrator user has not been registered with the CMDB, the command will be executed using the name of the connected user.

If the host specified in the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

The maximum length of the executing user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(6) mwtype

Specify the name of the operation management product that performs event monitoring and is to be linked to this operation component.

If event monitoring is performed by Systemwalker Centric Manager, specify "CMGR". This option is not case sensitive.

At this point, the only operation management product that can be linked to this operation component is Systemwalker Centric Manager.

If the name of the operation management product is omitted, the command will search the Configuration Management Database (CMDB) based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the value that has been acquired from the CMDB.

The maximum length of the string that can be specified for the name of the operation management product is 1,024 characters. An argument error occurs if this is exceeded.

(7) mwinstallpath

Specify the installation path of the command that will be linked to this operation component.

If event monitoring is performed by Systemwalker Centric Manager, specify the absolute pathname of the mpmonsuspend command installation directory.

This option can be omitted if the "mwtype" option specifies that the operation management product linked to this operation component is Systemwalker Centric Manager.

At this point, the only operation management product that can be linked to this operation component is Systemwalker Centric Manager.

The maximum length of the installation path that can be specified is 1,024 characters. An argument error occurs if this is exceeded.

(8) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(9) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(10) retry_interval



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|--|--------------|---|
|  | Success | 0 | Monitoring suppression has been set up successfully. |
|  | Failure | 161 | An attempt to set up monitoring suppression failed. If a retry count has been specified, retries will be attempted. |
| | | 187 | Authentication failed when an attempt was made to connect to the event monitoring server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the event monitoring server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on an event monitoring server where an RBA Agent has not been installed, an SSH network connection with the event monitoring server was closed. |
| | | 189 | An attempt to connect to the event monitoring server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the event monitoring server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error with an option specification. Alternatively, there is a problem with the information registered in the Configuration Management Database (CMDB). |
| | | 200 | An attempt to set up monitoring suppression terminated abnormally. |
| | | - | - |
| 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. | | |
| 203 | Failed to execute the operation component. There is a problem with the Management Server environment. | | |
| 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. | | |
| 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. | | |
| 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. | | |
| 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. | | |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if monitoring suppression is set up successfully. The operation component was successful. If an attempt to set up monitoring suppression fails, the content of the error will be set as a string. |
| returnCode | This variable is set to the return value. |

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH. Specify settings so that communications can be performed using at least one of these methods. Refer to "3.16 Notes of Each Communication Method" for information on communication methods.
- Refer to "3.16.7 Notes When Connected User And Executing User Are Different" for information on different connected and executing users.
- This operation component requires values for both the "deterrenceipaddress" option and the "deterrencehostname" option. If either of these options has been omitted, the omitted value must be registered in the Configuration Management Database (CMDB).
- If monitoring suppression settings are specified for a host where monitoring suppression has already been set up, the return value is normal.
- If multiple hosts are specified and monitoring suppression settings fail for even one of them, the return value will be an error.
- If event monitoring is being performed by Systemwalker Centric Manager, this operation component can be linked to V13.1.0 or later. And server monitoring has been disabled by the mpmonsuspend command. Refer to the Systemwalker Centric Manager Reference Guide for information on the command.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.10.9 Enable server monitoring



Description

This operation component cancels the monitoring suppression for a server that is part of the monitoring target.

This component is used to manipulate the monitoring suppression cancellation by specifying a server that is being monitored by an operation management product such as Systemwalker Centric Manager.

This component is used to cancel monitoring suppression due to maintenance for monitored servers, for example.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

If event monitoring is being performed using Systemwalker Centric Manager, specify the host name or IP address of the Systemwalker Centric Manager Operation Management Server.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or ':::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error will occur if this limit is exceeded.

(2) deterrenceipaddress

This is the IP address for the enable monitoring setting.

If event monitoring is used in Systemwalker Centric Manager, specify the IP address for the enable monitoring setting.

Multiple IP addresses can be specified. Specify IP addresses in the same order as the host names for which monitoring suppression is to be canceled (as specified by the "deterrencehostname" option).

An argument error will occur if both this option and the "deterrencehostname" option are omitted.

If this option is omitted, the operation component will search the Configuration Management Database (CMDB) based on the specification for the "deterrencehostname" option, and then Systemwalker Runbook Automation will automatically set the value that has been acquired from the CMDB.

The maximum number of IP addresses is 100. An argument error occurs if this is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

(3) deterrencehostname

The names of hosts for which monitoring suppression is to be canceled.

If event monitoring is performed by Systemwalker Centric Manager, specify the names of the hosts for which monitoring suppression is to be canceled.

Multiple host names can be specified. Specify host names in the same order as the IP addresses for which monitoring suppression is to be canceled (as specified by the "deterrenceipaddress" option).

An argument error will occur if both this option and the "deterrenceipaddress" option are omitted.

If this option is omitted, the operation component will search the Configuration Management Database (CMDB) based on the specification for the "deterrenceipaddress" option, and then Systemwalker Runbook Automation will automatically set the value that has been acquired from the CMDB.

The maximum number of host names is 100. An argument error occurs if this is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Advanced Options

(1) ostype

Operating system of the host executing the operation component.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) username

This is the name of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(3) password

This is the password of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with the file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(4) execusername

This is the name of the user that executes the command on the target host where the operation component is to be executed.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired administrator user as the value. If an administrator user has not been registered with the CMDB, the command will be executed using the name of the connected user.

If the host specified in "hostname" is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

The maximum length of the executing user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(6) mwtype

Specify the name of the operation management product that performs event monitoring and is to be linked to this operation component.

If event monitoring is performed by Systemwalker Centric Manager, specify "CMGR". This option is not case sensitive.

At this point, the only operation management product that can be linked to this operation component is Systemwalker Centric Manager.

If the name of the operation management product is omitted, the command will search the Configuration Management Database (CMDB) based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the value that has been acquired from the CMDB.

The maximum length of the string that can be specified for the name of the operation management product is 1,024 characters. An argument error occurs if this is exceeded.

(7) mwinstallpath

Specify the installation path of the command that will be linked to this operation component.

If event monitoring is performed by Systemwalker Centric Manager, specify the absolute pathname of the mpmmonresume command installation directory.

This option can be omitted if the "mwtype" option specifies that the operation management product linked to this operation component is Systemwalker Centric Manager.

At this point, the only operation management product that can be linked to this operation component is Systemwalker Centric Manager.

The maximum length of the installation path that can be specified is 1,024 characters. An argument error occurs if this is exceeded.

(8) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(9) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(10) retry_interval



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Monitoring suppression has been canceled successfully. |
|  | Failure | 161 | An attempt to cancel monitoring suppression failed. If a retry count has been specified, retries will be attempted. |
| | | 187 | Authentication failed when an attempt was made to connect to the event monitoring server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the event monitoring server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on an event monitoring server where an RBA Agent has not been installed, an SSH network connection with the event monitoring server was closed. |
| | | 189 | An attempt to connect to the event monitoring server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the event monitoring server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error with an option specification. Alternatively, there is a problem with the information registered in the Configuration Management Database (CMDB). |
| | | 200 | An attempt to cancel monitoring suppression terminated abnormally. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| | | 203 | Failed to execute the operation component. There is a problem with the Management Server environment. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if monitoring suppression is canceled successfully. The operation component was successful. If an attempt to cancel monitoring suppression fails, the content of the error will be set as a string. |
| returnCode | This variable is set to the return value. |

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH communications. Specify settings so that communications can be performed using at least one of these methods. Refer to ["3.16 Notes of Each Communication Method"](#) for information on communication methods.
- Refer to ["3.16.7 Notes When Connected User And Executing User Are Different"](#) for information on different connected and executing users.
- This operation component requires values for both the "deterrenceipaddress" option and the "deterrencehostname" option. If either of these options has been omitted, the omitted value must be registered in the Configuration Management Database (CMDB).
- If monitoring suppression cancellation is specified for a host where monitoring suppression has already been canceled, the return value is normal.
- If multiple hosts are specified and monitoring suppression cancellation fails for even one of them, the return value will be an error.
- If event monitoring is being performed by Systemwalker Centric Manager, this operation component can be linked to V13.1.0 or later. And server monitoring has been enabled by the mpmonresume command. Refer to the Systemwalker Centric Manager Reference Guide for information on the command.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.10.10 Get event log



Description

This operation component obtains information from the Windows event logs. Up to 1,000 items of event log information can be obtained.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) eventtype

This is the event type for the obtained event.

Specify 'Application', 'System', and 'Security' for the event types which are obtained. This option is not case sensitive.

An argument error will occur if an event type other than those listed above is specified.

If the event type was omitted, all event type log information is obtained.

The maximum length of the event type is 1,024 characters. An argument error occurs if this is exceeded.

(2) eventid

This is the event ID for the obtained event.

If the event ID was omitted, all event ID log information is obtained.

Values between 0 and 65535 can be specified. An argument error will occur if any other value is specified.

(3) sourcename

This is the source name for the event which is obtained. The source name is the name of the log output source.

If the source name was omitted, all source log information is obtained.

The maximum length of the source name is 1,024 characters. An argument error occurs if this is exceeded.

Specify the source name as shown below.

Example: winword

(4) level

This is the level for the obtained event.

An argument error will occur if any level other than those listed below is specified.

If the level was omitted, all level log information is obtained.

The maximum length of the level is 1,024 characters. An argument error occurs if this is exceeded.

The following table lists the event levels.

| Level | Description |
|-------|-------------|
| 1 | ERROR |
| 2 | INFORMATION |
| 3 | WARNING |

| Level | Description |
|-------|---------------|
| 4 | AUDIT_SUCCESS |

(5) message

This is the filter message for the obtained event.

Events containing the string specified in the filter message are obtained.

If the filter message was omitted, filtering is not performed.

The maximum length of the filter message is 1,024 characters. An argument error occurs if this is exceeded.

(6) starttime

This is the start date and time for the obtained event.

Events occurring after the specified date and time are obtained.

If the start date and time was omitted, events are obtained starting with the oldest event saved in the event log.

The maximum length of the string for the start date and time is 1,024 characters. An argument error occurs if this is exceeded.

The format is 4 digits for the year and 2 digits each for the month, day, hour, minute and second (YYYYMMDDhhmmss).

Example: 20110830123055

(7) endtime

This is the end date and time for the obtained event log.

Events occurring before the specified date and time are obtained.

If the end date and time was omitted, events including the last event saved in the event log are obtained.

If the execution of the operation component conflicts with the occurrence of new events, it may not be possible to obtain these new events.

The maximum length of the string for the end date and time is 1,024 characters. An argument error occurs if this is exceeded.

The format is 4 digits for the year and 2 digits each for the month, day, hour, minute and second (YYYYMMDDhhmmss).

Example: 20110830123255

(8) ostype

Operating system of the host executing the operation component.

Specify Windows. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(9) username

This is the name of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(10) password

This is the password of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with the file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(11) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(12) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(13) retry_interval



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | The event log has been obtained successfully. |
|  | Failure | 161 | An attempt to obtain the event log failed. If a retry count has been specified, retries will be attempted. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection with the Business Server was closed. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error with the input information. |
| | | 200 | An attempt to obtain the event log terminated abnormally. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------------|---|
| message | This variable will be set to the following message if the event log is obtained successfully. The operation component was successful. If an attempt to obtain the event log fails, the content of the error will be set as a string. |
| log_get_result | This variable is set to the content acquired from the event log, in the following format. Any linefeed characters in the <i>[message]</i> part will be converted to spaces. <i>[event ID],[event type],[source],[level],[message],[occurrence time]</i> <Example> "6009","System","winword","ERROR",~"testEventLogMessage","20110830123255" |
| nexttime | If 1,000 event logs have been obtained but there are still more event logs available, this variable will be set to the date and time of the first of the remaining event logs. The format is 4 digits for the year and 2 digits each for the month, day, hour, minute and second (YYYYMMDDhhmmss). |
| returnCode | This variable is set to the return value. |

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH communications. Specify settings so that communications can be performed using at least one of these methods. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- If 1,000 event logs have been obtained but there are still more event logs available, then any event logs where the occurrence time is the same as the 1,000th event log can still be obtained from the remaining event logs.
- This operation component obtains event logs by executing the wmic ntevent command based on the values specified for the following options. The wmic ntevent command can take a long time to execute when obtaining a large number of event logs. For this reason, specify the following options to prevent large numbers of event logs from being retrieved collectively. Also, set an appropriate value for the "timeout" option.
 - eventtype
 - eventid
 - sourcename
 - level
 - message
 - starttime
 - endtime
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.10.11 Create event log



Description

This operation component creates a new Windows event log.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or ':::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) **eventid**

This is the event ID for the event which is created.

An argument error occurs if the event ID is omitted.

Values from 1 through 1000 can be specified. An argument error will occur if any other value is specified.

(3) **level**

This is the level for the event which is created.

Specify 'ERROR', 'INFORMATION', or 'WARNING' for the level. This option is not case sensitive.

An argument error occurs if the level is omitted.

(4) **message**

This is the message for the created event.

An argument error occurs if the message is omitted.

The maximum length of the message is 1,024 characters. An argument error occurs if this is exceeded.

(5) **sourcename**

This is the source name for the created event.

An argument error occurs if the source name is omitted.

The maximum length of the source name is 256 characters. An argument error occurs if this is exceeded.

Specify the source name as shown below.

Example: winword

(6) **eventtype**

This is the event type for the created event.

Specify 'Application' or 'System' for the event type. This option is not case sensitive.

If the event type was omitted, the setting will be "System".

The maximum length of the event type is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) **ostype**

Operating system of the host executing the operation component.

Specify Windows. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(2) **username**

This is the name of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(3) **password**

This is the password of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with the file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(4) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(5) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(6) retry_interval



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | An event log has been generated successfully. |
|  | Failure | 161 | An attempt to generate event logs failed. If a retry count has been specified, retries will be attempted. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection with the Business Server was closed. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error with the input information. |
| | | 200 | An attempt to generate event logs terminated abnormally. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|---|
| message | This variable will be set to the following message if an event log is generated successfully. The operation component was successful. If an attempt to generate event logs fails, the content of the error will be set as a string. |
| returnCode | This variable is set to the return value. |

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH. Specify settings so that communications can be performed using at least one of these methods. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.10.12 Get performance counter



Description

This operation component obtains the current value of the Windows performance counter.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) perfcouterpath

Specify the performance counter path.

Multiple performance counter paths can be specified.

An argument error occurs if the performance counter path is omitted.

The upper limit for the number of performance counter paths is 100. If this number is exceeded, an argument error occurs.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Specify the performance counter path as shown below.

Example: \Memory\Available bytes, \processor(_total)\% processor time

Advanced Options

(1) counterinterval

This is the time interval for obtaining the performance counter value.

If the time interval was omitted, the setting will be '1' (second).

Values between 1 and 10 (seconds) can be specified. An argument error will occur if any other value is specified.

(2) resultnum

This is the count for obtaining the performance counter value.

If the count was omitted, the setting will be '10'.

Values between 1 and 100 can be specified. An argument error will occur if any other value is specified.

(3) ostype

This is the operating system type of the host for which the performance counter value is to be obtained.

Specify Windows. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(4) username

This is the name of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(5) password

This is the password of the user that uses SSH to connect to the target host where the operation component is to be executed.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user password as the value.

If it connects with the file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(6) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(7) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(8) retry_interval



This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | The performance counter value has been obtained successfully. |
|  | Failure | 161 | An attempt to obtain the performance counter value failed. If a retry count has been specified, retries will be attempted. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error with the input information. |
| | | 200 | An attempt to obtain the performance counter value terminated abnormally. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------|--|
| message | This variable will be set to the following message if the performance counter value is obtained successfully. The operation component was successful. If an attempt to obtain the performance counter value fails, the content of the error will be set as a string. |

| Variable | Description |
|--------------------------------|---|
| performance_counter_get_result | <p>This variable is set to the performance counter value, using the following format.</p> <p>[date/time obtained], [counter path 1], [counter path 2], ...</p> <p>Example:</p> <p>"Time", "\\HOSTNAME\Memory\Available bytes", "\\HOSTNAME\processor(_total)\% processor time"</p> <p>"09/02/2011 16:48:14.640", "955019264.000000", "1.562500"</p> <p>"09/02/2011 16:48:15.640", "954822656.000000", "0.000000"</p> <p>"09/02/2011 16:48:16.640", "954806272.000000", "0.000000"</p> |
| returnCode | This variable is set to the return value. |

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH. Specify settings so that communications can be performed using at least one of these methods. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- This operation component may take a long time to execute if it uses the following options. For this reason, set an appropriate value for the "timeout" option so that the operation component does not time out abruptly.
 - counterinterval
 - resultnum
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.11 Job Operation Components

3.11.1 Obtain job net status



Description

This operation component acquires the status of the job net registered in the linked product of a server.

Options

Basic Options

(1) hostname

Host name or IP address of the server that will acquire the status of the job net.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) jobnetname

Name of the job net whose status is to be acquired.

An argument error occurs if the name of the job net is omitted.

The maximum length of the name of the job net is 1,024 characters. An argument error occurs if this is exceeded.

If the linked product is System Operation Manager and the job net of the specified name exists in two or more projects, the error occurs because it is judged that the job net doesn't exist. In this case, specify projectname of the advanced option.

Advanced Options

(1) projectname

Specify the project name where the job net information will be stored.

This option is effective when the linked product is System Operation Manager only.

This can be omitted if the job net specified in jobnetname exists in only one project.

If job net of the name that specified in jobnetname of the basic option exists in two or more projects, the error occurs because it is judged that the job net doesn't exist. In this case, specify the project name.

The maximum length of the project name is 1,024 characters. An argument error occurs if this is exceeded.

(2) subsystem

This option is for specifying the subsystem to be operated in systems that are operating multiple subsystems. Specify the subsystem number (between 0 and 9) that will be operated. If this option is omitted, sub system number 0 will be operated.

This option is effective when the linked product is System Operation Manager only.

An argument error occurs if the value that exceeded 0 to 9 was input.

(3) username

Name of the user connecting with SSH to the host requesting acquisition of the job net status.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(4) password

Password of the user connecting with SSH to the host requesting acquisition of the job net status.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the acquired connected user password as the value.

When connecting by using the file transfer infrastructure, it becomes invalid even if the password of the user is specified.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(5) **execusername**

Name of the user acquiring the job net status on the host requesting acquisition of the job net status.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the executing user name is 1,024 characters. An argument error occurs if this is exceeded.

(6) **execpassword**

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(7) **ostype**

OS type of the host that will acquire the status of the job net.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(8) **mwtype**

Name of the job management product for the linked product.

Specify "OMGR". This option is not case sensitive.

If the job management product name is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired job management product name as the value. Only Systemwalker Operation Manager can be specified as a linked product with this operation component.

The maximum length of the job management product name that can be specified is 1,024 characters. An argument error occurs if this is exceeded.

(9) **mwinstalledpath**

Specify the command installation path for the linked product.

If the command installation path is omitted, the command installation path of the Systemwalker Operation Manager is set.

Only Systemwalker Operation Manager can be specified as a linked product with this operation component.

The maximum length of the installation path that can be specified is 1,024 characters. An argument error occurs if this is exceeded.

(10) **timeout**

This is the completion timeout (seconds) for the execution of operation components.

Values between 0 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is stopped in return value 201.

(11) **retry**

This is the retry count for the execution of operation components.

Specify the count that will be retried when the operation component is finished in return value 161. Values between 0 and 5 can be specified.

When the operation components is terminated in return values other than 161 as a result of the retrying, the operation components will be terminated even if it doesn't reach the specified retry counts. The return value of the operation components returns the value executed at the end.

For example: When retries are to be performed twice: 2

(12) retry_interval



This is the retry interval (seconds) for operation components.

Specify the interval that will be retried when the operation component is terminated in return value 161. Values between 1 and 14400 can be specified.

For example: When retries are to be performed at 300 seconds interval: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Acquisition of the job net status was successful. |
|  | Failure | 159 | The job net of the target was not found. |
| | | 161 | Failed the acquisition of the job net status. When the retry count is specified, it will be retried. |
| | | 187 | Authentication failed when an attempt was made to connect to the server over the network (via SSH). Alternatively, an error occurred during the processing of communications with the server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When the operation of the operation component are executing to the server into which the RBA Agents have not been introduced, the network communication (SSH communication) with the server was disconnected. |
| | | 189 | An attempt to connect to the server over a network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the content of the option. |
| | | 200 | Acquisition of the job net status terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute the operation components. |
| | | 203 | The operation components were not able to be executed normally. There is a problem in the Management Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component was not executed. There is a possibility that the operation components have not been registered in the Management Server. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|---------------|---|
| message | This variable will be set to the following message if the status of the job net is obtained successfully. The operation component was successful. If an attempt to obtain the status of the job net fails, the content of the error will be set as a string. |
| jobnet_status | This variable is set to the result of acquiring the job net status, using one of the following strings: <ul style="list-style-type: none"> - Normal termination: "Normal" - Pseudo-normal: "Pseudo" - Abnormal termination: "Abend" - Forced termination: "Forced" - Warning: "Warning" - Executing: "Execute" - Waiting: "Wait" - Paused: "Pause" - Disabled: "Disable" - Confirmed: "Copied" - Carried over: "CarryOver" - Start delayed: "StartDelay" - End delayed: "EndDelay" |
| returnCode | This variable is set to the return value. |

Notes

- If the information except for the Management Server has been entered for 'hostname', this operation component uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to ["3.16 Notes of Each Communication Method"](#) for information on communication methods.
- Refer to ["3.16.7 Notes When Connected User And Executing User Are Different"](#) for information on different connected and executing users.
- To check the return value, use Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When return values between 201 and 208 are output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of the Management Server (When the Management Server is Windows(R))
 - System log of the Management Server (When the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in any of the above-mentioned place, and execute appropriate measures. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.11.2 Start job net



Description

This operation component starts the job net registered in the linked product of a server.

Options

Basic Options

(1) hostname

Host name or IP address of the server that will start job net.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) jobnetname

Name of the job net that will be started.

An argument error occurs if the name of the job net is omitted.

The maximum length of the name of the job net is 1,024 characters. An argument error occurs if this is exceeded.

Advanced Options

(1) projectname

Specify the project name where the job net information is to be stored. This can be omitted if there is only one project registered on the job net that the executing user can operate.

This option is effective when the linked product is System Operation Manager only.

The maximum length of the project name is 1,024 characters. An argument error occurs if this is exceeded.

(2) subsystem

This option is for specifying the subsystem to be operated in systems that are operating multiple subsystems. Specify the subsystem number (between 0 and 9) that will be operated. If this option is omitted, sub system number 0 will be operated.

This option is effective when the linked product is System Operation Manager only.

An argument error occurs if the value that exceeded 0 to 9 was input.

(3) username

Name of the user connecting with SSH to the host that will start the job net.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(4) password

Password of the user connecting with SSH to the host that will start the job net.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the acquired connected user password as the value.

When connecting by using the file transfer infrastructure, it becomes invalid even if the password of the user is specified.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(5) execusername

Name of the user starting the job net on the host where the job net is to be started.

If the "execusername" and "execpassword" are not specified, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically sets the acquired administrator user as the value.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the executing user name is 1,024 characters. An argument error occurs if this is exceeded.

(6) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(7) ostype

OS type of the host that will start the job net.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(8) mwtype

Name of the job management product for the linked product.

Specify "OMGR". This option is not case sensitive.

If the job management product name is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired job management product name as the value. Only Systemwalker Operation Manager can be specified as a linked product with this operation component.

The maximum length of the job management product name that can be specified is 1,024 characters. An argument error occurs if this is exceeded.

(9) mwinstalledpath

Specify the command installation path for the linked product.

If the command installation path is omitted, the command installation path of the Systemwalker Operation Manager is set.

Only Systemwalker Operation Manager can be specified as a linked product with this operation component.

The maximum length of the installation path that can be specified is 1,024 characters. An argument error occurs if this is exceeded.

(10) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 0 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is stopped in return value 201.

(11) retry

This is the retry count for the execution of operation components.

Specify the count that will be retried when the operation component is finished in return value 161. Values between 0 and 5 can be specified.

When the operation components is terminated in return values other than 161 as a result of the retrying, the operation components will be terminated even if it doesn't reach the specified retry counts. The return value of the operation components returns the value executed at the end.

For example: When retries are to be performed twice: 2

(12) retry_interval



This is the retry interval (seconds) for operation components.

Specify the interval that will be retried when the operation component is terminated in return value 161. Values between 1 and 14400 can be specified.

For example: When retries are to be performed at 300 seconds interval: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Start of the job net was successful. |
|  | Failure | 159 | The job net to be started was not found. |
| | | 161 | Failed the start of the job net. When the retry count is specified, it will be retried. |
| | | 187 | Authentication failed when an attempt was made to connect to the server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When the operation of the operation component are executing to the server into which the RBA Agents have not been introduced, the network communication (SSH communication) with the server was disconnected. |
| | | 189 | An attempt to connect to the server over a network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error in the content of the option. |
| | | 200 | Starting the job net terminated abnormally. |
| - | - | 201 | Execution of operation component timed out. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | 202 | The operation component was not executed. There is a problem in the setting to execute the operation components. |
| | | 203 | The operation components were not able to be executed normally. There is a problem in the Management Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component was not executed. There is a possibility that the operation components have not been registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|--|
| message | This variable will be set to the following message if the job net is started successfully. The operation component was successful. If an attempt to start the job net fails, the content of the error will be set as a string. |
| returnCode | This variable is set to the return value. |

Notes

- If the information except for the Management Server has been entered for 'hostname', this operation component uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- To check the return value, use Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When return values between 201 and 208 are output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of the Management Server (When the Management Server is Windows(R))
 - System log of the Management Server (When the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in any of the above-mentioned place, and execute appropriate measures. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.12 Network Operation Components

3.12.1 Check operational status of node



Description

This operation component confirms the operating status of a node (server or network device).

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

Multiple host names or IP addresses can be specified. An argument error will occur if the host name or IP address is omitted.

The maximum allowable number of host names or IP addresses is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to ["3.17 Notes on Specifying Multiple Input Parameters"](#) for examples of multiple specifications.

Advanced Options

(1) multiplicity

Specify the execution multiplicity for starting servers.

Values between 1 and 100 can be specified.

If a value greater than the number of host names or IP addresses specified for the "hostname" option is used, the operation component runs as though the "hostname" value has been specified for "multiplicity".

If this option is omitted, the operation component will run as though "10" has been specified.

(2) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 0 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is stopped in return value 201.

If completion timeout is omitted, and the value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to ["2.5 Definition File for Operation Components"](#) for details.

(3) retry

This is the retry count for the execution of operation components.

Specify the count that will be retried when the operation component is finished in return value 161. Values between 0 and 5 can be specified.

When the operation components is terminated in return values other than 161 as a result of the retrying, the operation components will be terminated even if it doesn't reach the specified retry counts. The return value of the operation components returns the value executed at the end.

For example: When retries are to be performed twice: 2

If retry count is omitted, and the value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to ["2.5 Definition File for Operation Components"](#) for details.

If multiple host names or IP addresses have been specified for the node for which the status is to be verified, retries will not be performed.

(4) retry_interval




This is the retry interval (seconds) for operation components.

Specify the interval that will be retried when the operation component is terminated in return value 161. Values between 1 and 14400 can be specified.

For example: When retries are to be performed at 300 seconds interval: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|--------------------|--------------|--|
|  | Operation normal | 0 | The node is running. |
|  | Operation abnormal | 161 | The node is not running. When the retry count is specified, it will be retried. If multiple host names have been specified, retries will not be performed. |
| | | 180 | Multiple operations failed. For the return values for the operations on each host, check the "Return_code" column in the standard output. |
|  | Failure | 197 | There is an error in the input information. |
| | | 198 | There is an error in the specification of the option. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute the operation components. |
| | | 203 | The operation components were not able to be executed normally. There is a problem in the Management Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component was not executed. There is a possibility that the operation components have not been registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|-------------------------|--|
| message | <ul style="list-style-type: none"> - If only one host name or IP address has been specified for the "hostname" option <p>This variable is set to one of the following strings according to the operational status of the node:</p> <ul style="list-style-type: none"> - If the node is operating: "Run" - If the node is not operating: "Stop" <p>If an attempt to check the operational status of the node fails, the content of the error will be set as a string.</p> <ul style="list-style-type: none"> - If multiple host names or IP addresses have been specified for the "hostname" option <p>If all nodes are running, the string "Run" will be set.</p> <p>If some or all of the nodes are not running, information for the servers that are not running will be output using the same format as the "node_state_check_result" variable.</p> |
| node_state_check_result | This variable is set to the result of executing the state check request on the specified server. |

| Variable | Description |
|----------------------|--|
| node_state_run_list | This variable is set to a list of nodes where the node status is "Run". The specification is in the CSV format. |
| node_state_stop_list | This variable is set to a list of nodes where the node status is "Stop". The specification is in the CSV format. |
| returnCode | This variable is set to the return value. |

The output format for the "node_state_check_result" variable is as follows:

[hostname],[return value],[output data],[message]

For [output data], nothing will be output.

For [message], one of the following will be output:

- If the node is running, the string "Run" will be output.
- If the node is not running, the string "Stop" will be output.
- If an attempt to check the operational status of the node fails, the content of the error will be output as a string.

<Example>

If "host1,host2,host3" has been specified for the hostname option, and the "host3" node is not operating

```
"hostname",Return_code,"Output","Message"
"host1",0,"","Run"
"host2",0,"","Run"
"host3",161,"","Stop"
```

In the example above, the following will be output to the "message" variable.

<Example>

```
"hostname",Return_code,"Output","Message"
"host3",161,"","Stop"
```

Notes

- This operation component confirms the operating status of the node by ping. Therefore, the node that controls the ping response by setting of firewall and OS cannot confirm operating status. Set that it can be responded to the ping.
- To check the return value, use Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When return values between 201 and 208 are output, the automated operation enters an abort or error state, and the error message is output to the following places.
 - Event log of the Management Server (When the Management Server is Windows(R))
 - System log of the Management Server (When the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in any of the above-mentioned place, and execute appropriate measures. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.12.2 Check port connection



Description

This operation component checks whether a TCP connection can be made on a port for a node (server or network device).

This operation component can be used to check whether communications can be performed using the specified port.

This operation component can be used only when the Management Server is running on Linux.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To check the port status execute on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

However, if the Management Server is on SELinux features and the operation component is executed on its Management Server, specify host name or IP address of the Management Server.

An argument error will occur if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error will occur if this limit is exceeded.

(2) port

Port number or service name of the node for which connectivity is to be checked.

If you specify a service name, check its corresponding port number registered at /etc/services on the Management Server.

Multiple port numbers or service names can be specified. You may specify the port number and service name collectively.

An argument error will occur if the port number or service name is omitted.

The maximum allowable number of port numbers or service names is 100. An argument error will occur if this limit is exceeded.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Specify the port number or service name for the node for which connectability is to be checked as follows:

Example: To check whether a connection can be made via SSH: "ssh"

Example: To check whether connections can be made via ports 22 and 25: "22","25"

Advanced Options

(1) timeout

This is the completion timeout (in seconds) for executing the operation component.

Values between 300 and 86400 (1 day) can be specified.

Example: If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(2) retry

This is the retry count for executing the operation component.

Specify the number of retry attempts to be used when the operation component terminates with return value 161. Values between 0 and 5 can be specified.

If the operation component terminates with a return value other than "161" as a result of being re-executed from a retry, the execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example: To retry twice: 2

(3) retry_interval




This is the retry interval (in seconds) for the operation component.

Specify the time to wait before a retry is attempted if the operation component terminates with return value 161. Values between 1 and 14400 can be specified.

Example: To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return Value | Description |
|---|-------------------------|--------------|--|
|  | Connection possible | 0 | Successfully confirmed the port connection. A connection can be established using the specified port. |
|  | Connection not possible | 161 | Failed to confirm the port connection. If a retry count has been specified, retries will be performed. |
|  | Failure | 196 | An option that cannot be specified when the Management Server is running on Linux or Windows has been specified. |
| | | 197 | There is an error with the input information. |
| | | 198 | There is an error with an option specification. |
| - | - | 201 | The execution of the operation component has timed out. |
| | | 202 | The operation component has not been executed due to a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the environment for the Management Server. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------|--|
| message | <ul style="list-style-type: none"> - If only one port number or service name is specified for the "port" option If the operation component checks the port connection successfully, and it is possible to connect to the port, this variable will be set to the following message. The operation component was successful. If an attempt to check the port connection fails, the content of the error will be set as a string. |

| Variable | Description |
|---------------------------|---|
| | <ul style="list-style-type: none"> - If multiple port numbers or service names are specified for the "port" option <p>If connections can be established to all ports, this variable will be set to the following message.</p> <p>The operation component was successful.</p> <p>If an attempt to check whether it is possible to connect to some or all of the ports fails, information for the ports that failed to be checked will be set using the same format as the "port_service_check_result" variable.</p> |
| port_service_check_result | This variable is set to the result of executing the connection check request on the specified server. |
| port_disconnect_list | This variable is set to a list of port numbers for which connections cannot be established. The specification is in the CSV format. |
| returnCode | This variable is set to the return value. |

The output format for the "port_service_check_result" variable is as follows:

[port],[return value],[output data],[message]

For [output data], nothing will be output.

For [message], one of the following will be output:

- If the operation component checks the port connection successfully, and it is possible to connect to the port, the string "Success" will be output .
- If the operation component fails to check the port connection, the content of the error will be output as a string.

Example) If "22,25" was specified for the "port" option, and connections were only possible for port number 22:

```
"port",Return_code,"Output","Message"
"22",0,"","Success"
"25",161,"","Connection refused."
```

In the example above, the following will be output to the "message" variable.

Example:

```
"port",Return_code,"Output","Message"
"25",161,"","Connection refused."
```

Notes

- Use SYN scan to check the ports used by this operation part.
- When checking the ports used by this operation component, the port scan may be detected as a threat by security countermeasures. Therefore, please use it within the following range.
 - Please execute this operation parts only for the business server that are target of operation/monitoring with Systemwalker Runbook Automation, when you do scan for used ports.
- When two or more portnumbers or service names are specified, the SYN scanning will be performed in a short time from the management server. Therefore, please set security countermeasures of the business server so as not to detect an abnormality even if there is multiple SYN scanning from the management server.
- To specify the name of a service for the "port" option, the service must be registered with the operating system for the Management Server. For specifiable service names, check the settings of the operating system below:
 - For Linux: /etc/services file

- For the service name, use only alphanumeric characters, hyphens ("-") and underscores ("_").
- The only protocol for which port connections can be confirmed using this operation component is TCP.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process enters an abort or error state, and error messages will be output to the following locations.
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check the messages in one of these locations, and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.13 System Operation Components

3.13.1 Obtain current date



Description

This operation component outputs the current date in the specified format.

Options

Basic Options

(1) dateformat

The output format of the current date.

Y: The year of our Lord (four digits) is output.

M: The month (two digits) is output.

D: The day (two digits) is output.

H: The hour (two digits) is output.

N: The minute (two digits) is output.

S: The second (two digits) is outputs.

It is possible to be used the above in combination. This option is not case sensitive.

For example: When the year of our Lord, the month, the day, and the hour is output: YMDH

An argument error occurs if the dateformat is omitted.

An argument error also occurs if the same character is specified more than once or if any character other than those above is specified.

Advanced Options

(1) timeout

This is the completion timeout (seconds) for the execution of operation components.

Values between 0 and 86400 (1 day) can be specified.

For example: When timeout is to occur every 10 minutes: 600

When the execution of the operation components is not completed even if the specified time passes, the processing of the operation components is stopped in return value 201.

(2) retry

This is the retry count for the execution of operation components.

Specify the count that will be retried when the operation component is finished in return value 161. Values between 0 and 5 can be specified.

When the operation components is terminated in return values other than 161 as a result of the retrying, the operation components will be terminated even if it doesn't reach the specified retry counts. The return value of the operation components returns the value executed at the end.

For example: When retries are to be performed twice: 2

(3) retry_interval



This is the retry interval (seconds) for operation components.

Specify the interval that will be retried when the operation component is terminated in return value 161. Values between 1 and 14400 can be specified.

For example: When retries are to be performed at 300 seconds interval: 300

If the specification of the "timeout", "retry", and "retry_interval" is omitted and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Success | 0 | Acquisition of the current date was successful. |
|  | Failure | 161 | Failed the acquisition of the current date. When the retry count is specified, it will be retried. |
| | | 197 | There is an error in the input information. |
| | | 198 | There is an error in the specification of the option. |
| - | - | 201 | Execution of operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute the operation components. |
| | | 203 | The operation components were not able to be executed normally. There is a problem in the Management Server environment. |
| | | 205 | The operation component was not executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component was not executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component was not executed. There is a possibility that the operation components have not been registered in the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------|---|
| message | This variable will be set to the following message if the current date/time is obtained successfully. |

| Variable | Description |
|--------------|--|
| | The operation component was successful. If an attempt to obtain the current date/time fails, the content of the error will be set as a string. |
| current_time | This variable is set to the current date and time, using the specified format. Example: If "YMDHMS" has been specified and the date/time obtained was 10:30:30 on January 1, 2010 then this variable will be set to "20100101103030". |
| returnCode | This variable is set to the return value. |

Notes

- To check the return value, use Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- When return values between 201 and 208 are output, the Automated Operation Process enters an abort or error state, and the error message is output to the following places.
 - Event log of the Management Server (When the Management Server is Windows(R))
 - System log of the Management Server (When the Management Server is Linux)
 - Custom message of BPMN

Confirm the message in any of the above-mentioned place, and execute appropriate measures. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.13.2 Compare date and time



Description

This operation component compares dates/times.

Options

Basic Options

(1) date1

Specify the first date and time. This is specified in one of the following formats.

- YYYYMMDDhhmmss format (Example: 20111231000000)
- "Date type" format (Example: Sat Dec 31 00:00:00 JST 2011)

An argument error occurs if the date and time are omitted.

"date1" and "date2" can be specified using different formats.

(2) date2

Specify the second date and time. Specify the date/time using either of the following formats.

- "YYYYMMDDhhmmss" format (Example: 20111231010000)
- "Date type" format (Example: Sat Dec 31 01:00:00 JST 2011)





An argument error occurs if the date and time are omitted.

"date1" and "date2" can be specified using different formats.

Advanced Options

None

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Old | 0 | The dates/times have been compared successfully. date1 is older than date2. |
|  | New | 1 | The dates/times have been compared successfully. date1 is later than date2. |
|  | Equal | 2 | The dates/times have been compared successfully. date1 and date2 are the same. |
|  | Failure | 197 | There is an error with the content of an option. |
| - | - | 201 | Execution of the operation component timed out. |
| - | - | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| - | - | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |
| - | - | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| - | - | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| - | - | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| - | - | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------------|---|
| Message | This variable will be set to the following message if the dates/times are compared successfully. The operation component was successful. If an attempt to compare the dates/times fails, the content of the error will be set as a string. |
| compare_result | This variable is set to the value of date1-date2. The units are seconds. <Example 1> If "20110728164130" and "20110727133000" are specified for date1 and date2 respectively 97890 <Example 2> If "20110727133000" and "20110728164130" are specified for date1 and date2 respectively -97890 |
| returnCode | This variable is set to the return value. |

Notes

- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.

- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.13.3 Set OS network



Description

This operation component sets up network definitions for servers.

After a virtual server has been created, the following definitions can be set up for the virtual server.

- If the operating system is Windows:
 - Domain name
 - Work group name
 - DNS server address
 - WINS address
- If the operating system is Linux or Solaris:
 - DNS server address

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error will occur if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error will occur if this limit is exceeded.

(2) domain

Domain name defined for the operating system.

This option can be specified only if the OS type is Windows. If the operating system is not Windows, this will be ignored.

If this option is specified, both the "domainusername" option and the "domainpassword" option must also be specified.

The maximum length of the domain name is 255 characters. An argument error will occur if this limit is exceeded.

If the domain name is omitted, the domain name will not be set up.

(3) workgroup

Workgroup name defined for the operating system.

This option can be specified only if the OS type is Windows. If the operating system is not Windows, this will be ignored.

Additionally, if the domain name is specified, the specified workgroup name will be ignored.

The maximum length of the work group name is 1,024 characters. An argument error will occur if this limit is exceeded.

If the work group name is omitted, a work group name will not be set up.

(4) interfacename

Network interface name in which the DNS server address and WINS address are defined.

This option can be specified only if the OS type is Windows. If the operating system is not Windows, this will be ignored.

The maximum length of the network interface name is 1,024 characters. An argument error will occur if this limit is exceeded.

This option cannot be omitted when setting up either a DNS server address or WINS address if the OS type is Windows.

(5) dns

DNS server address defined for the operating system.

Multiple DNS server addresses can be specified. The first address specified is set as the preferred DNS server.

The maximum allowable number of DNS server addresses is 10. An argument error will occur if this limit is exceeded.

If the operating system type is "Windows", "dns" must be specified together with "interfacename". You cannot specify "dns" alone.

When specifying the Management Server, specify the address of the Management Server instead of a loopback address.

If a DNS server address is omitted, a DNS server address will not be set up.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

(6) wins

WINS address defined for the operating system.

This option can be specified only if the OS type is Windows. If the operating system is not Windows, this will be ignored.

Multiple WINS addresses can be specified. The first address specified will be set up as the primary WINS server.

The maximum allowable number of WINS server addresses is 10. An argument error will occur if this limit is exceeded.

When specifying the Management Server, specify the address of the Management Server instead of a loopback address.

"wins" must be specified together with "interfacename". You cannot specify "wins" alone.

If a WINS address is omitted, a WINS address will not be set up.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Advanced Options

(1) domainusername

The user name for participating in the domain.

If a domain name is specified, both this option and the "domainpassword" option must also be specified.

If the domain name specification is omitted, the specification for this option will be ignored.

The maximum length of the user name is 1,024 characters. An argument error will occur if this limit is exceeded.

(2) domainpassword

The password for participating in the domain.

If a domain name is specified, both this option and the "domainusername" option must also be specified.

If the domain name specification is omitted, the specification for this option will be ignored.

The maximum length of the password is 1,024 characters. An argument error will occur if this limit is exceeded.

(3) cmdbupdate

Specify whether the defined content will be reflected in the Configuration Management Database (CMDB).

To reflect the content in CMDB, specify "on".

To avoid reflecting the content in CMDB, specify "off".

If omitted or some other value than the options listed above is specified, "off" is used by default. This option is not case sensitive.

(4) ostype

Operating system of the host executing the operation component.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the command will search the Configuration Management Database (CMDB) based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the value for the OS type that has been acquired from the CMDB.

The maximum length of the OS type is 1,024 characters. An argument error will occur if this limit is exceeded.

(5) username

Name of the user connecting with SSH to the host executing the operation component.

If the connected user name and password required for connection are not specified, the command searches the Configuration Management Database (CMDB) based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the value for the connected user name that has been acquired from the CMDB.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error will occur if this limit is exceeded.

(6) password

Password of the user connecting with SSH to the host executing the operation component.

If the connected user name and password required for connection are not specified, the command will search the Configuration Management Database (CMDB) based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the value for the connected user password that has been acquired from the CMDB.

If the connection is made using the file transfer infrastructure, the password will not take effect even if it is specified.

The maximum length of the connected user password is 1,024 characters. An argument error will occur if this limit is exceeded.

(7) execusername

Name of the user executing the command on the host executing the operation component.

If the "execusername" and "execpassword" are not specified, the command will search the Configuration Management Database (CMDB) based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the value for the administrator user that has been acquired from the CMDB.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the executing user name is 1,024 characters. An argument error will occur if this limit is exceeded.

(8) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(9) timeout

This is the completion timeout (in seconds) for executing the operation component.

Values between 300 and 86400 (1 day) can be specified.

Example: If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(10) retry

This is the retry count for executing the operation component.

Specify the number of retry attempts to be used when the operation component terminates with return value 161. Values between 0 and 5 can be specified.

If the operation component terminates with a return value other than "161" as a result of being re-executed from a retry, the execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example: To retry twice: 2

Note that the retries will not be performed if multiple network definitions have been specified, or if multiple values have been specified for each network definition.

(11) retry_interval



This is the retry interval (in seconds) for the operation component.

Specify the time to wait before a retry is attempted if the operation component terminates with return value 161. Values between 1 and 14400 can be specified.

Example: To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Successfully set up the network for the operating system. |
|  | Failure | 161 | Failed to set up the network for the operating system. If a retry count has been specified, retries will be performed. If multiple network definitions have been specified, retries will not be performed. |
| | | 174 | Saving data to the Configuration Management Database (CMDB) has failed. |
| | | 180 | Failed to set up the domain name, the workgroup name, the DNS server address or the WINS address. Check the "Return_code" column in the standard output for the return values for each setting. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When the operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection to the Business Server has been disrupted. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. |

| Icon | Name | Return value | Description |
|------|------|--------------|--|
| | | | Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error with an option specification. Alternatively, there is a problem with the information registered in the Configuration Management Database (CMDB). |
| | | 200 | Setting up the network for the operating system has terminated abnormally. |
| - | - | 201 | The execution of the operation component has timed out. |
| | | 202 | The operation component has not been executed due to a problem with the settings for executing the operation component. |
| | | 203 | Failed to execute the operation component. There is a problem with the environment for the Management Server. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|--------------------|--|
| message | This variable will be set to the following message if all of the network definitions are set successfully. The operation component was successful. If some or all of the network definition settings fail, information for the items that failed to be set will be set using the same format as the "network_set_result" variable. |
| network_set_result | This variable is set to the return values and setting results for each network definition. Each of the return values and the setting results that are set is separated by a comma (","). |
| returnCode | This variable is set to the return value. |

The output format for the "network_set_result" variable is as follows:

[definition item],[setting value],[return value],[setting result]

For *[setting result]*, one of the following will be output:

- The string "Success" will be output if definitions are set successfully.
- If an attempt to set definitions fails, the content of the error will be output as a string.

Example: If all network definitions are specified and setting the WINS address fails

```
"Item","Value",Return_code,"Result"
```

```
"domain","domain1",0,"Success"
```

```
"dns","192.0.2.0",0,"Success"
```

```
"dns", "192.0.2.1", 0, "Success"  
"wins", "192.0.2.3", 161, " Invalid interface Local Area Connection2 specified"
```

In the example above, the following will be output to the "message" variable.

Example:

```
"Item", "Value", Return_code, "Result"  
"wins", "192.0.2.3", 161, " Invalid interface Local Area Connection2 specified"
```

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using either the file transfer infrastructure or SSH communications. Specify settings so that communications can be performed using at least one of these methods. Refer to ["3.16 Notes of Each Communication Method"](#) for information on communication methods.
- Refer to ["3.16.7 Notes When Connected User And Executing User Are Different"](#) for information on different connected and executing users.
- At least one of the following network definitions must be specified:
 - Domain name
 - Work group name
 - DNS server address
 - WINS address
- It is not possible to set up work group names for servers that participate in domains. An error will occur if an attempt is made to set up a work group name.
- This operation component uses the netdom command to set up a domain. For Windows Server 2003, this command is included in the support tool. To set up a domain for Windows Server 2003 servers, install the support tool in advance. There is no need to install the support tool for Windows Server 2008 and Windows Server 2012.
- If "on" is specified for the cmdbupdate option, an error with return value "174" will occur if the information for the server specified by the hostname option has not been registered in the CMDB.
- Operations are carried out for the following files if defining the network using this operation component:
 - If the relevant host is Linux:
 - /etc/resolve.conf
 - If the relevant host is Solaris:
 - /etc/resolve.conf (if the file does not exist, this operation component will create it. To validate the DNS registration, restart the relevant host.)
 - /etc/nsswitch.conf
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details. If a return value between 201 and 208 has been output, the Automated Operation Process enters an abort or error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check the messages in one of these locations, and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.13.4 Install software



Description

This operation component installs software on servers.

This operation component installs software for which silent installations are possible.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error will occur if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error will occur if this limit is exceeded.

(2) commandline

Command line (alongside its arguments) to install the software.

Either a full path or relative path can be used for command names and arguments.

If the command name includes path information, specify as shown below. However, if the arguments for the command specified in the commandline option include path information, follow the specification for the command.

- Change the path delimiter from "\" to "/".
- Enclose the path information in double quotes.
- If the Business Server is running on Windows and the connection is established using the file transfer infrastructure and the path includes percent symbols ("%"), then repeat the percent symbols twice ("%%").

For command names with the ".bat" or ".cmd" extensions, specify the extension as well. Behavior is not guaranteed unless the extension is specified.

An argument error will occur if the command name and arguments are omitted.

The maximum length of the command name and arguments is 8,000 characters. An argument error will occur if this limit is exceeded.

An error will occur if an interactive command is executed.

Advanced Options

(1) sourcehostname

Host name or IP address of the server from which the software installation files are to be transferred.

To set the Management Server, as the transfer source, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

This option can only be specified if sourcefile and destinationfile are specified.

This option and the sourcefile and destinationfile options can be omitted if the installation file already exists on the host where the software is to be installed. If omitting, omit all three.

The maximum length of the host name or IP address is 1,024 characters. An argument error will occur if this limit is exceeded.

(2) sourcefile

Name (full path) of the software installation file.

If there are multiple installation files, specify the name (full path) of the folder (directory) in which they are stored.

This option can only be specified if sourcehostname and destinationfile are specified.

This option and the sourcehostname and destinationfile options can be omitted if the installation files already exist on the host where the software is to be installed. If omitting, omit all three.

The maximum length of the file name is 255 characters. An argument error will occur if this limit is exceeded.

(3) destinationfile

Name (full path) of the installation destination software installation file.

If the folder (directory) name was specified for the source installation file, specify the name (full path) of the folder (directory).

This option can only be specified if sourcehostname and sourcefile are specified.

This option, sourcehostname option, and sourcefile option can be omitted if the installation files already exist on the host where the software is to be installed. If omitting, omit all three.

The maximum length of the file name is 255 characters. An argument error will occur if this limit is exceeded.

(4) ostype

Operating system of the host executing the operation component.

Specify Windows, Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the command will search the Configuration Management Database (CMDB) based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the value for the OS type that has been acquired from the CMDB.

The maximum length of the OS type is 1,024 characters. An argument error will occur if this limit is exceeded.

(5) username

Name of the user connecting with SSH to the host executing the operation component.

If the connected user name and password required for connection are not specified, the command searches the Configuration Management Database (CMDB) based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the value for the connected user name that has been acquired from the CMDB.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error will occur if this limit is exceeded.

(6) password

Password of the user connecting with SSH to the host executing the operation component.

If the connected user name and password required for connection are not specified, the command will search the Configuration Management Database (CMDB) based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the value for the connected user password that has been acquired from the CMDB.

If the connection is made using the file transfer infrastructure, the password will not take effect even if it is specified.

The maximum length of the connected user password is 1,024 characters. An argument error will occur if this limit is exceeded.

(7) execusername

Name of the user executing the command on the host executing the operation component.

If the "execusername" and "execpassword" are not specified, the command will search the Configuration Management Database (CMDB) based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the value for the administrator user that has been acquired from the CMDB.

If not to register to CMDB, it is executed by name of the user connecting.

If the host specified in "hostname" is running on Windows and it connects with file transfer infrastructure, execute the command as a SYSTEM user. In this case, the connected user name is invalid.

The maximum length of the executing user name is 1,024 characters. An argument error will occur if this limit is exceeded.

(8) execpassword

This operation component does not use the value of "execpassword". The value of "execpassword" is ignored even if specified.

(9) sourceostype

OS type of the file transfer source host.

Specify either Windows or Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the command will search the Configuration Management Database (CMDB) based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the value for the OS type that has been acquired from the CMDB.

The maximum length of the OS type is 1,024 characters. An argument error will occur if this limit is exceeded.

(10) sourceusername

Name of the user connecting with SSH to the file transfer source host.

If the connected user name and password required for connection are not specified, the command will search the Configuration Management Database (CMDB) based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the value for the connected user name that has been acquired from the CMDB.

If the operation component connects with the file transfer infrastructure, "sourceusername" will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error will occur if this limit is exceeded.

(11) sourcepassword

Password of the user connecting with SSH to the file transfer source host.

If the connected user name and password required for connection are not specified, the command will search the Configuration Management Database (CMDB) based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the value for the connected user password that has been acquired from the CMDB.

If the connection is made using the file transfer infrastructure, the password will not take effect even if it is specified.

The maximum length of the connected user password is 1,024 characters. An argument error will occur if this limit is exceeded.

(12) timeout

This is the completion timeout (in seconds) for executing the operation component.

Values between 300 and 86400 (1 day) can be specified.

Example: If the completion timeout is 10 minutes: 600

If the operation component has not finished executing when the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(13) retry

This is the retry count for executing the operation component.

Specify the number of retry attempts to be used when the operation component terminates with return value 161. Values between 0 and 5 can be specified.

If the operation component terminates with a return value other than "161" as a result of being re-executed from a retry, the execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example: To retry twice: 2

(14) retry_interval



This is the retry interval (in seconds) for the operation component.


Specify the time to wait before a retry is attempted if the operation component terminates with return value 161. Values between 1 and 14400 can be specified.

Example: To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Successfully installed the software. |
|  | Failure | 161 | Failed to install the software. If a retry count has been specified, retries will be performed. |
| | | 177 | Failed to access the installation file. |
| | | 178 | The program that was being executed by the command has terminated abnormally. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When the operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection to the Business Server has been disrupted. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error with an option specification, or there is a problem with the information registered in the Configuration Management Database (CMDB). |
| - | - | 200 | Installing the software has terminated abnormally. |
| | | 201 | The execution of the operation component has timed out. |
| | | 202 | The operation component has not been executed due to a problem with the settings for executing the operation component. |
| | | 203 | Failed to execute the operation component. There is a problem with the environment for the Management Server. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |
|  | Failure | Other | This is the return value for the command. |

Output information

| Variable | Description |
|------------------------|--|
| message | This variable will be set to the following message if the software is installed successfully. The operation component was successful. If an attempt to install the software fails, the content of the error will be set as a string. |
| install_command_stdout | This variable is set to the standard output for the installation command. |
| install_command_stderr | This variable is set to the standard error output for the installation command. |
| install_command_rcode | This variable is set to the return value for the installation command. |
| returnCode | This variable is set to the return value. |

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using the file transfer infrastructure or SSH communications. Specify settings so that communications can be performed using at least one of these methods. Refer to "[3.16 Notes of Each Communication Method](#)" for information on communication methods.
- Refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)" for information on different connected and executing users.
- If a folder (or directory) has been specified for the installation file, this operation component will compress the files in the specified folder (or directory) before sending the archive file to the host where the software is to be installed. While the processing for this operation component is being performed, an archive file is temporarily created in the folders (or directories) specified for the sourcefile and destinationfile options.
- If a folder (or directory) that does not exist is specified for the software installation file on the source host and the software installation file on the destination host, an error will occur with return value "177".
- If the installation file is a self-extracting file, extract the file beforehand.
- The installation file that is sent to the host where the installation is performed is not deleted even after the processing for this operation component has completed.
- Even if the software need to reboot the OS automatically are installed, operation components are exited normally.
- This operation component may take a long time to execute, depending on the software being installed. For this reason, set an appropriate value for the "timeout" option so that the operation component does not time out abruptly.
- For the name of the installation file, use only alphanumeric characters and white space and full width characters, and the symbols below:
"! " ~ " _ " _ " _ "
- When SSH communications are performed on the server where the software is to be installed, the results of the operation component cannot be guaranteed if Japanese text is specified for the "commandline" option. To specify Japanese, install an RBA Agent on the server where the software is to be installed.

- Systemwalker Runbook Automation uses return values between 159 and 240. Return values outside this range and unused return values within the range are values output by the installation command rather than values set by Systemwalker Runbook Automation. Investigate the command itself.
- If a command that does not exist is specified for the commandline option, an error with return value 42 may occur.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process enters an abort or error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check the messages in one of these locations, and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.13.5 Install OS update



Description

This operation component applies updates to the operating system of the specified host.

If the operating system of the specified host is Windows, install Windows Update and Microsoft Update via WSUS. Also, apply update patches to the operating system of the specified host from the host where they are stored.

If the operating system of the specified host is Linux, apply RPM package for installed packages via the yum repository server.

Options

Basic Options

(1) hostname

Target host name or IP address where the operation component will be executed.

To execute the operation component on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

An argument error occurs if the host name or IP address is omitted.

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(2) patch_kind

This is the install updates method.

wsus: Install updates using the Windows Server Update Services (WSUS).

yum: Install updates using the Yellowdog Updater, Modified (YUM) repository server.

mod: Install updates stored in the directory specified in the mod_targetdir option.

If nothing was specified, the following settings will be used. This option is not case sensitive.

- If Windows is specified in the ostype option: wsus
- If Linux is specified in the ostype option: yum

An argument error will occur if a value other than "wsus", "yum" and "mod" is specified.

The maximum length of the string for "patch_kind" is 1,024 characters. An argument error occurs if this is exceeded.

(3) mod_targetdir

This is the full path of the directory used for storing the updates on the server which installs the updates.

This is only required if "mod" has been specified for the 'patch_kind' option.

If something other than "mod" has been specified for the 'patch_kind' option, specifying "mod_targetdir" will be invalid.

The maximum length of the string for "mod_targetdir" is 1,024 characters. An argument error occurs if this is exceeded.

(4) mod_stragehost

This is the host name or IP address used to store the updates.

This is only required if "mod" has been specified for the 'patch_kind' option.

If something other than "mod" has been specified for the 'patch_kind' option, specifying "mod_stragehost" will be invalid.

If the updates are stored on the Management Server, specify the following:

- For IPv4: 'localhost' or '127.0.0.1'
- For IPv6: 'localhost' or '::1'

The maximum length of the host name or IP address is 1,024 characters. An argument error occurs if this is exceeded.

(5) mod_stragedir

This is the full path of the directory on the server used to store the updates specified in mod_stragehost.

This is only required if "mod" has been specified for the 'patch_kind' option.

If something other than "mod" has been specified for the 'patch_kind' option, specifying "mod_stragedir" will be invalid.

The maximum length of the string for "mod_stragetdir" is 1,024 characters. An argument error occurs if this is exceeded.

- Note: Store updates in the directory specified by the "mod_stragedir" in the same format as they are downloaded from the Microsoft Download Center.

<Example>

<mod_stragedir>\Windows6.0-KB2522422-x86.msu

(6) mod_patchfilename

This is the install update file name.

This is only required if "mod" has been specified for the 'patch_kind' option.

If something other than "mod" has been specified for the 'patch_kind' option, specifying "mod_patchfilename" will be invalid.

The upper limit for the number of update files is 100. If this number is exceeded, an argument error occurs.

An argument error also occurs if duplicate update patch files are specified.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Apply updates in the specified file name order.

Advanced Options

(1) wsus_patchno

Specify an update number (starting with KB) or an update program ID (8 alphanumeric characters-4 alphanumeric characters-4 alphanumeric characters-12 alphanumeric characters. Note that "-" is a hyphen. Use alphabets from A through F. This option is not case sensitive.)

An argument error occurs if the update number and the update program ID are, collectively, specified.

This is only valid when wsus has been specified for the 'patch_kind' option.

If something other than "wsus" has been specified for the 'patch_kind' option, specifying "wsus_patchno" will be invalid.

A maximum of 100 update numbers or update IDs can be specified. If this number is exceeded, an argument error occurs.

An argument error also occurs if duplicate update patch numbers or update program IDs are specified.

The specification is in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

If the "wsus_patchno" option is specified, the specification for the "wsus_type" option will not take effect.

If the "wsus_patchno" option is omitted, the operation component will follow the specification for the "wsus_type" option.

Example: Specifying five update patch numbers (KB000001 through KB000005)

"KB000001","KB000002","KB000003","KB000004","KB000005"

(2) wsus_type

This is the update type which is installed using wsus.

This is only valid when wsus is specified for the patch_kind option and wsus_patchno is omitted.

If something other than "wsus" has been specified for the 'patch_kind' option, specifying "wsus_type" will be invalid.

This option will not take effect if an update patch number or update program ID is specified using the "wsus_patchno" option.

software: Applies software updates.

driver: Applies driver updates.

all: Applies both software updates and driver updates.

If nothing was specified, the setting will be "all". This option is not case sensitive.

An argument error will occur if a value other than "software", "driver" and "all" is specified.

(3) yum packagename

The name of the install package.

It is only valid if "yum" is specified for the "patch_kind" option.

If something other than "yum" has been specified for the patch_kind option, specifying "yum_packagename" will be invalid.

A maximum of 100 packages can be specified. An argument error occurs if this limit is exceeded.

If duplicated package names are specified, an argument error will occur.

Specifications are in CSV format. Refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)" for examples of multiple specifications.

Application order execution may be switched according to specified package names.

If this option is omitted, all updatable packages will become relevant.

[Format 1] if applying the most recent updates, specify using the following formats:

<name><architecture>

For example, if applying the most recent four patches, with the package names: openssh.i386, openssh-askpass.i386, openssh-clients.i386, and openssh-server.i386:

"openssh.i386", "openssh-askpass.i386", "openssh-clients.i386", "openssh-server.i386"

[Format 2] if applying specific versions or release updates, specify using the following formats:

<name>/<epoch number>:<version number>/<release number>/<architecture>

Alternatively,

<name><version number>/<release number>/<architecture>

For example, if applying release patches for four specific versions, with the package names: openssh.i386, openssh-askpass.i386, openssh-clients.i386, and openssh-server.i386:

"openssh/4.3p2/41.el5/i386", "openssh-askpass/4.3p2/41.el5/i386", "openssh-clients/4.3p2/41.el5/i386", "openssh-server/4.3p2/41.el5/i386"

(4) ostype

This is the operating system type for the host which installs the update.

Specify Windows or Linux. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

An argument error will occur if an operating system type other than "Windows" or "Linux" is specified.

If anything other than "Windows" is specified when the patch_kind is specified as "wsus" or "mod", an argument error will occur.

If anything other than "Linux" is specified when the patch_kind is specified as "yum", an argument error will occur.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(5) username

Name of the SSL user connecting to the host which installs the update.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) is searched based on the specified host name or IP address and Systemwalker Runbook Automation automatically sets the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(6) password

Specify the password of the SSL user connecting to the host which installs the update.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the acquired connected user password as the value.

If it connects with the file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(7) mod_strage_ostype

This is the operating system type for the host which stores the update.

Specify Windows or Linux or Solaris. This option is not case sensitive.

If the OS type is omitted, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired OS type as the value.

The maximum length of the OS type is 1,024 characters. An argument error occurs if this is exceeded.

(8) mod_strage_username

Name of the SSL user connecting to the host which stores the update.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the acquired connected user name as the value.

If the operation component connects with the file transfer infrastructure, "mod_strage_username" will be fixed at the following name and cannot be changed. In this case, the user name is ignored even if specified.

- If the updates are stored on a host running Windows: SYSTEM user
- If the updates are stored on a host running Linux or Solaris: root

The maximum length of the connected user name is 1,024 characters. An argument error occurs if this is exceeded.

(9) mod_strage_password

Specify the password of the SSL user connecting to the host which stores the update.

If the connected user name and password required for connection are not specified, the Configuration Management Database (CMDB) will be searched based on the specified host name or IP address, and then Systemwalker Runbook Automation will automatically set the acquired connected user password as the value.

If it connects with the file transfer infrastructure, the connected user password is invalid.

The maximum length of the connected user password is 1,024 characters. An argument error occurs if this is exceeded.

(10) patchexecusername

The user name for executing the command on the target host where the operation component is to be executed.

If the execution user name is omitted, the Configuration Management Data Base (CMDB) will be searched based on the specified host name or IP address, and Systemwalker Runbook Automation automatically sets the acquired management user as the value. If not registered in CMDB, it is executed using the connected user name.

This is only valid if "Linux" is specified for the "ostype" option.

If something other than "Linux" has been specified for the ostype option, specifying "patchexecusername" will be invalid.

The maximum length of the execution user name is 1,024 characters. An argument error occurs if this limit is exceeded.

(11) timeout

Specify the completion timeout (in seconds) for executing the operation component.

Values between 300 and 86400 (1 day) can be specified.

Example) If the completion timeout is 10 minutes: 600

If the operation component has not finished executing even though the specified time has passed, the processing for the operation component will be interrupted with return value 201.

(12) retry

This is the retry count for the execution of operation components.

Specify the number of retry attempts to be used when operation components terminate with return value 161. Values between 0 and 5 can be specified.

If an operation component terminates with a return value other than "161" as a result of being re-executed from a retry, execution of the operation component will terminate even if the specified number of retries has not been reached. The return value for the operation component will be the value from the last time the operation component was executed.

Example) To retry the operation component twice: 2

(13) retry_interval




This is the retry interval (seconds) for operation components.

Specify the time to wait before a retry is attempted if operation components terminate with return value 161. Values between 1 and 14400 can be specified.

Example) To retry at 300 second intervals: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to ["2.5 Definition File for Operation Components"](#) for details.

Return Values

| Icon | Name | Return value | Description |
|---|------------------|--------------|---|
|  | Success | 0 | The update has been applied successfully. |
|  | Success(restart) | 1 | The server needs to be restarted. |
|  | Failure | 161 | An error has occurred during the processing of communications with the Business Server. If a retry count has been specified, retries will be attempted. |

| Icon | Name | Return value | Description |
|------|------|--------------|---|
| | | 171 | Application of one or more updates failed. |
| | | 172 | The server needs to be restarted and application of one or more updates failed. |
| | | 173 | There was a failure in the yum command during preparation prior to application. |
| | | 187 | Authentication failed when an attempt was made to connect to the Business Server over the network (using SSH). Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 188 | When an operation component was performing an operation on a Business Server where an RBA Agent has not been installed, an SSH network connection with the Business Server was closed. |
| | | 189 | An attempt to connect to the Business Server over the network (using SSH) failed. Alternatively, an error occurred during the processing of communications with the Business Server (file transfer infrastructure). In this case, the error code for the file transfer infrastructure is output to the execution results. Refer to " 3.21 Detailed Code of File Transfer Infrastructure " for information on error codes. |
| | | 197 | There is an error with the content of an option. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| | | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |
| | | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| | | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| | | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| | | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------|----------------------------|
| message | - If terminating normally: |

| Variable | Description |
|--------------------|--|
| | <p>This variable will be set to the following message if updates are successfully applied to all of the servers.</p> <p>The operation component was successful.</p> <ul style="list-style-type: none"> - If terminating abnormally: Set the error content as a string. <p>If processing of all specified updates is executed, and one fails to be applied, then output format and output examples are as shown below. See the Microsoft homepage for details of error content "codes".</p> <ul style="list-style-type: none"> - If the server applying the updates is running Windows: Failed to install the update. Detail="update number (code), update number (code)" [Output example] Failed to install the update. Detail="KB00001(0x8024402c), ..." - If the server applying the updates is running Linux: Failed to install the update. Detail="package name(error message), package name(error message)" [Output example] Failed to install the update. detail="openssh.i386 (Error: Missing Dependency: openssh.i386 >=1.0 is needed by package openssh-askpass.i386 (Server)),..." |
| execution_result | <p>The result of applying the updates is stored in this variable.</p> <ul style="list-style-type: none"> - The result is output in the following format: [RC (return code applied to update), [Patch No (applied update number)], [Message (message)]] |
| failure_patchlist | <p>If the process of applying updates fails, is cancelled, or does not exist in a usable list, the following information will be output in CSV format. Output is in the order specified in the options.</p> <p>Updates output to the "notexist_patchlist" are included.</p> <ul style="list-style-type: none"> - If the value of "patch_kind" is "wsus": The update patch number or update program ID - If the value of the "patch_kind" is "yum": package name - If the value of "patch_kind" is "mod": The file name of the update patch |
| notexist_patchlist | <p>If the specified update does not exist in the executable list returned by "wsus", the following is output in CSV format. Output in the order specified in options.</p> <p>patch number or update program ID</p> |
| returnCode | <p>This variable is set to the return value.</p> |

Output format for execution_result is as follows:

[RC(update application return code)], [PatchNo(applicable update number)], [Message(message)]

If the server applying the updates is running Windows:

If updates are applied to the wsus_patchno options as specified below:

"KB000001", "KB000002", "KB000003", "KB000004", "KB000005"

The following is output:

<Example>

RC, Patch No, Message

0, KB000001, "The update was installed normally."

- 2, KB000002, "Failed to install the update."
- 3, KB000003, "Installation of the update was interrupted."
- 4, KB000004, "The specified update does not exist."
- 1, KB000005, "The update was installed normally, however it is necessary to restart the server."

The meaning of RC (update application return code) and Message (message) are as follows:

- 0: The update was applied normally.
- 1: The update was applied normally but the server needs to be restarted.
- 2: Failed to apply the update.
- 3: Application of the update was cancelled.
- 4: The specified update does not exist.

If the patch_kind value is "wsus", the update number or the update program ID will be output to PatchNo (applied update number).

If the patch_kind value is "mod", the update file name will be output to PatchNo (applied update number).

If the server applying the updates is running Linux:

If updates are applied to the "yum_packagename" options as per the following specifications:

"openssh.i386", "openssh-askpass.i386", "openssh-clients.i386", "openssh-server.i386"

The following is output:

<Example>

RC, Patch No, Message

- 0, openssh.i386, "The update was installed normally."
- 1, openssh-askpass.i386, "Failed to install the update."
- 2, openssh-clients.i386, "Installation of the update was interrupted."
- 3, openssh-server.i386, "The specified update does not exist."

The meaning of RC (update application return code) and Message (message) are as follows:

- 0: The update was applied normally.
- 1: Failed to apply the update.
- 2: Application of the update was cancelled.
- 3: The specified update does not exist.

If the patch_kind value is "yum", the package name will be output to PatchNo (applied update number).

Notes

- If information other than the Management Server is entered for the "hostname" or "mod_stragehost" option, this operation component will execute actions using either the file transfer infrastructure or SSH communications. Specify settings so that communications can be performed using at least one of these methods. Refer to "3.16 Notes of Each Communication Method" for information on communication methods.
- This operation component may take a long time to execute when there are a number of updates to be applied, or when the communication speed is slow. For this reason, set an appropriate value for the "timeout" parameter.
- If an update that has already been applied is applied again, it will terminate normally.
- For the file name of the update to be applied, use only alphanumeric characters and white space and full width characters, and the symbols below:
Symbols that can be used: "!" "~" "_" "-" "."
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

Notes if the server applying the updates is running Windows:

- To apply updates via WSUS, first configure the WinHTTP proxy settings for the server where the updates are to be applied. Use the following procedure to configure the WinHTTP proxy settings.

1. Configure the proxy settings by executing either the netsh or proxycfg commands (Windows commands) from the command prompt.

[Execution example for Windows Server 2008 or Windows Server 2012]

```
netsh winhttp set proxy proxy-server="<servername>:<port number>" bypass-list="<bypass-list>"
```

[Execution example for Windows Server 2003]

```
proxycfg -p "<servername>:<port number>" "<bypass-list>"
```

For <servername>, specify the name of the proxy server.

For <port number>, specify the port number of the proxy server.

For <bypass-list>, use semicolons to separate and specify hosts that have direct access and do not use proxy servers.

2. Type the following command from the command prompt to restart the Automatic Updates service.

```
net stop wuauaserv
net start wuauaserv
```

- On the server where the updates are applied, the operating system records the execution status of the updates and stores this information in the "WindowsUpdate.log" file in the folder specified by the "windir" environment variable.
- If the execution of the operation component times out, the operation process is suspended, but the processing for applying the updates continues. In this case, refer to the WindowsUpdate.log file on the server where the updates are being applied to check whether the update processing has completed. If "reboot required = Yes" is recorded in the WindowsUpdate.log file, restart the server.

Notes if the server applying the updates is running Linux:

- The "yum" repository server environment is required before operation. Build the "yum" repository server within the intranet.
- When applying updates via the "yum" repository server, specify the "yum" settings on the server (where the updates will be applied) before applying the updates, as follows:

1. Settings files related to the "yum" repository server are created in the following directory:

```
/etc/yum.repos.d
```

2. Settings files are created with the following content:

Describe "VT", "Cluster", "Cluster Storage" if necessary. They are not necessary for the basic package.

```
[Server]                                     <=Repository ID (unspecified names are made unique)
name=RHELT Server                            <=change to unspecified names so that the
meaning of Repository is understood)
baseurl=ftp://10.0.0.1/pub/i386/RHEL5.1/Server <=Directory for the yum repository to be
accessed (ftp)
enable=1                                     <=validity/invalidity of obtaining the
package (not obtained if 0)
gpgcheck=0                                  <= whether or not to check GPG key (overwrite
yum.conf)

[VT]
name=RHEL5 VT
baseurl=ftp://10.0.0.1/pub/i386/RHEL5.1/VT
enabled=1
gpgcheck=0

[Cluster]
```

```

baseurl=ftp://10.0.0.1/pub/i386/RHEL5.1/Cluster
enabled=1
gpgcheck=0

[ClusterStorage]
baseurl=ftp://10.0.0.1/pub/i386/RHEL5.1/ClusterStorage
enabled=1
gpgcheck=0

```

- The four types of command below are executed as pre-application preparation. If there is an error when these commands are executed, the return value will be 173.

```

yum clean all           (cache clear)
yum list installed     (acquisition of list of installed packages)
yum list updates       (list of applicable updates)
yum deplist            (acquisition of dependency)

```

- Clears the cache of previously installed updates before applying new updates on the server where updates are to be applied.
- The actual status of update applications is recorded on the server where the updates are to be applied, in the "yum.log" file in the /var/log directory.
- If there are packages amongst the specified packages with a dependency, applies those package updates simultaneously. For that reason, install dependent packages beforehand. Check application results of dependent package updates in the "yum.log" file in the /var/log directory.
- If execution of the operation component times out, although the operation process is cancelled, processing for applying updates continues. In such a case, see the "yum.log" file on the server where updates are to be applied to check whether application of updates is completed.
- The software requirements for the "yum" repository server are for the following. Use the installed "yum" package for the following software:
 - Red Hat Enterprise Linux 5.0 - 5.7
 - Red Hat Enterprise Linux 6.0 - 6.2

3.14 Operation Process Control Components

3.14.1 Check that the specified time has elapsed



Description

This operation component repeats processing within an Automated Operation Process.

This component checks whether the specified time has elapsed since the first time it was executed. If the specified time has not yet elapsed, the component waits for a certain period of time.

Options

Basic Options

(1) iteration_duration

This is the repeated duration time (in seconds).

An argument error occurs if the repeated duration time is omitted.

Values between 30 and 86400 (1 day) can be specified.

Example) To repeat for one hour: 3600

An argument error will occur if any value outside the above range is specified.

(2) iteration_sleep_time

This is the repeated processing wait time (in seconds).

Waits for the specified time to elapse.

An argument error occurs if the repeated processing wait time is omitted.

Values between 0 and 600 (10 minutes) can be specified.




An argument error will occur if any value outside the above range is specified.

If waiting for the sleep time to elapse will result in the duration time being exceeded, the sleep status will be canceled at the point when the duration time is reached.

Advanced Options

None

Return Values

| Icon | Name | Return value | Description |
|---|--------------------|---|--|
|  | Inside time limit | 0 | The end of the repetition time period has not yet been reached. |
|  | Outside time limit | 1 | The end of the repetition time period has passed. |
| - | - | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| - | - | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |
| - | - | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| - | - | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| - | - | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| - | - | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |
|  | Failure | Values from 159-240 other than those listed above | This is the return value used by Systemwalker Runbook Automation. |

Output information

| Variable | Description |
|----------|---|
| message | If processing is still continuing during the duration period, this variable will be set to the following message. The iteration continues. |

| Variable | Description |
|------------------|---|
| | <p>If the duration period for repetition processing has passed, this variable will be set to the following message.</p> <p>The duration is over.</p> <p>If the operation fails, the content of the error will be set as a string.</p> |
| first_start_time | This variable is set to the starting time (in "yyyyMMddHHmmss" format) for ongoing processing. This is the time when the processing first takes place. |
| returnCode | This variable is set to the return value. |

Notes

- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 202 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.14.2 Sort strings



Description

This operation component reorders delimiter-separated strings in the name order.

Options

Basic Options

(1) string

These are strings which are separated by a delimiter.

An argument error will occur if strings are omitted.

A maximum of 100 strings can be separated by a delimiter and specified. If this number is exceeded, an argument error occurs.

Strings that run over multiple lines (separate by line feed characters) can be specified.

Strings that do not end in a line feed character and single strings that end in a line feed character are treated as a single line.

(2) delimiter

This is the delimiter used to separate the strings.

The following can be specified as delimiters: Symbols, spaces, tabs, and line feeds. However, double quotes cannot be specified. Spaces are specified as "\s", tabs are specified as "\t", and line feeds are specified as "\n" or "\r\n".

If the delimiter was omitted, a comma (",") will be used by default.

Only one delimiter can be specified. An argument error will occur if multiple delimiters are specified.

Also, if the string specified for the "string" option has multiple lines, only the line feed character can be specified as the delimiter. An argument error occurs if a value other than the line feed character is specified.

Advanced Options

(1) reverse



Specify ascending order/descending order.

To sort in descending order, specify "on".

To sort in ascending order, specify "off".

The default value is "off". This option is not case sensitive.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Success | 0 | The delimiter-separated strings have been reordered successfully. |
|  | Failure | 197 | There is an error with the content of an option. |
| - | - | 201 | Execution of the operation component timed out. |
| - | - | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| - | - | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |
| - | - | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| - | - | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| - | - | 207 | The operation component has not been executed. The operation component may not have been registered on the Management Server. |
| - | - | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|------------|---|
| message | This variable will be set to the following message if the strings are reordered successfully. The operation component was successful. If an attempt to reorder the strings fails, the content of the error will be set as a string. |
| string | This variable is set to the reordered string. <Example> If "server1,_server2,3server,server4" is specified for the "string" option: "_server2,3server,server1,server4" |
| returnCode | This variable is set to the return value. |

Notes

- To include both delimiter characters and double quotes in the string specified for the "string" option, enclose the string in double quotes. Also, if the string includes double quotes ("), enter two consecutive double quotes. Entering two consecutive double quotes expresses one double quote symbol.
- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.

- If a return value between 201 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.14.3 Store data as execution results



Description

This operation component stores the data specified in the input data as an execution result in the output data. This component is used to filter data and store it in user defined attributes.

Options

Basic Options

(1) input1

This is a string stored in the output information.

An argument error will occur if strings are omitted.

The specified string is stored in "result1" of the output information.

(2) input2

This is a string stored in the output information.

The specified string will be stored in the "result2" output data.

If this option is omitted, nothing will be stored in the corresponding output data.

(3) input3

This is a string stored in the output information.

The specified string will be stored in the "result3" output data.

If this option is omitted, nothing will be stored in the corresponding output data.

(4) input4

This is a string stored in the output information.

The specified string will be stored in the "result4" output data.

If this option is omitted, nothing will be stored in the corresponding output data.

(5) input5

This is a string stored in the output information.


The specified string will be stored in the "result5" output data.

If this option is omitted, nothing will be stored in the corresponding output data.

Advanced Options

None

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|--|
|  | Success | 0 | The execution results have been stored successfully. |
| - | - | 202 | The operation component has not been executed. There is a problem with the settings for executing the operation component. |
| - | - | 203 | The operation component has not been executed normally. There is a problem with the Management Server environment. |
| - | - | 205 | The operation component has not been executed. There is a problem with the input information specification of the operation component. |
| - | - | 206 | The operation component has not been executed normally. There is a problem with the output information specification of the operation component. |
| - | - | 208 | The Automated Operation Process has been canceled because the Automated Operation Process was recovered while the operation component was executing. |

Output information

| Variable | Description |
|----------|---|
| result1 | This variable is set to the data specified for the "input1" option. |
| result2 | This variable is set to the data specified for the "input2" option. |
| result3 | This variable is set to the data specified for the "input3" option. |
| result4 | This variable is set to the data specified for the "input4" option. |
| result5 | This variable is set to the data specified for the "input5" option. |

Notes

- Use the Web console to check the return value. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value between 202 and 208 has been output, the Automated Operation Process will enter an aborted state or an error state, and error messages will be output to the following locations:
 - Event logs for the Management Server (if the Management Server is running on Windows(R))
 - syslogs for the Management Server (if the Management Server is running on Linux)
 - Custom messages for BPMN

Check for messages in these locations and take the appropriate action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.14.4 Register Schedule Definitions



Description

Registers the scheduled definition that will start the automated operation process. With this operation component, you can check and update registered scheduled definitions from the scheduled definition screen. Also, from the process status screen, performance management of the execution status is possible.

Options

Basic Options

(1) process_definition

Name of the automated startup operation process. Specify up to 64 characters. Only automated operation processes within the same process group can be specified.

In the following cases, an error will occur:

- If the automated operation process is omitted
- If there is not the permission to start the specified automated operation process
- If a nonexistent automated operation process has been specified

(2) schedule_definition_name

Schedule Definition name. Specify up to 50 characters.

The following characters, whitespace, and user defined characters cannot be included. Also, # cannot be specified as the first character:

? \ * " < > | / : ; , ' .

In the following cases, an error will occur:

- If the same Schedule Definition or Schedule Pattern as the specified Schedule Definition name already exists in the process group
- If invalid characters are specified
- If a Schedule Definition name of more than 50 characters is specified

(3) startup_day

Specifies startup day. Specify using the format yyyyymmdd. A date up to three years into the future from the process instance startup date can be specified.

In the following cases, an error will occur:

- If the startup day is omitted
- If an incorrect format is specified
- If an incorrect date is specified

(4) startup_time

Startup time. Specify using the format hhmm. The valid range is from 0000 to 2359. Startup will occur on the date set in (3) at the time set in (4). If specified in an incorrect format, an error will occur.

Advanced Options

(1) param

The value set for the UDA at the startup time of the automated operation process. Set in the format uda name=value. If carrying out multiple settings, set in CSV format. For input formats and cautions, refer to "[3.17 Notes on Specifying Multiple Input Parameters](#)".

(2) memo

Explanations for the Schedule Definitions. Specify up to 128 characters. If the limit of 128 bytes is exceeded, an error will occur.

(3) estimatedtime

Execution estimation time. The valid range is from 1 to 9999 (minutes). If this is omitted, the value will be set to 15 (minutes). If a value other than 1 to 9999 is set, an error will occur.

(4) timeout

Completion timeout (in seconds) for the execution of operation components.

The valid range is from 300 to 86,400 (1 day).

For example, this is the completion timeout for 10 minutes: 600

If the execution of the operation component is not completed even after the specified time is exceeded, the operation component process will be suspended with a return value of 201.

(5) retry

Retry count for the execution of operation components.

If the operation component terminates with a return value of 161, it specifies the number of times startup is to be retried. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended with return values other than 161, the execution of the operation component ends even if it doesn't reach the specified retry count. The return values of the operation component become the value executed at the end.

For example: When retries are to be performed twice: 2

(6) retry_interval



Retry interval (seconds) for operation components.

If the operation component ends with a return value of 161, the startup retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If specification of timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "[2.5 Definition File for Operation Components](#)" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Schedule Definitions successfully registered. |
|  | Failure | 161 | Schedule Definitions registration failed. Retry if a retry count has been specified. |
| | | 171 | You do not have the permissions to start the specified process definition. |
| | | 172 | A schedule or Schedule Pattern with the same name already exists. |
| | | 173 | The specified process definition does not exist or is not public. |
| | | 197 | There is an error in the option content. |
| | | 200 | Schedule Definitions registration failed. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Management Server environment. |
| | | 205 | The operation component was not executed. There is a problem in the operation component input information specification. |
| | | 206 | The operation component was not executed normally. There is a problem in the operation component output information specification. |
| | | 207 | The operation component was not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been cancelled because the Automated Operation Process was recovered while the operation component was executing. |

Output Information

| Variable | Description |
|------------------|---|
| message | If registration of Schedule Definitions is successful, set the following message: The operation component was successful. If Schedule Definition registration failed, the error content is set as a string. |
| result | Set the Schedule Definition ID and Schedule Definition name as a result of registration. Output example: schedule_definition_id:1 schedule_definition_name:schedule_def_name |
| scheduledef_id | Set the registered Schedule Definition ID. |
| scheduledef_name | Set the registered Schedule Definition name. |
| returnCode | Set the return value. |

Notes

- Return value checks are carried out on the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If a return value from 201 to 208 is output, the automated operation process is cancelled or an error condition occurs, and error messages are output to the following locations:
 - Management Server event log (if Management Server is running on Windows (R))
 - Management Server sys log (if Management Server is running on Linux)
 - BMPN custom message

Check messages at the locations noted above and take appropriate remedial action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.14.5 Delete Schedule Definitions



Description

Deletes specified scheduled definitions

Options

Basic Options

(1) schedule_definition_id

Specifies the Schedule Definitions ID to be deleted. If the Schedule Definition ID is omitted, an argument error will occur. An argument error will also occur if a nonexistent Schedule Definition ID is specified.

Only Schedule Definitions registered by the startup user for the process instance deployed by this operation component can be deleted. If any other Schedule Definition ID is specified, an error will occur.

Advanced Options

(1) timeout

Completion timeout (in seconds) for the execution of operation components.

The valid range is from 300 to 86,400 (1 day).

For example, this is the completion timeout for 10 minutes: 600

If the execution of the operation component is not completed even after the specified time is exceeded, the operation component process will be suspended with a return value of 201.

(2) retry

Retry count for the execution of operation components.

If the operation component terminates with a return value of 161 or 172, it specifies the number of times startup is to be retried. Values between 0 and 5 can be specified.

As a result of retrying, if the operation components ended with return values other than 161, the execution of the operation component ends even if it doesn't reach the specified retry count. The return values of the operation component become the value executed at the end.

For example: When retries are to be performed twice: 2

(3) retry_interval



Retry interval (seconds) for operation components.

If the operation component ends with a return value of 161 or 172, the retry interval is specified. Values between 1 and 14400 can be specified.

For example: When retrying in 300 seconds: 300

If the specification of the timeout, retry and retry_interval is omitted, and a value beyond the limits of the above-mentioned is input, the value specified with the operation components definition file becomes effective. Refer to "Definition File for Operation Components" for details.

Return Values

| Icon | Name | Return value | Description |
|---|---------|--------------|---|
|  | Success | 0 | Schedule Definitions successfully deleted. |
|  | Failure | 161 | Failed to delete Schedule Definitions. Retry if a retry count has been specified. |
| | | 171 | Failed to delete Schedule Definitions. You do not have permission to delete the specified Schedule Definitions. |
| | | 172 | Failed to delete Schedule Definitions. There is a process instance during the startup process. Retry if a retry count has been specified. |
| | | 173 | Failed to delete Schedule Definitions. Specified Schedule Definitions do not exist. |
| | | 197 | There is an error in the option content. |
| | | 200 | Failed to delete Schedule Definitions. |
| - | - | 201 | Execution of the operation component timed out. |
| | | 202 | The operation component was not executed. There is a problem in the setting to execute operation components. |
| | | 203 | Failed to execute the operation component. There is a problem in the Operation Server environment. |
| | | 205 | The operation component was not executed. There is a problem in the input information of the operation components. |
| | | 206 | The operation component was not executed normally. There is a problem in the setting to execute operation components. |
| | | 207 | The operation component was not executed. There is a possibility that the operation components are not registered in the Management Server. |
| | | 208 | The Automated Operation Process has been cancelled because the Automated Operation Process was recovered while the operation component was executing. |

Output Information

| Variable | Description |
|------------------|---|
| message | If deletion of Schedule Definitions is successful, set the following message: The operation component was successful. If Schedule Definitions deletion failed, the content of the error is set as a string. |
| result | Set the Schedule Definition ID and Schedule Definition name as a result of deletion. Output example: schedule_definition_id:1 schedule_definition_name:schedule_def_name |
| scheduledef_id | Set the deleted Schedule Definitions ID. |
| scheduledef_name | Set the deleted Schedule Definition name. |
| returnCode | Set the return value. |

Notes

- Return value checks are carried out on the Web console. Refer to "Confirming the Operation Component Execution Status/Execution Results" in the *Systemwalker Runbook Automation Operation Guide* for details.
- If return values 201 to 208 are output, the automated operation process is cancelled or an error condition occurs, and error messages are output to the following locations:
 - Management Server event log (if Management Server is running on Windows (R))
 - Management Server sys log (if Management Server is running on Linux)
 - BMPN custom message

Check messages at the locations noted above and take appropriate remedial action. Refer to the *Systemwalker Runbook Automation Message Guide* for details.

3.15 Libraries Provided by the Product

This section explains the following items that are required to develop custom operation components to be used as operation components node.

- Libraries Provided by the Product

Notes

- If the Business Server is Solaris, the only usable library is "[3.15.5 Command Library](#)".
- The following libraries and communication methods can be used in IPv6 environments:

Libraries

- [3.15.5 Command Library](#)
- [3.15.6 File Library](#)
- [3.15.7 Directory Library](#)

Communication methods

- When the Management Server is running on Windows: File transfer infrastructure
- When the Management Server is running on Linux: File transfer infrastructure or SSH

3.15.1 List of Libraries

A list of libraries provided by this product is shown below:

| Library name |
|--|
| 3.15.2 Input Information Library(Ruby) |
| 3.15.3 Input Information Library(Perl) |
| 3.15.4 Log Library |
| 3.15.5 Command Library |
| 3.15.6 File Library |
| 3.15.7 Directory Library |
| 3.15.8 Service Library |
| 3.15.9 Process Library |
| 3.15.10 Database Library |
| 3.15.11 Communication Library |
| 3.15.12 Hardware Library |
| 3.15.13 Cluster Library |
| 3.15.14 Operation Library |
| 3.15.15 Application Server Library |
| 3.15.16 Event Library |
| 3.15.17 Job Net Library |

Each library is explained as follows.

3.15.2 Input Information Library(Ruby)

The input information library provides the following classes:

| Article number/class name |
|--|
| 3.15.2.1 Input Information File Analysis |

3.15.2.1 Input Information File Analysis

Class Name

Swrba_Input

List of Methods

| Method | Description |
|---|--|
| <i>String input_analysis(String filename, String element)</i> | Load the file and return the specified input information as a text string. If the specified input information doesn't exist, the empty string is returned. An exception is returned if extraction of the input information failed. |

Input Information

filename Name (full path) of the XML file that holds the input information for the operation component.

element Specify input information. For example, hostname and username. Refer to the operation component references for details about the input information to specify.

Notes

- None.

File Location

| | |
|---------|--|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib \standard\swrba_input.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_input.rb |

3.15.3 Input Information Library(Perl)

The input information library provides the following classes:

| |
|--|
| Article number/class name |
| 3.15.3.1 Input Information File Analysis |

3.15.3.1 Input Information File Analysis

Class Name

Swrba_Input

List of Methods

| Method | Description |
|---|--|
| <i>String input_analysis(String filename, String element)</i> | Load the file and return the specified input information as a text string. If the specified input information doesn't exist, the empty string is returned. An exception is returned if extraction of the input information failed. |

Input Information

filename Name (full path) of the XML file that holds the input information for the operation component.

element Specify the item name of the input information you want to extract.

Notes

- This library is used when the operation components analyze the input information parameters. This library must also be used when the operation component is created using Perl script.
- The Perl modules shown below are required in connection with the use of this library. If you are using an environment in which these modules are not built-in to the Perl that was installed on the Operation Automation Server, obtain and install these modules:
 - XML::Simple 2.18

File Location

| | |
|---------|--|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib \standard\swrba_input.pm |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/Swrba_Input.pm |

3.15.4 Log Library

The log library provides the following classes:

| |
|-------------------------------------|
| Article number/class name |
| 3.15.4.1 Log Output |

3.15.4.1 Log Output

Class Name

Swrba_Logger

List of Methods

| Method | Description |
|---|--|
| <i>Swrba_Logger new(String classname, String logfile)</i> | It is a constructor of Swrba_Logger. |
| <i>String info(String outData)</i> | Output the specified text string to the log. The log level is "INFO". |
| <i>String warn(String outData)</i> | Output the specified text string to the log. The log level is "WARN". |
| <i>String error(String outData)</i> | Output the specified text string to the log. The log level is "ERROR". |

Input Information

classname Specify the label name of the log.

logfile Specify the file name of the log.

outData Specify the text string to output to the log.

Notes

The log file is made in the following places.

| | |
|---------|---|
| Windows | <Installation directory>\SWRBAM\etc\share\rbaope\work \log |
| Linux | /etc/opt/FJSVswrbam/share/rbaope/work/log |

File Location

| | |
|---------|---|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib \standard\swrba_logger.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_logger.rb |

3.15.5 Command Library

The command library provides the following classes:

| |
|----------------------------------|
| Article number/class name |
| 3.15.5.1 Command |

3.15.5.1 Command

Class Name

Swrba_Command

List of Methods

| Method | Description |
|--|---|
| <i>String run(String hostname, String username, String password, String exec_username, String exec_password, String commandline)</i> | Execute the command on the specified host. "Success" is returned if execution of the command was successful. An exception is returned if execution of the command failed. |
| <i>Integer return_code()</i> | Return the return value of the results of the command execution. 159 to 240 are returned if an internal error occurred during processing within a Ruby script. |
| <i>String stdout()</i> | Return the standard output of the results of the command execution. |
| <i>String stderr()</i> | Return the standard error output of the results of the command execution. |

Input Information

hostname Specify the host name or IP address.

commandline Specify the command name and argument.

Username Specify the name of the user using SSH to connect to the remote executing host.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux or Solaris: root

password Specify the password of the user using SSH to connect to the remote executing host.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

exec_username Specify the executing user's name.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

exec_password This library does not use the value of "execpassword".

The value of "execpassword" is ignored even if specified.

Notes

- If the information except for the Management Server has been entered for "hostname", this library uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to the "[3.16 Notes of Each Communication Method](#)" for the notes of each communication method.
 - Note 1: If the information for the Management Server has been entered for 'hostname', SSH communication will not be used and the command will be executed within the Management Server, so follow the command's specifications.
- If the connected user and executing user are different, refer to the "[3.16.7 Notes When Connected User And Executing User Are Different](#)".
- Systemwalker Runbook Automation uses return values between 159 and 240. Return values outside this range and unused return values within the range are values output by the installation command rather than values set by Systemwalker Runbook Automation. Investigate the command itself.

File Location

| | |
|---------|--|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\ standard\swrba_command.rb |
| Linux | /opt/FJSVswrbam/rbaope//bin/parts/lib/standard/swrba_command.rb |

3.15.6 File Library

The file library provides the following classes:

| Article number/class name |
|--|
| 3.15.6.1 File Transfer |
| 3.15.6.2 Changing File Access Permissions |
| 3.15.6.3 File Existence Confirmation |
| 3.15.6.4 File Making/File Deletion |
| 3.15.6.5 Adding String to Files |
| 3.15.6.6 File Copy/File Move |
| 3.15.6.7 File Compression/File Decompression |
| 3.15.6.8 Character Code Conversion |
| 3.15.6.9 Searching String in File |
| 3.15.6.10 Replacing String in File |

3.15.6.1 File Transfer

Class Name

Swrba_File

List of Methods

| Method | Description |
|---|--|
| <i>String receive_file(String hostname, String username, String password, String source, String destination, String ostype)</i> | Acquire the file from the specified host. "Success" is returned if acquisition was successful. An exception is returned if acquisition failed. |
| <i>String send_file(String hostname, String username, String password, String source, String destination, String ostype)</i> | Transfer files to the specified host. "Success" is returned if transfer was successful. |

| | |
|------------------------------|---|
| | An exception is returned if transfer failed. |
| <i>Integer return_code()</i> | Return the return value of the file acquisition/transfer results. |

Input Information

hostname Specify the host name or IP address.

username Specify the name of the user using SSH to connect to the host acquiring or transferring the file.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux: root

password Specify the password of the user using SSH to connect to the host acquiring or transferring the file.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

source Specify the name of the file that is the acquisition source.

destination Specify the name of the file that is the acquisition destination.

ostype Specify the operating system of the host acquiring or transferring the file.

Notes

- If the information except for the Management Server has been entered for "hostname", this library uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to the "[3.16 Notes of Each Communication Method](#)" for the notes of each communication method.
- For the name of the file for which the access permissions are to be changed, use only alphanumeric characters and the following symbols.
Symbols that can be used: "!", "~", "_", "-", ".".
- If a file exists in the transfer destination that has the same name as the file specified in "destination", the file is overwritten.
- When using this library to create operation components, make sure that the Management Server installation directory does not contain whitespace characters or the result cannot be guaranteed.

File Location

| | |
|---------|---|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\ standard\swrba_file.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_file.rb |

3.15.6.2 Changing File Access Permissions

Class Name

Swrba_File

List of Methods

| Method | Description |
|---|---|
| <i>String change_file_authority(String hostname, String username, String password, String execusername, String execpassword, String filename, String ownerauthority, String groupauthority, String otherauthority, String ostype)</i> | Change the access permissions for the file on the specified host. "Success" is returned if access permissions were changed successfully. An exception is returned if access permissions failed to be changed. |
| <i>Integer return_code()</i> | Return the return value of the results of changing access permissions. |

Input Information

hostname Specify the host name or IP address.

username Specify the name of the user using SSH to connect to the host where the file whose access permissions are to be changed resides.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux: root

password Specify the password of the user using SSH to connect to the host where the file whose access permissions are to be changed resides.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

filename Specify the name of the file whose access permissions are to be changed.

ownerauthority Specify the access permission for the owner of the file. Specify execute (X), read (R), write (W), or cancel all (C) permissions.

If the access permissions for a file are changed using the file transfer infrastructure and the file is in a Windows environment, the file attributes will be changed.

groupauthority Specify the access permission for the group that owns the file. Specify execute (X), read (R), write (W), or cancel all (C) permissions.

If the access permissions for a file are changed and the file is in a Windows environment, the specified content does not take effect.

otherauthority Specify the access permission for other users of the file. Specify execute (X), read (R), write (W), or cancel all (C) permissions.

If the access permissions for a file are changed and the file is in a Windows environment, the specified content does not take effect.

execusername Specify the name of the user whose file access permissions are to be changed.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

execpassword This library does not use the value of "execpassword".

The value of "execpassword" is ignored even if specified.

`ostype` Specify the operating system of the host where the file whose access permissions are to be changed resides.

Notes

- If the information except for the Management Server has been entered for "hostname", this library uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to the ["3.16 Notes of Each Communication Method"](#) for the notes of each communication method.
- If the connected user and executing user are different, refer to the ["3.16.7 Notes When Connected User And Executing User Are Different"](#).
- Use alphanumeric characters and the following symbols for the names of the files to which access permissions are changed.
Symbols that can be used: "!", "~", "_", "-", ".".

File Location

| | |
|---------|---|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\ standard\swrba_file.rb |
| Linux | /opt/FJSVswrbam/rbaope//bin/parts/lib/standard/swrba_file.rb |

3.15.6.3 File Existence Confirmation

Class Name

Swrba_File

List of Methods

| Method | Description |
|--|---|
| <i>String search_file(String hostname, String username, String password, String filename, String ostype, String execusername, String execpassword)</i> | Confirm whether the specified file exists in the specified host. "Success" is returned if the file existence confirmation is successful. An exception is returned if the file existence confirmation failed. |
| <i>Integer return_code()</i> | Return the return value of the file existence confirmation results. |

Input Information

`hostname` Specify the host name or IP address.

`username` Specify the name of the user using SSH to connect to the host confirming the existence of the file.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux: root

`password` Specify the password of the user using SSH to connect to the host confirming the existence of the file.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

filename Specify the name of the file whose existence is to be confirmed.

ostype Specify the operating system of the host confirming the existence of the file.

execusername Specify the name of the user confirming the existence of the file.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

execpassword This library does not use the value of "execpassword".

The value of "execpassword" is ignored even if specified.

Notes

- If the information except for the Management Server has been entered for 'hostname', this library uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to the ["3.16 Notes of Each Communication Method"](#) for the notes of each communication method.
- If the connected user and executing user are different, refer to the ["3.16.7 Notes When Connected User And Executing User Are Different"](#).
- Use alphanumeric characters and the following symbols for the names of the files to be confirmed existence.
Symbols that can be used: "!", "~", "_", "-", ".".

File Location

| | |
|---------|---|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\ standard\swrba_file.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_file.rb |

3.15.6.4 File Making/File Deletion

Class Name

Swrba_File

List of Methods

| Method | Description |
|---|--|
| <i>String make_file(String hostname, String username, String password, String filename, String text, String overwrite, String ostype, String exec_username, String exec_password)</i> | Make text files to the specified host.. "Success" is returned if the file making was successful. An exception is returned if the file making failed. |
| <i>String delete_file(String hostname, String username, String password, String filename, String ostype, String exec_username, String exec_password)</i> | Delete files from the specified host. "Success" is returned if the file deletion was successful. An exception is returned if the file deletion failed. |
| <i>Integer return_code()</i> | Return the return value of the file making or deletion results. |

Input Information

hostname Specify the host name or IP address.

username Specify the name of the user using SSH to connect to the host making or deleting the file.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux: root

password Specify the password of the user using SSH to connect to the host making or deleting the file.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

filename Specify the name of the file to be created or deleted.

text Specify the text string written to the file to be created.

overwrite Specify whether to overwrite if the file already exists.

Specify **off**(do not overwrite) or **on**(overwrite).

ostype Specify the operating system of the host making or deleting the file.

exec_username Specify the name of the user making or deleting the file.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

exec_password This library does not use the value of "exec password".

The value of "exec password" is ignored even if specified.

Notes

- If the information except for the Management Server has been entered for "hostname", this library uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to the ["3.16 Notes of Each Communication Method"](#) for the notes of each communication method.
- If the connected user and executing user are different, refer to the ["3.16.7 Notes When Connected User And Executing User Are Different"](#).
- For the file where the string is to be added, specify a text file that uses appropriate character encoding, as listed in the following table.

| Host containing the file where the string is to be added | Character encoding of the text file |
|--|---|
| Windows Management Server | CHARACTER ENCODING SPECIFIED BY THE LANG ENVIRONMENT VARIABLE |
| Linux Management Server | UTF-8 |
| Windows Linked Server or Business Server | CHARACTER ENCODING SPECIFIED BY THE LANG ENVIRONMENT VARIABLE |
| Linux Linked Server or Business Server | Character encoding specified by the LANG environment variable |

- Use alphanumeric characters and the following symbols for the names of the file to be created or be deleted.
Symbols that can be used: "!", "~", "_", "-", ".".

File Location

| | |
|---------|---|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\ standard\swrba_file.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_file.rb |

3.15.6.5 Adding String to Files

Class Name

Swrba_File

List of Methods

| Method | Description |
|--|---|
| <i>String add_string(String hostname, String username, String password, String filename, String addstring, String outputfile, String overwrite, String ostype, String execusername, String execpassword)</i> | Add the text strings to the text file on the specified host. "Success" is returned if the text strings were added to the file successfully. An exception is returned if text strings failed to be added in the file. |
| <i>Integer return_code()</i> | Return the return value of the results of adding text strings to the file. |

Input Information

hostname Specify the host name or IP address.

username Specify the name of the user using SSH to connect to the host containing the file to which the character string needs to be added.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux: root

password Specify the password of the user using SSH to connect to the host containing the file to which the character string needs to be added.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

filename Specify the name of the file to which the string is to be added.

addstring Specify the character string that will be added to the file.

outputfile Specify the name of the file that will output the result of adding the string to the file.

overwrite Specify whether to overwrite if the "outputfile" already exists.

Specify **off**(do not overwrite) or **on**(overwrite).

ostype Specify the operating system of the host containing the file to which the character string is to be added.

execusername Specify the name of the user who creates the file.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

`execpassword` This library does not use the value of "execpassword".

The value of "execpassword" will be ignored even if specified.

Notes

- If the information except for the Management Server has been entered for "hostname", this library uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to the ["3.16 Notes of Each Communication Method"](#) for the notes of each communication method.
- If the connected user and executing user are different, refer to the ["3.16.7 Notes When Connected User And Executing User Are Different"](#).
- For the file to which the string is to be added, specify a text file that uses appropriate character encoding, as listed in the following table.

| Host containing the file to which the string is to be added | Character encoding of the text file |
|---|---|
| Windows Management Server | CHARACTER ENCODING SPECIFIED BY THE LANG ENVIRONMENT VARIABLE |
| Linux Management Server | UTF-8 |
| Windows Linked Server or Business Server | CHARACTER ENCODING SPECIFIED BY THE LANG ENVIRONMENT VARIABLE |
| Linux Linked Server or Business Server | Character encoding specified by the LANG environment variable |

- Use alphanumeric characters and the following symbols for the names of the files to be created.
Symbols that can be used: "!", "~", "_", "-", ".".

File Location

| | |
|---------|---|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\standard\swrba_file.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_file.rb |

3.15.6.6 File Copy/File Move

Class Name

Swrba_File

List of Methods

| Method | Description |
|--|--|
| <i>String copy_file(String hostname, String username, String password, String sourcefilename, String destination, String overwrite, String ostype, String execusername, String execpassword)</i> | Copy files on the specified host. "Success" is returned if the file copy was successful. An exception is returned if the file copy failed. |
| <i>String move_file(String hostname, String username, String password, String sourcefilename, String destination, String overwrite, String ostype, String execusername, String execpassword)</i> | Move files on the specified host. "Success" is returned if the file movement was successful. |

| | |
|------------------------------|---|
| | An exception is returned if the file movement failed. |
| <i>Integer return_code()</i> | Return the return value of the file copy or movement results. |

Input Information

hostname Specify the host name or IP address.

username Specify the name of the user using SSH to connect to the host copying or moving the file.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux: root

password Specify the password of the user using SSH to connect to the host copying or moving the file.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

sourcefilename Specify the name of the file that is the copy or movement source.

destination Specify the name of the file or directory that is the copy or movement destination.

overwrite Specify whether to overwrite if the file already exists.

ostype Specify the operating system of the host copying or moving the file.

execusername Specify the name of the user copying or moving the file.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

execpassword This library does not use the value of "execpassword".

The value of "execpassword" is ignored even if specified.

Notes

- If the information except for the Management Server has been entered for "hostname", this library uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to the ["3.16 Notes of Each Communication Method"](#) for the notes of each communication method.
- If the connected user and executing user are different, refer to the ["3.16.7 Notes When Connected User And Executing User Are Different"](#).
- Use alphanumeric characters and the following symbols for the names of the files to be copied or moved.
Symbols that can be used: "!", "~", "_", "-", ".".

File Location

| | |
|---------|---|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\ standard\swrba_file.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_file.rb |

3.15.6.7 File Compression/File Decompression

Class Name

Swrba_File

List of Methods

| Method | Description |
|---|--|
| <i>String compress_file(String hostname, String username, String password, String compfilename, String filename, String overwrite, String ostype, String execusername, String execpassword)</i> | Compress files on the specified host. The compressed format is zip form. "Success" is returned if the file compression was successful. An exception is returned if the file compression failed. |
| <i>String decompress_file(String hostname, String username, String password, String compfilename, String directoryname, String ostype, String execusername, String execpassword)s</i> | Decompress files on the specified host. The compressed format of a possible decompression is zip form. "Success" is returned if the file decompression was successful. An exception is returned if the file decompression failed. |
| <i>Integer return_code()</i> | Return the return value of the file compression or decompression results. |

Input Information

*hostname*Specify the host name or IP address.

*username*Specify the name of the user using SSH to connect to the host compressing or decompressing the file.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux: root

*password*Specify the password of the user using SSH to connect to the host compressing or decompressing the file.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

*compfilename*Specify the name of the compressed file.

*filename*Specify the name of the file to be compressed.

*directoryname*Specify the name of the decompress destination directory.

*overwrite*Specify whether to overwrite if a compressed file already exists.

*ostype*Specify the operating system of the host compressing or decompressing the file.

*execusername*Specify the name of the user compressing or decompressing the file.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

`execpassword`This library does not use the value of "execpassword".

The value of "execpassword" is ignored even if specified.

Notes

- If the information except for the Management Server has been entered for "hostname", this library uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to the "3.16 Notes of Each Communication Method" for the notes of each communication method.
- If the connected user and executing user are different, refer to the "3.16.7 Notes When Connected User And Executing User Are Different".
- Use alphanumeric characters and the following symbols for the names of the files to be compressed or decompressed.
Symbols that can be used: "!", "~", "_", "-", ".".

File Location

| | |
|---------|---|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\standard\swrba_file.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_file.rb |

3.15.6.8 Character Code Conversion

Class Name

Swrba_File

List of Methods

| Method | Description |
|---|---|
| <i>String change_file_encoding(String searchfile, String outputfile, String character_encoding, String from_encoding, String overwrite)</i> | Convert the character code of the files on the specified host. "Success" is returned if the character code conversion was successful. An exception is returned if the character code conversion failed. |
| <i>Integer return_code()</i> | Return the return value of the result of the character code conversion. |

Input Information

`searchfile` Specify the name of the file whose character code is to be converted.

`outputfile` Specify the name of the file that that will output the result of the conversion.

`from_encoding` Specify the character code before conversion.

`character_encoding` Specify the character code after conversion.

`overwrite` Specify whether to overwrite if the file that outputs the result already exists.

Notes

- Use alphanumeric characters and the following symbols for the names of the files to be encoded.
Symbols that can be used: "!", "~", "_", "-", ".".

File Location

| | |
|---------|---|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\ standard\swrba_file.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_file.rb |

3.15.6.9 Searching String in File

Class Name

Swrba_File

List of Methods

| Method | Description |
|---|---|
| <i>String search_file_character_string(String hostname, String username, String password, String searchfile, String searchstring, String outputmode, String searchscope, String searchmode, String exclusionsearch, String outputfile, String overwrite, String ostype, String execusername, String execpassword)</i> | Search for text strings in text files on the specified host. "Success" is returned if the text string search was successful. An exception is returned if the text string search failed. |
| <i>Integer return_code()</i> | Return the return value of the result that the specified text string was searched. |

Input Information

hostname Specify the host name or IP address.

username Specify the name of the user using SSH to connect to the host containing the file whose character string is to be searched.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux: root

password Specify the password of the user using SSH to connect to the host containing the file whose character string is to be searched.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

searchfile Specify the file name containing the character string to be searched.

searchstring Specify the string to be searched.

outputmode Specify the format for the search result or output.

Specify **line**(line number is output), **text**(content of the line is output), **all**(line number and content of the line are output).

searchscope Specify the search range of the character string within the file. Separate the start position and end position numbers with a hyphen (-). If the starting position is omitted, the first character of the file becomes the starting position. If the end position is omitted, the last character of the file becomes the end position. If the starting position and end position are omitted, the entire file is searched. (example) If you search the 20th line from the 10th line: 10-20
 If you search the 20th line from the head of the file: -20
 If you search from the 10th line to the end of the file: 10-

searchmode Specify the search method for the string. Specify **first** (search till the first occurrence of the string) or **all** (search the entire range).

exclusionsearch Specify whether to use the exclusive search. Specify **off**(normal search) or **on**(exclusive search).

outputfile Specify the name of the file that will output the search result.

overwrite Specify whether to overwrite if the "outputfile" already exists.

Specify **off**(do not overwrite) or **on**(overwrite).

ostype Specify the operating system of the host containing the file with the character string to be searched.

execusername Specify the name of the user searching the character string on the host where the file exists.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

execpassword This library does not use the value of "execpassword".

The value of "execpassword" is ignored even if specified.

Notes

- If the information except for the Management Server has been entered for "hostname", this library uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to the ["3.16 Notes of Each Communication Method"](#) for the notes of each communication method.
- If the connected user and executing user are different, refer to the ["3.16.7 Notes When Connected User And Executing User Are Different"](#).
- For the file whose string is to be searched, specify a text file that uses appropriate character encoding, as listed in the following table.

| Host containing the file whose string is to be searched | Character encoding of the text file |
|---|---|
| Windows Management Server | CHARACTER ENCODING SPECIFIED BY THE LANG ENVIRONMENT VARIABLE |
| Linux Management Server | UTF-8 |
| Windows Linked Server or Business Server | CHARACTER ENCODING SPECIFIED BY THE LANG ENVIRONMENT VARIABLE |
| Linux Linked Server or Business Server | Character encoding specified by the LANG environment variable |

- Use alphanumeric characters and the following symbols for the name of the file that text strings are searched.

Symbols that can be used: "!", "~", "_", "-", ".".

File Location

| | |
|---------|---|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\ standard\swrba_file.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_file.rb |

3.15.6.10 Replacing String in File

Class Name

Swrba_File

List of Methods

| Method | Description |
|---|--|
| <i>String replace_file_character_string(String hostname, String username, String password, String searchfile, String searchstring, String replacestring String outputfile, String overwrite, String ostype, String execusername, String execpassword)</i> | Replace text strings in text files on the specified host. "Success" is returned if the text string replacement was successful. An exception is returned if the text string replacement failed. |
| <i>Integer return_code()</i> | Return the return value of the result that the specified text string was searched. |

Input Information

hostname Specify the host name or IP address.

username Specify the name of the user using SSH to connect to the host containing the file to replace the character string.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux: root

password Specify the password of the user using SSH to connect to the host containing the file whose character string is to be replaced.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

searchfile Specify the file name containing the character string to be replaced.

searchstring Specify the string to be replaced.

replacestring Specify the string after replacement.

outputfile Specify the name of the file that will output the result of the character string replacement.

overwrite Specify whether to overwrite if the "outputfile" already exists.

Specify **off**(do not overwrite), **on**(overwrite).

ostype Specify the operating system of the host containing the file whose character string is to be replaced.

`execusername` Specify the name of the user replacing the character string on the host where the file exists.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

`execpassword` This library does not use the value of "execpassword".

The value of "execpassword" is ignored even if specified.

Notes

- If the information except for the Management Server has been entered for "hostname", this library uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to the ["3.16 Notes of Each Communication Method"](#) for the notes of each communication method.
- If the connected user and executing user are different, refer to the ["3.16.7 Notes When Connected User And Executing User Are Different"](#).
- For the file whose string is to be replaced, specify a text file that uses appropriate character encoding, as listed in the following table.

| Host containing the file with the string to be replaced | Character encoding of the text file |
|---|---|
| Windows Management Server | CHARACTER ENCODING SPECIFIED BY THE LANG ENVIRONMENT VARIABLE |
| Linux Management Server | UTF-8 |
| Windows Linked Server or Business Server | CHARACTER ENCODING SPECIFIED BY THE LANG ENVIRONMENT VARIABLE |
| Linux Linked Server or Business Server | Character encoding specified by the LANG environment variable |

- Use alphanumeric characters and the following symbols for the name of the file that text strings are replaced.

Symbols that can be used: "!", "~", "_", "-", ".".

File Location

| | |
|---------|---|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\standard\swrba_file.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_file.rb |

3.15.7 Directory Library

The directory library provides the following classes:

| Article number/class name |
|--|
| 3.15.7.1 Directory Making/Directory Deletion |
| 3.15.7.2 Changing Directory Access Permissions |
| 3.15.7.3 Directory Compression |

3.15.7.1 Directory Making/Directory Deletion

Class Name

Swrba_Directory

List of Methods

| Method | Description |
|--|--|
| <i>String make_directory(String hostname, String username, String password, String directoryname, String ostype, String execusername, String execpassword)</i> | Make directories to the specified host.. "Success" is returned if the file making was successful. An exception is returned if the file making failed. |
| <i>String delete_directory(String hostname, String username, String password, String directoryname, String ostype, String execusername, String execpassword)</i> | Delete directories recursively from the specified host. "Success" is returned if the file deletion was successful. An exception is returned if the file deletion failed. |
| <i>Integer return_code()</i> | Return the return value of the directory making or deletion results. |

Input Information

hostname Specify the host name or IP address.

username Specify the name of the user using SSH to connect to the host making or deleting the directory.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux: root

password Specify the password of the user using SSH to connect to the host making or deleting the directory.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

directoryname Specify the name of the directory to be created or deleted.

ostype Specify the operating system type of the host making or deleting the directory.

execusername Specify the name of the user making or deleting the directory.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

execpassword This library does not use the value of "execpassword".

The value of "execpassword" is ignored even if specified.

Notes

- If the information except for the Management Server has been entered for "hostname", this library uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to the ["3.16 Notes of Each Communication Method"](#) for the notes of each communication method.
- If the connected user and executing user are different, refer to the ["3.16.7 Notes When Connected User And Executing User Are Different"](#).
- For the file whose string is to be replaced, specify a text file that uses appropriate character encoding, as listed in the following table.

| Host containing the file with the string to be replaced | Character encoding of the text file |
|---|---|
| Windows Management Server | CHARACTER ENCODING SPECIFIED BY THE LANG ENVIRONMENT VARIABLE |
| Linux Management Server | UTF-8 |
| Windows Linked Server or Business Server | CHARACTER ENCODING SPECIFIED BY THE LANG ENVIRONMENT VARIABLE |
| Linux Linked Server or Business Server | Character encoding specified by the LANG environment variable |

- Use alphanumeric characters and the following symbols for the names of the directory to be created or be deleted.
Symbols that can be used: "!", "~", "_", "-", ".".

File Location

| | |
|---------|---|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\standard\swrba_file.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_file.rb |

3.15.7.2 Changing Directory Access Permissions

Class Name

Swrba_Directory

List of Methods

| Method | Description |
|---|--|
| <i>String change_directory_authority(String hostname, String username, String password, String directoryname, String ownerauthority, String groupauthority, String otherauthority, String ostype, String execusername, String execpassword)</i> | Change the access permissions for the directory on the specified host. "Success" is returned if access permissions were changed successfully. An exception is returned if access permissions failed to be changed. |
| <i>Integer return_code()</i> | Return the return value of the results of changing access permissions. |

Input Information

hostname Specify the host name or IP address.

username Specify the name of the user using SSH to connect to the host where the directory whose access permissions are to be changed resides.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux: root

password Specify the password of the user using SSH to connect to the host where the directory whose access permissions are to be changed resides.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

directoryname Specify the name of the directory whose access permissions are to be changed.

ownerauthority Specify the access permission content of the owner of the directory to be changed. Specify the execute (X), read (R), write (W), or cancel all (C) permissions.

If the access permissions for a directory are changed using the file transfer infrastructure and the directory is in a Windows environment, the directory attributes will change.

groupauthority Specify the access permission content of the owner group of the directory to be changed. Specify the execute (X), read (R), write (W), or cancel all (C) permissions.

If the access permissions for a directory are changed and the directory is in a Windows environment, the specified content does not take effect.

otherauthority Specify the access permission content of other users of the directory to be changed. Specify the execute (X), read (R), write (W), or cancel all (C) permissions.

If the access permissions for a directory are changed and the directory is in a Windows environment, the specified content does not take effect.

ostype Specify the operating system of the host where the directory whose access permissions are to be changed resides.

execusername Specify the name of the user whose directory access permissions are to be changed.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

execpassword This library does not use the value of "execpassword".

The value of "execpassword" is ignored even if specified.

Notes

- If the information except for the Management Server has been entered for "hostname", this library uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to the ["3.16 Notes of Each Communication Method"](#) for the notes of each communication method.
- If the connected user and executing user are different, refer to the ["3.16.7 Notes When Connected User And Executing User Are Different"](#).
- Use alphanumeric characters and the following symbols for the names of the directories to which access permissions are changed.
Symbols that can be used: "!", "~", "_", "-", ".".

File Location

| | |
|---------|---|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\ standard\swrba_file.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_file.rb |

3.15.7.3 Directory Compression

Class Name

Swrba_Directory

List of Methods

| Method | Description |
|---|---|
| <i>String compress_directory(String hostname, String username, String password, String compfilename, String directoryname, String overwrite, String ostype, String execusername, String execpassword)</i> | <p>Compress directories on the specified host.</p> <p>The compressed format is zip form.</p> <p>"Success" is returned if the directory compression was successful.</p> <p>An exception is returned if the directory compression failed.</p> |
| <i>Integer return_code()</i> | Return the return value of the directory compression results. |

Input Information

hostname Specify the host name or IP address.

username Specify the name of the user using SSH to connect to the host compressing the directory.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux: root

password Specify the password of the user using SSH to connect to the host compressing the directory.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

compfilename Specify the name of the file to be compressed.

directoryname Specify the name of the directory to be compressed.

overwrite Specify whether to overwrite file if a compressed file already exists.

ostype Specify the operating system of the host compressing the directory.

execusername Specify the name of the user compressing the directory.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

execpassword This library does not use the value of "execpassword".

The value of "execpassword" is ignored even if specified.

Notes

- If the information except for the Management Server has been entered for "hostname", this library uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to the ["3.16 Notes of Each Communication Method"](#) for the notes of each communication method.

- If the connected user and executing user are different, refer to the ["3.16.7 Notes When Connected User And Executing User Are Different"](#).

- Use alphanumeric characters and the following symbols for the names of the files or directories to be compressed.

Symbols that can be used: "!", "~", "_", "-", ".".

File Location

| | |
|---------|---|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\ standard\swrba_file.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_file.rb |

3.15.8 Service Library

The service library provides the following classes:

| |
|----------------------------------|
| Article number/class name |
| 3.15.8.1 Service |

3.15.8.1 Service

Class Name

Swrba_Service

List of Methods

| Method | Description |
|---|---|
| <i>String service_process_start_check(String servicename, String processname, String hostname, String username, String password, String ostype, String execusername, String execpassword)</i> | Confirm the start status of services or processes on the specified host. "Success" is returned if confirmation of the start status of the service or process was successful. An exception is returned if confirmation of the start status of the service or process failed. |
| <i>String service_process_stop_check(String servicename, String processname, String hostname, String username, String password, String ostype, String execusername, String execpassword)</i> | Confirm the stop status of services or processes on the specified host. "Success" is returned if confirmation of the stop status of the service or process was successful. An exception is returned if confirmation of the stop status of the service or process failed. |
| <i>String service_start_check(String servicename, String hostname, String username, String password, String ostype)</i> | Confirm whether the service of the specified host is running. "Success" is returned if confirmation of the start status of the service was successful. An exception is returned if confirmation of the start status of the service failed. |
| <i>String service_stop_check(String servicename, String hostname, String username, String password, String ostype)</i> | Confirm whether the service of the specified host has stopped "Success" is returned if confirmation of the stop status of the service was successful. An exception is returned if confirmation of the stop status of the service failed. |
| <i>String start_service(String service, String hostname, String username, String password, String ostype, String execusername, String execpassword)</i> | Start the service of the specified host. "Success" is returned if start of the service was successful. |

| | |
|--|--|
| | An exception is returned if start of the service failed. |
| <i>String stop_service(String service, String hostname, String username, String password, String ostype, String execusername, String execpassword)</i> | Stop the service of the specified host. "Success" is returned if stop of the service was successful. An exception is returned if stop of the service failed. |
| <i>Integer return_code()</i> | Return the return value of the results of each method. |

Input Information

servicename Specify the name of the service to be checked if it is running or stopped.

processname Specify the name of the process to be checked if it is running or stopped.

service Specify the name of the service to be started or stopped.

hostname Specify the host name or IP address.

username Specify the name of the user using SSH to connect to the host where operations are performed.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux: root

password Specify the password of the user using SSH to connect to the host where operations are performed.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

ostype Specify the operating system of the host where operations are performed.

execusername Specify the name of the user executing the operation.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

execpassword This library does not use the value of "execpassword".

The value of "execpassword" is ignored even if specified.

Notes

- If the information except for the Management Server has been entered for "hostname", this library uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to the "[3.16 Notes of Each Communication Method](#)" for the notes of each communication method.
- If the connected user and executing user are different, refer to the "[3.16.7 Notes When Connected User And Executing User Are Different](#)".

File Location

| | |
|---------|--|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\ standard\swrba_service.rb |
|---------|--|

| | |
|-------|--|
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_service.rb |
|-------|--|

3.15.9 Process Library

The service library provides the following classes:

| |
|----------------------------------|
| Article number/class name |
| 3.15.9.1 Process |

3.15.9.1 Process

Class Name

Swrba_Process

List of Methods

| Method | Description |
|---|--|
| <i>String process_start_check(String processname, String hostname, String username, String password, String ostype, String execusername, String execpassword)</i> | <p>Confirm whether the process of the specified host is running.</p> <p>"Success" is returned if confirmation of the start status of the process was successful.</p> <p>An exception is returned if confirmation of the start status of the process failed.</p> |
| <i>String process_stop_check(String processname, String hostname, String username, String password, String ostype, String execusername, String execpassword)</i> | <p>Confirm whether the process of the specified host has stopped.</p> <p>"Success" is returned if confirmation of the stop status of the process was successful.</p> <p>An exception is returned if confirmation of the stop status of the process failed.</p> |
| <i>Integer process_number_check(String processname, String hostname, String username, String password, String ostype, String execusername, String execpassword)</i> | <p>Confirm whether the process of the specified host is running.</p> <p>The number of detected processes is returned if confirmation of the start status of the processes was successful.</p> <p>An exception is returned if confirmation of the start status of the process failed.</p> |
| <i>Integer return_code()</i> | <p>Return the return value of the results of the start/stop status confirmation of a process.</p> |

Input Information

processname Specify the name of the process whose start/stop status is to be confirmed.

hostname Specify the host name or IP address.

username Specify the name of the user using SSH to connect to the host where the start/stop status of a process is to be confirmed.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux: root

`password` Specify the password of the user using SSH to connect to the host where the start/stop status of a process is to be confirmed.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

`ostype` Specify the operating system of the host confirming the start/stop status of the process. Specify Windows or Linux.

`execusername` Specify the name of the user confirming the start/stop status of the process.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

`execpassword` This library does not use the value of "execpassword".

The value of "execpassword" is ignored even if specified.

Notes

- If the information except for the Management Server has been entered for "hostname", this library uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to the "3.16 Notes of Each Communication Method" for the notes of each communication method.
- If the connected user and executing user are different, refer to the "3.16.7 Notes When Connected User And Executing User Are Different".

File Location

| | |
|---------|--|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\standard\swrba_process.rb |
| Linux | /opt/FJSVswrbam/rbaope//bin/parts/lib/standard/swrba_process.rb |

3.15.10 Database Library

The database library provides the following classes:

| |
|---|
| Article number/class name |
| 3.15.10.1 Configuration Management Database |

3.15.10.1 Configuration Management Database

Configuration Management Database is abbreviated to CMDB hereafter.

Configuration item, stored in the CMDB, is abbreviated to CI hereafter.

Class Name

Swrba_CMDB

List of Methods

| Method | Description |
|--------|-------------|
|--------|-------------|

| | |
|--|--|
| <i>String get_info(String searchxpath, String xpath, String hostname, String username, String password, String execusername, String execpassword, String ostype)</i> | Acquire a specific configuration item. If acquisition is successful, configuration items are output to an XML text string. An exception is returned if acquisition failed. |
| <i>String set_info(String searchxpath, String xpath, String content, String hostname, String username, String password, String execusername, String execpassword, String ostype)</i> | Update a specific configuration item. "Success" is returned if update was successful. An exception is returned if update failed. |
| <i>Integer return_code()</i> | Return the return value of the acquisition/update results of the configuration item. |

Input Information

searchxpath Specify conditional expressions for acquiring/updating specific configuration items.

xpath Specify conditional expressions for updating attribute information from specific configuration items.

content Specify the content to be updated.

hostname Specify the host name or IP address of the host requesting acquisition/update of configuration items.

username Specify the name of the user using SSH to connect the host requesting acquisition/update of configuration items.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux: root

password Specify the password of the user using SSH to connect to the host requesting acquisition/update of configuration items.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

execusername Specify the name of the user acquiring/updating configuration items.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

execpassword This library does not use the value of "execpassword".

The value of "execpassword" is ignored even if specified.

ostype Specify the operating system of the host requesting acquisition/update of configuration items. Specify Windows or Linux.

Notes

- If the information except for the Management Server has been entered for "hostname", this library uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to the ["3.16 Notes of Each Communication Method"](#) for the notes of each communication method.

- When acquiring or updating configuration items stored in a Configuration Management Database on a server other than the Management Server, it is necessary to store the work file in the folder (directory) on the server where the Configuration Management Database is located. Specify the directory path for the location where the work file is stored as the "SWRBA_CMDB_WORK_HOME" environment variable of the server where the Configuration Management Database is located.
- When using this library to create operation components, make sure that the Management Server installation directory does not contain whitespace characters or the result cannot be guaranteed.

File Location

| | |
|---------|---|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\ standard\swrba_cmdb.rb |
| Linux | /opt/FJSVswrbam/rbaope//bin/parts/lib/standard/swrba_cmdb.rb |

3.15.11 Communication Library

The communication library provides the following classes:

| |
|---|
| Article number/class name |
| 3.15.11.1 REST |
| 3.15.11.2 Check that Connection to the Port is Possible |

3.15.11.1 REST

Class Name

Swrba_Protocol

List of Methods

| Method | Description |
|---|--|
| <i>String rest_request(String hostname, Integer port, String methodname, String resourcepath, String param, String proxy, Integer proxyport, String protocoltype, String requestxml, String contenttype, String accepttype)</i> | Send the REST-based request to the specified host and receive the result. If send/receive is successful, results received are output as an XML file. An exception is returned if send/receive failed. |
| <i>String rest_request_basic(String hostname, Integer port, String methodname, String resourcepath, String param, String basicusername, String basicpassword, String proxy, Integer proxyport, String protocoltype, String requestxml, String contenttype, String accepttype)</i> | Send the REST-based request to the specified host using BASIC authentication and receive the result. If send/receive is successful, results received are output as an XML file. An exception is returned if send/receive failed. |
| <i>Integer return_code()</i> | Return the return value of the results of the REST-based communications. |

Input Information

hostname Specify the host name or IP address.

port Specify the port number of the host performing REST-based communications.

methodname Specify the method name of HTTP (HTTPS) to be executed. Specify GET, POST, PUT, and DELETE for the method name.

resourcepath Specify the path of the resource to be used.

param Specify the argument name and argument value for the resource to be used.

basicusername Specify the name of the user performing BASIC authentication.

basicpassword Specify the password of the user performing BASIC authentication.

proxy Specify the address of the proxy server.

proxyport Specify the port number of the proxy server.

protocoltype Specify the protocol type to perform REST communication. Specify http or https for the protocol type.

requestxml Specify the request in the XML format to be stored in the body with REST communication.

contenttype Specify the data form (MIME type) communicated by the REST communication. Moreover, the character set can be added.

accepttype Specify the data form (MIME type) that can be received by the REST communication.

Notes

- First, create and set up the host where REST-based communications are to be performed.
- When specifying the method HTTP (or HTTPS) names to be executed, specify GET, POST, PUT, or DELETE, fully capitalized.
- Use alphanumeric characters and symbols for 'element'.

File Location

| | |
|---------|---|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\standard\swrba_protocol.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_protocol.rb |

3.15.11.2 Check that Connection to the Port is Possible

Class Name

Swrba_Protocol

List of Methods

| Method | Description |
|--|--|
| <i>String port_check(String hostname, String port)</i> | This method checks whether it is possible to connect to a port on the specified host. If the method successfully verifies that a connection is possible, it returns "Success". If the method fails to verify that a connection is possible, it returns an exception. |
| <i>Integer return_code()</i> | This method returns the return value for the result of checking the port status. |

Input Information

hostname Specify the host name or IP address.

port This is the port number or service name for the port that will be checked to see if a connection can be made.

Notes

- To specify the name of a service for the "port" option, the service must be registered with the operating system for the Management Server. Check the settings for the operating system to see which services can be specified.
- The only protocol for which port connections can be confirmed using this operation component is TCP.

File Location

| | |
|---------|--|
| Windows | <installation path>\SWRBAM\rbaope\bin\parts\lib\standard\swrba_protocol.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_protocol.rb |

3.15.12 Hardware Library

The hardware library provides the following classes:

| Article number/class name |
|---------------------------------|
| 3.15.12.1 IPMI |
| 3.15.12.2 IPCOM |

3.15.12.1 IPMI

Class Name

Swrba_Hardware

List of Methods

| Method | Description |
|---|---|
| <i>String server_start(String ipmiipaddress, String ipmiusername, String ipmipassword)</i> | Use IPMI to make a request to start the specified server. "Success" is returned if start of the server was successful. An exception is returned if start of the server failed. |
| <i>String server_shutdown(String ipmiipaddress, String ipmiusername, String ipmipassword)</i> | Use IPMI to make a request to stop the specified server "Success" is returned if stop of the server was successful. An exception is returned if stop of the server failed. |
| <i>String server_check(String ipmiipaddress, String ipmiusername, String ipmipassword)</i> | Use IPMI to check the power status of the specified server The text string of the status of the server is returned if confirmation of the status was successful. An exception is returned if confirmation of the status failed. |

Input Information

- ipmiipaddress* Specify IP address that set to IPMI of the server that starts or stops.
- ipmiusername* Specify the name of the user that set to IPMI of the server that starts or stops.
- ipmipassword* Specify the password of the user that set to IPMI of the server that starts or stops.

Notes

- The following software is necessary for the Business Server if instructions for the start/stop operations are to be given to server by this library..
 - IPMI V2.0
- Set IPMI if IPMI is not set for the environment.
- When using this library, the communication port which requires communication permission on Business Server is UDP port 623.

File Location

| | |
|---------|---|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\ standard\swrba_hardware.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_hardware.rb |

3.15.12.2 IPCOM

Class Name

Swrba_Hardware

List of Methods

| Method | Description |
|--|--|
| <i>String loadbalancer_remove(String lbhostname, Integer removetime, String hostname, String username, String password, String execpassword)</i> | Remove the specified server from a load balancing target. "Success" is returned if removal was successful. An exception is returned if removal failed. |
| <i>String loadbalancer_embed(String lbhostname, String hostname, String username, String password, String execpassword)</i> | Add the specified server to a load balancing target. "Success" is returned if adding was successful. An exception is returned if adding failed. |

Input Information

lbhostname Specify the host name or IP address of the server to be removed or added to a load balancing target managed by IPCOM.

removetime Specify the "removetime" when the server is to be removed from a load balancing target managed by IPCOM.

hostname Specify the host name or IP address for connecting through an operation management network set in IPCOM.

username Specify the name of the user using SSH to connect to the IP address of an operation management network set in IPCOM.

The connected user must be an administrator.

password Specify the password of the user using SSH to connect to the IP address of an operation management network set in IPCOM.

execpassword Specify the password for the command for transitioning to the administrator EXEC mode (admin command).

Notes

- This library uses SSH communication to perform its operations. Refer to the "[3.16 Notes of Each Communication Method](#)" for the notes of SSH communication.
- The target of this operation component is the version of following IPCOM.
 - IPCOM EX1000LB :EX LB Series Entry Model
 - IPCOM EX1200LB :EX LB Series Midrange Model
 - IPCOM EX2000LB :EX LB Series High end Model
 - IPCOM EX2200LB :EX LB Series High end Model
 - IPCOM EX2000IN :EX IN Series High end Model
 - IPCOM EX2200IN :EX IN Series High end Model
- With an operation component, if username, password, and execpassword are omitted, Systemwalker Runbook Automation automatically sets the values stored in the CMDB. Therefore, if values stored in CMDB are to be used, it is necessary to store the required information in CMDB beforehand by using the swpm_uaimport command. Do not omit the password if information is to be stored in the CMDB. Refer to "swrba_uaimport(import command for user information)" for information on the swpm_uaimport command.
 - Example of input file (CSV format) specified by the swpm_uaimport command
 - "IP address for connecting through an operation management network set in IPCOM","OS","User name (user roll: administrator) of the user connecting with SSH","Password of the user connecting with SSH","false","true",,"comment"
 - "IP address for connecting through an operation management network set in IPCOM","OS","user name different to the above connecting user name","Password for the command for transitioning to the administrator EXEC mode (admin command)""true""false",,"comment"
- This operation component uses IPCOM. Refer to the relevant IPCOM documentation for information on how to set up IPCOM.

File Location

| | |
|---------|---|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\ standard\swrba_hardware.rb |
| Linux | /opt/FJSVswrbam/rbaope//bin/parts/lib/standard/swrba_hardware.rb |

3.15.13 Cluster Library

The cluster library provides the following classes:

| |
|-----------------------------------|
| Article number/class name |
| 3.15.13.1 Cluster |

3.15.13.1 Cluster

Class Name

Swrba_Cluster

List of Methods

| Method | Description |
|--|--|
| <i>String get_resource_state(String hostname, String username, String password, String resource, String mwtype, String mwinstalledpath, String ostype, String execusername, String execpassword)</i> | Acquire the resource status of the specified cluster system. Acquired the status is returned if acquisition was successful. |

| | |
|---|---|
| | An exception is returned if acquisition failed. |
| <i>String switch_cluster(String hostname, String username, String password, String nodename, String resource, String mwtype, String mwinstalledpath, String ostype, String execusername, String execpassword)</i> | Switch the control of the specified resource to other system nodes. "Success" is returned if resources were switched successfully. An exception is returned if resources failed to be switched. |
| <i>Integer return_code()</i> | Return the return value of the results of the resource status acquisition or resource switch. |

Input Information

hostname Specify the host name or IP address.

username Specify the name of the user using SSH to connect to the host executing the resource status acquisition or resource switch.

If the operation component connects with the file transfer infrastructure, the connected user name is fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux: root

password Specify the password of the user using SSH to connect to the host executing the resource status acquisition or resource switch.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

nodename Specify the name of the node that sets the resource.

resource Specify the resource name that executes the resource status acquisition or resource switch.

mwtype Specify the middleware type of the cluster system.

mwinstalledpath Specify the installation path of the command for linked target products.

ostype Specify the operating system of the host.

execusername Specify the name of the user executing the resource status acquisition or resource switch.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

execpassword This library does not use the value of "execpassword".

The value of "execpassword" is ignored even if specified.

Notes

- If the information except for the Management Server has been entered for "hostname", this library uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to the ["3.16 Notes of Each Communication Method"](#) for the notes of each communication method.
- If the connected user and executing user are different, refer to the ["3.16.7 Notes When Connected User And Executing User Are Different"](#).

- The target of this operation component is the following cluster systems.

Linux

- PRIMECLUSTER Enterprise Edition 4.3A00
- PRIMECLUSTER HA Server 4.3A00
- PRIMECLUSTER Clustering Base 4.3A00

File Location

| | |
|---------|--|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\ standard\swrba_cluster.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_cluster.rb |

3.15.14 Operation Library

The operation library provides the following classes:

| Article number/class name |
|--|
| 3.15.14.1 System Operation |
| 3.15.14.2 Change the Host Name |
| 3.15.14.3 Set up Network |
| 3.15.14.4 Install Software |

3.15.14.1 System Operation

Class Name

Swrba_Systemoperation

List of Methods

| Method | Description |
|--|--|
| <i>String Systemoperation_shutdown(String hostname, String deferringtime, String ostype, String username, String password, String execusername, String execpassword)</i> | Perform the stop request to OS. "Success" is returned if the stop request was successful. An exception is returned if the stop request failed. |
| <i>String Systemoperation_reboot(String hostname, String deferringtime, String ostype, String username, String password, String execusername, String execpassword)</i> | Perform the reboot request to OS. "Success" is returned if the reboot request was successful. An exception is returned if the reboot request failed. |

Input Information

hostname Specify the host name or IP address.

deferringtime Specify the delay time to stop or reboot the processing of the operating system.

ostype Specify the operating system type.

username Specify the name of the user connecting to the host using SSH.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux: root

`password` Specify the password of the user connecting to the host using SSH.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

`execusername` Specify the name of the user executing processes.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

`execpassword` This library does not use the value of "execpassword".

The value of "execpassword" is ignored even if specified.

Notes

- If the information except for the Management Server has been entered for "hostname", this library uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to the ["3.16 Notes of Each Communication Method"](#) for the notes of each communication method.
- If the connected user and executing user are different, refer to the ["3.16.7 Notes When Connected User And Executing User Are Different"](#).

File Location

| | |
|---------|--|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib \standard\swrba_systemoperation.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_systemoperation.rb |

3.15.14.2 Change the Host Name

Class Name

Swrba_Systemoperation

List of Methods

| Method | Description |
|---|--|
| <i>String change_hostname(String hostname, String newhostname, String ostype, String username, String password, String execusername, String execpassword, String domainusername, String domainpassword)</i> | This method changes host names. If the host name has been changed successfully, this method will return the new host name. If the method fails to change the host name, it returns an exception. |

Input Information

`hostname` Specify the host name or IP address.

newhostname Specify the new (changed) host name.
ostype Specify the operating system type.

username Specify the name of the user using SSH to connect to the host.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux: root

password Specify the password of the user using SSH to connect to the host for the server.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

execusername Specify the name of the user who executes the processing.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

execpassword This library does not use the value of "execpassword".

The value of "execpassword" is ignored even if specified.

domainusername Specify the name of the user for connecting to the domain.

domainpassword Specify the password for connecting to the domain.

Notes

- If information other than the Management Server is entered for the "hostname" option, this library will execute actions using either the file transfer infrastructure or SSH communications. Specify settings so that communications can be performed using at least one of these methods. Refer to ["3.16 Notes of Each Communication Method"](#) for notes on these communication methods.
- If the connected user and the executing user are different, refer to ["3.16.7 Notes When Connected User And Executing User Are Different"](#).
- To change a Linux host name using this library, edit the following files:
 - /etc/sysconfig/network
 - /etc/hosts
- Alphanumeric characters and hyphens "-" can be specified for the new host name. Specify a letter for the first character of the host name, and an alphanumeric character for the last character of the host name.
- When using this library to create operation components, make sure that the Management Server installation directory does not contain whitespace characters or the result cannot be guaranteed.

File Location

| | |
|---------|---|
| Windows | <installation path>\SWRBAM\rbaope\bin\parts\lib\standard\swrba_systemoperation.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_systemoperation.rb |

3.15.14.3 Set up Network

Class Name

Swrba_Systemoperation

List of Methods

| Method | Description |
|--|---|
| <i>String join_domainorworkgroup(String hostname, String username, String password, String domain, String workgroup, String domainusername, String domainpassword)</i> | This method sets the domain name or workgroup name that is set for the operating system. If the method successfully sets up the network, it returns "Success". If the method fails to set up the network, it returns an exception. |
| <i>String set_dns(String hostname, String username, String password, String interfacename, String dns, String ostype, String execusername, String execpassword)</i> | This method sets the DNS server address that is set for the operating system. If the method successfully sets the DNS server address, it returns "Success". If the method fails to set the DNS server address, it returns an exception. |
| <i>String set_wins(String hostname, String username, String password, String interfacename, String wins)</i> | This method sets the WINS address that is set for the operating system. If the method successfully sets the WINS address, it returns "Success". If the method fails to set the WINS address, it returns an exception. |

Input Information

*hostname*Specify the host name or IP address.

*username*Specify the name of the user using SSH to connect to the host for the server.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux: root

*password*Specify the password of the user using SSH to connect to the host for the server.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

*domain*Specify the domain name set for the operating system.

*workgroup*Specify the work group name set for the operating system.

*domainusername*Specify the name of the user participating in the domain.

*domainuserpassword*Specify the password of the user participating in the domain.

*interfacename*Specify the name of the network interface for which the DNS server address or WINS address is set up.

*dns*Specify the DNS server address set for the operating system.

winsSpecify the WINS address set for the operating system.

ostype Specify the operating system type.

execusername Specify the name of the user who executes the processing.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

execpassword This library does not use the value of "execpassword".

The value of "execpassword" is ignored even if specified.

Notes

- If information other than the Management Server is entered for the "hostname" option, this library will execute actions using either the file transfer infrastructure or SSH communications. Specify settings so that communications can be performed using at least one of these methods. Refer to "[3.16 Notes of Each Communication Method](#)" for notes on these communication methods.
- If the connected user and the executing user are different, refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)".
- When using this library to create operation components, make sure that the Management Server installation directory does not contain whitespace characters or the result cannot be guaranteed.

File Location

| | |
|---------|---|
| Windows | <installation path>\SWRBAM\rbaope\bin\parts\lib\standard\swrba_systemoperation.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_systemoperation.rb |

3.15.14.4 Install Software

Class Name

Swrba_Systemoperation

List of Methods

| Method | Description |
|--|--|
| <i>String install_software(String hostname,String commandline, String sourcehostname, String sourcefile, String destinationfile, String ostype, String username, String password, String execusername, String execpassword, String sourceostype, String sourceusername, String sourcepassword)</i> | This method installs the software. If the method successfully installs the software, it returns "Success". If the method fails to install the software, it returns an exception. |

Input Information

hostname Specify the host name or IP address.

commandlineSpecify the command, with relevant arguments, that installs the software.

sourcehostnameSpecify the host name or IP address of the host from where the installation file of the software is to be sent.

sourcefileSpecify the name of the installation file.

destinationfileSpecify the name of the installation file on the installation destination.

`ostype` Specify the operating system type.

`username` Specify the name of the user using SSH to connect to the host.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux: root

`password` Specify the password of the user using SSH to connect to the host.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

`execusername` Specify the name of the user who executes the processing.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

`execpassword` This library does not use the value of "execpassword".

The value of "execpassword" is ignored even if specified..

`sourceostype` Specify the operating system of the host from where the file is to be transferred.

`sourceusername` Specify the name of the user using SSH to connect to the host from where the file is to be transferred.

`sourcepassword` Specify the password of the user using SSH to connect to the host from where the file is to be transferred.

Notes

- If information other than the Management Server is entered for the "hostname" option, this operation component will execute actions using the file transfer infrastructure or SSH communications. Specify settings so that communications can be performed using at least one of these methods. Refer to "[3.16 Notes of Each Communication Method](#)" for notes on these communication methods.
- If the connected user and the executing user are different, refer to "[3.16.7 Notes When Connected User And Executing User Are Different](#)".
- If a folder (or directory) has been specified for the installation file, this library compresses the files in the specified folder (or directory) before sending the archive file to the host where the software is to be installed. While this library is being processed, an archive file is temporarily created in the folders (or directories) specified for the "sourcefile" and "destinationfile" options.
- If the installation file is a self-extracting file, extract the file beforehand.
- The installation file sent to the host where the installation performed is not deleted even after the processing of this library is complete.
- Even if the software needs to reboot the operating system automatically, this library is exited normally.
- For the name of the installation file, use only alphanumeric characters and the following symbols:
"! " ~ " _ " - " . "
- Systemwalker Runbook Automation uses return values between 159 and 240. Return values outside this range and unused return values within the range are values output by the installation command rather than values set by Systemwalker Runbook Automation. Investigate the command itself.
- If a command that does not exist is specified for the commandline option, an error may occur with return value 42.
- When using this library to create operation components, make sure that the Management Server installation directory does not contain whitespace characters or the result cannot be guaranteed.

File Location

| | |
|---------|---|
| Windows | <installation path>\SWRBAM\rbaope\bin\parts\lib\standard\swrba_systemoperation.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_systemoperation.rb |

3.15.15 Application Server Library

The application server library provides the following classes:

| |
|--|
| Article number/class name |
| 3.15.15.1 Application Server |

3.15.15.1 Application Server

Class Name

Swrba_Appserver

List of Methods

| Method | Description |
|--|--|
| <i>String start_workunit(String hostname, String username, String password, String wuname, String systemname, String mwtype, String mwinstalledpath, String ostype, String execusername, String exceppassword)</i> | Start the WorkUnit of the specified host. "Success" is returned if start of the WorkUnit was successful. An exception is returned if start of the WorkUnit failed. |
| <i>String stop_workunit(String hostname, String username, String password, String wuname, String systemname, String stopmode, String mwtype, String mwinstalledpath, String ostype, String execusername, String exceppassword)</i> | Stop the WorkUnit of the specified host. "Success" is returned if stop of the WorkUnit was successful. An exception is returned if stop of the WorkUnit failed. |
| <i>Integer return_code()</i> | Return the return value of the results of the start/stop of the WorkUnit. |

Input Information

hostname Specify the host name or IP address.

username Specify the name of the user using SSH to connect to the host that starts or stops the WorkUnit.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux: root

password Specify the password of the user using SSH to connect to the host that starts or stops the WorkUnit.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

wuname Specify the name of the WorkUnit that starts or stops.

`systemname` Specify the name of the target that starts or stops the WorkUnit.

`stopmode` Specify the stop mode of the WorkUnit.

`mwtype` Specify the application server product name.

`mwinstalledpath` Specify the installation path of the command of linked target products.

`ostype` Specify the operating system of the host that starts or stops the WorkUnit. Specify Windows or Linux.

`execusername` Specify the name of the user who starts or stops the WorkUnit.

If the host specified by the "hostname" option is running on Windows, and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

`execpassword` This library does not use the value of "execpassword".

The value of "execpassword" is ignored even if specified.

Notes

- If the information except for the Management Server has been entered for "hostname", this library uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to the "[3.16 Notes of Each Communication Method](#)" for the notes of each communication method.
- If the connected user and executing user are different, refer to the "[3.16.7 Notes When Connected User And Executing User Are Different](#)".
- The target of this library is the following middleware.
Windows/Linux
 - Interstage Application Server Enterprise Edition V9.0.0 or later
 - Interstage Application Server Standard-J Edition V9.0.0 or later
 - Interstage Business Application Server Enterprise Edition V9.0.0 or later
 - Interstage Business Application Server Standard Edition V9.0.0 or later
 - Interstage Web Server V9.0.0 or later
 - Interstage Web Server Express V11.0.0 or later

File Location

| | |
|---------|--|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\standard\swrba_appserver.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_appserver.rb |

3.15.16 Event Library

The event library provides the following classes:

| Article number/class name |
|---------------------------------|
| 3.15.16.1 Event |

3.15.16.1 Event

Class Name

Swrba_event

List of Methods

| Method | Description |
|--|--|
| <i>String event_confirm(String hostname, String eventmessage, String startdate, String starttime, String enddate, String endtime, String targethostname, String extendedoptions, String mwtype, String mwinstalledpath, String ostype, String username, String password, String execusername, String execpassword)</i> | Checks whether an event has occurred based on the event database of the operation management product that is monitoring events. The search result of event DB is returned if confirmation of the event occurrence was successful. An exception is returned if confirmation of the event occurrence failed. |
| <i>String event_updatestatus(String hostname, String eventnumber, String eventstatus, String mwtype, String mwinstalledpath, String ostype, String username, String password, String execusername, String execpassword)</i> | Change the status of events in the event database of the operation management product that is monitoring events. "Success" is returned if the status of the event was changed successfully. An exception is returned if the status of the event failed to be changed. |
| <i>Integer return_code()</i> | Return the return value of the results of the occurrence confirmation or status change of event. |

Input Information

hostname Specify the host name or IP address.

eventmessage Specify the text string that searches for events in the confirmation of an event's occurrence.

startdate Specify the date when the event occurred in the YYYYMMDD format.

starttime Specify the time when the event occurred in the hhmmss format.

enddate Specify the date when the event ended in the YYYYMMDD format.

endtime Specify the time when the event ended in the hhmmss format.

targethostname Specify the host name that is the event's occurrence source.

extendedoptions Specify the following parameters of the linked command. Those are the time that becomes starting or end point, the option and parameter except the host name of event occurrence.

eventnumber Specify the event number changing the status.

eventstatus Specify the event's status after it has changed.

mwtype Specify the name of the operation management product that monitors events.

mwinstalledpath Specify the installation directory of the operation management product.

ostype Specify the operating system of the server that monitors events.
Specify Windows or Linux.

username Specify the name of the user connecting to the host using SSH.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user
- If the Business Server is running on Linux: root

`password` Specify the password of the user connecting to the host using SSH.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

`execusername` Specify the name of the user executing processes.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

`execpassword` This library does not use the value of "execpassword".

The value of "execpassword" is ignored even if specified.

Notes

- If the information except for the Management Server has been entered for 'hostname', this library uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to the ["3.16 Notes of Each Communication Method"](#) for the notes of each communication method.
- If the connected user and executing user are different, refer to the ["3.16.7 Notes When Connected User And Executing User Are Different"](#).

File Location

| | |
|---------|--|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\standard\swrba_event.rb |
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_event.rb |

3.15.17 Job Net Library

The job net library provides the following classes:

| Article number/class name |
|-----------------------------------|
| 3.15.17.1 Job Net |

3.15.17.1 Job Net

Class Name

Swrba_Jobnet

List of Methods

| Method | Description |
|---|---|
| <i>String jobnet_start(String hostname, String jobnetname, String projectname, String subsystem, String mwtype, String mwinstalledpath, String ostype, String username, String password, String execusername, String execpassword,)</i> | Start the job net. "Success" is returned if the start was successful. An exception is returned if the start failed. |

| | |
|---|--|
| <i>String jobnet_check_status(String hostname, String jobnetname, String projectname, String subsystem, String mwtype, String mwinstalledpath, String ostype, String username, String password, String execusername, String exceppassword,)</i> | <p>Acquire the status of the job net.</p> <p>The status of the job net is returned if confirmation was successful.</p> <p>An exception is returned if confirmation failed.</p> |
|---|--|

Input Information

hostname Specify the host name or IP address.

jobnetname Specify the name of the job net where operations are performed.

projectname Specify the project name of the job net where operations are performed.

subsystem Specify the sub system number of the job net where operations are performed.

mwtype Specify the job management product name.

mwinstalledpath Specify the installation path of the middleware command.

ostype Specify the operating system type.

username Specify the name of the user connecting with SSH to the host of servers.

If the operation component connects with the file transfer infrastructure, the connected user name will be fixed at either of the following names and cannot be changed. In this case, the user name is ignored even if specified.

- If the Business Server is running on Windows: SYSTEM user

- If the Business Server is running on Linux: root

password Specify the password of the user connecting to the host using SSH.

If the operation component connects with the file transfer infrastructure, the password is ignored even if specified.

execusername Specify the name of the user executing processes.

If the host specified by the "hostname" option is running on Windows and the connection is made using the file transfer infrastructure, execute the command as a SYSTEM user. In this case, the user name is ignored even if specified.

exceppassword This library does not use the value of "exceppassword".

The value of "exceppassword" is ignored even if specified

Notes

- If the information except for the Management Server has been entered for "hostname", this library uses the file transfer infrastructure or SSH communication to perform its operations. Set either at least to be able to communicate. Refer to the "[3.16 Notes of Each Communication Method](#)" for the notes of each communication method.
- If the connected user and executing user are different, refer to the "[3.16.7 Notes When Connected User And Executing User Are Different](#)".

File Location

| | |
|---------|---|
| Windows | <Installation directory>\SWRBAM\rbaope\bin\parts\lib\standard\swrba_jobnet.rb |
|---------|---|

| | |
|-------|---|
| Linux | /opt/FJSVswrbam/rbaope/bin/parts/lib/standard/swrba_jobnet.rb |
|-------|---|

3.16 Notes of Each Communication Method

The operation components communicate between the Management Server and a Linked Server or Business Server as follows.

- File Transfer Infrastructure
- SSH
- Windows PowerShell
- Telnet
- RSH
- REXEC
- FTP
- If a Systemwalker Runbook Automation Agent has been installed on a Linked Server or Business Server, communications will be performed using the file transfer infrastructure. If a Systemwalker Runbook Automation has not been installed, communications will be performed using SSH (*1). However, if an error occurs with communications using the file transfer infrastructure, subsequent communications will be performed using SSH (*1) as the communication method.

*1: The following operation components also perform communications using methods other than SSH.

- Execute arbitrary command
 - SSH
 - Windows PowerShell
 - Telnet
 - RSH
 - REXEC
- Transfer files
 - SSH
 - FTP

Each note is explained as follows.



Communication using Windows PowerShell can only be used when the operating system type of the Management Server, Linked Servers, and Business Servers is Windows.

3.16.1 Notes of File Transfer Infrastructure

- The following software is necessary if instructions for operations are to be given to each server by the operation components.
 - Systemwalker Runbook Automation Agent
- The communication port which requires communication permission on a Linked Server or Business Server is TCP port 9664. However, if the port number of the file transfer infrastructure was changed, it is necessary to permit the communication of the port number after it changes.
- If the Linked Server or Business Server is Linux or Solaris, it operates depending on the value of connected user's environment variable LANG. If Windows system, the character code operates by EN.

For example, for the "Search string in file" operation component running on a Linux or Solaris Business Server, the specified search text string (searchstring) is converted to the character code of the root user's LANG environment variable and is searched.

3.16.2 Notes on SSH

- The following software is necessary if instructions for operations are to be given to each server by the operation components.
 - The following software is necessary to perform SSH communications between the Management Server and a Linked Server or Business Server in a Windows system.
 - SSH V2.0 or later

Install OpenSSH (Cygwin OpenSSH V1.7 or higher) in environments where SSH has not been installed yet.

The command also depends on the environment in which Cygwin OpenSSH is installed.

Add the following to the ".bashrc" file that exists in the home directory of connected user of cygwin OpenSSH.

```
export LANG=en
```

- Depending on the version of the operating system, the following software may be necessary to perform SSH communications in a UNIX system.
 - SSH V2.0 or later

For Red Hat Enterprise Linux 5.0 or later or Solaris 10 or later, this software is installed as a standard operating system function.

Install OpenSSH in environments where SSH has not been installed yet.

- The communication port which requires communication permission on Business Server is TCP port 22.
- When you use the operation components "Obtain configuration information" or "Update configuration information", there are notes as follows.
 - When updating configuration items stored in a Configuration Management Database on a server (Linked Server or Business Server) other than the Operation Automation Server, and that server is a Windows system, it is necessary to set the environment variables of the Configuration Management Database in the environment variables of Cygwin. Create "F4AN_INSTALL_PATH" in the Cygwin environment variable, and specify the environment variables of the Configuration Management Database set in the Linked Server or Business Server.

- It operates depending on the value of connected user's environment variable LANG in the Linked Server or Business Servers. If Windows system, the character code operates by environment variable LANG on Windows.

For example, for the "Search string in file" operation component running on a Linux or Solaris Business Server, the specified search text string (searchstring) is converted to the character code of the user LANG environment variable specified in the "username" option and is searched.

However, when you use the operation components "Execute multiple commands", it operates depending on the value of specified the character code in charactercode option.

3.16.3 Notes on Windows PowerShell

- To give operation instructions to each server using operation components, the following software is required on the Management Server and the servers that will receive operation instructions.
 - Windows PowerShell 2.0 or later

In environments where it is not already installed, Windows PowerShell 2.0 or later should be installed. For details, refer to document number 968929 on Microsoft Online, published by Microsoft.

- To give operation instructions to each server using Windows PowerShell with operation components, environment setup is required on the Management Server and Business Servers. Refer to "Windows PowerShell Communication Setting" in the *Systemwalker Runbook Automation Installation Guide* for details.



.....
For Windows Server 2008 R2 and subsequent Windows Server versions, Windows PowerShell 2.0 is installed by default.
.....

3.16.4 Notes on Telnet

- Check whether Telnet requests a user name and password with the following login prompts. If not, commands cannot be executed using Telnet.

| |
|---|
| <ul style="list-style-type: none">- xxxlogin:- Password: |
|---|

xxx: Arbitrary string

- To use the "Execute an arbitrary command" operation component, check whether the end of the prompt string used after logging in matches one of the following. If not, commands cannot be executed using Telnet.
 - "\$ *Space*"
 - "\$"
 - "% *Space*"
 - "% "
 - "# *Space*"
 - "#"
 - "> *Space*"
 - ">"
- You will need to allow communications via TCP port 23 on Linked Servers and Business Servers.

3.16.5 Notes on RSH and REXEC

- Create environments on Linked Servers and Business Servers so that connections can be established using the following user on the Management Server.
 - If the Management Server is running on Windows: "administrator" user
 - If the Management Server is running on Linux or Solaris: "root" user
- Communication must be allowed on the Management Server for the communication ports specified by the accport option of the "Execute an arbitrary command" operation component. By default, these ports are TCP ports from 1014 to 1023.
- You will need to allow communications via the following port numbers on Business Servers.
 - RSH: 514/tcp
 - REXEC: 512/tcp

3.16.6 Notes on FTP

- The following software is required to give operation instructions to each server using operation components.
 - On Windows systems, the following software is required.
 - Internet Information Service (IIS) and FTP ServiceInstall IIS and FTP if it they have not been installed yet.
 - On UNIX systems, the following software is required.
 - vsftpdInstall vsftpd if it has not been installed yet.
- Files are transferred in active mode.
- You will need to allow communications via TCP ports 20 and 21 on Business Servers.

3.16.7 Notes When Connected User And Executing User Are Different

The sudo command is used when the connected user and executing user are different. The following settings are required on Business Servers so that the sudo command can be executed from Systemwalker Runbook Automation.

1. Log in to the Business Server.
2. Switch to the root user or a user that has administrator privileges.
3. Edit the sudo configuration file.

```
# visudo
```

4. Edit the file so that the following settings are configured for connected users.
 - The sudo command can be executed from terminals other than "tty" terminals.
 - The sudo command can be executed without specifying the password.
 - The value of the LANG environment variable is transferred to the executing user.

Example 1: This example shows how to allow a connected user, "user1", to execute the sudo command from terminals other than "tty" terminals.

```
Defaults:user1 !requiretty
```

Example 2: This example shows how to allow a connected user, "user1", to execute the sudo command without specifying the password.

```
user1 ALL=(ALL) NOPASSWD:ALL # Omit input of user1 password
```

Example 3: This example shows the settings for allowing a connected user, "user1", to transfer the value of the LANG environment variable to the executing user.

If LANG is included in the Defaults:user1 env_keep parameter, the value of the LANG environment variable will be transferred to the executing user.

```
Defaults:user1 env_keep = "COLORS DISPLAY HOSTNAME HISTSIZE INPUTRC KDEDIR \  
LS_COLORS MAIL PS1 PS2 QTDIR USERNAME \  
LANG LC_ADDRESS LC_CTYPE LC_COLLATE LC_IDENTIFICATION \  
LC_MEASUREMENT LC_MESSAGES LC_MONETARY LC_NAME LC_NUMERIC \  
LC_PAPER LC_TELEPHONE LC_TIME LC_ALL LANGUAGE LINGUAS \  
_XKB_CHARSET XAUTHORITY"
```

- Note that the above setting has effects beyond the execution of Systemwalker Runbook Automation, so take care when setting.
- As the sudo command does not exist if the Business Server is a Windows or Solaris system, an error occurs if the connected user and executing user are different. Ensure that the same user is specified as connected user and executing user if the Business Server is a Windows system.

3.17 Notes on Specifying Multiple Input Parameters

The following operation components have options that allow multiple input parameters to be specified:

- Get value using SNMP:oid
- Set value using SNMP:oid,value,type
- Send SNMP trap:oid,value,type
- Execute Web service:parametername,parametervalue,returnproprname
- Check that the service has started: service

- Start the server: hostname,ipmiipaddress,ipmiusername,ipmipassword
- Stop the server: hostname,ipmiipaddress,ipmiusername,ipmipassword
- Stop OS: hostname,ostype,username,password,execusername
- Restart OS: hostname,ostype,username,password,execusername
- Start virtual server: "servername"
- Stop virtual server: "servername"
- Restart virtual server: "servername"
- Build virtual server: network,serveripaddress
- Stop the virtual server on the VM host: vmhost
- Set the maintenance mode of the VM host: vmhost
- Stop the VM host forcibly: vmhost
- Check whether the server is running normally: service,port
- Disable server monitoring:deterrenceipaddress,deterrencehostname
- Get performance counter:perfcounterpath
- Check operating status of node: hostname
- Check whether connection to the port is possible: "port"
- Set the operating system network: dns,wins
- Install OS update:mod_patchfilename,wsus_patchno, yum_packagename
- Register Schedule Definitions: param

Specify these parameters in CSV format.

The specification for CSV format is shown below.

- Columns are separated using commas (",").
- If data includes commas (",") or double quotes ("), enclose the entire data specified for the column in double quotes ("). In addition, if data includes double quotes ("), enter two consecutive double quotes. Entering two consecutive double quotes expresses one double quote symbol.

Example 1: Specifying a comma (",") (expressing "service,F" for the last column for the "service" option)

```
"serviceA","serviceB","serviceC","serviceD","serviceE","service,F"
```

Example 2: Specifying a double quote (") (expressing "service"F" for the last column)

```
"serviceA","serviceB","serviceC","serviceD","serviceE","service""F"""
```

- To enter a default value, specify an empty string using either of the following formats:

Example 1: Enter nothing between separator commas. (When specifying the default value for the last two columns for the "ostype" option)

```
"Windows","Windows","Linux","Linux","Linux","Windows",,
```

Example 2: Enter nothing between enclosing double quotes (When specifying the default value for the last two columns for the "ostype" option)

```
"Windows","Windows","Linux","Linux","Linux","Windows","",""
```

- It is not possible to insert linefeed characters within column data.

Refer to the reference sections for each operation component for information on the options that can be specified, the maximum number of parameters that can be specified, and the specification order.

The following examples use the "network" and "serveripaddress" options for the "Create virtual server" operation component.

Example: Specifying three network resource name/IP address pairs

| Network environment | Network resource name | IP address | How to specify the "network" and "serveripaddress" options |
|---------------------|-----------------------|------------|---|
| Environment 1 | network_a | 192.0.2.0 | network: network_a,network_b,network_c serveripaddress: 192.0.2.0,192.0.2.1,192.0.2.2 |
| Environment 2 | network_b | 192.0.2.1 | |
| Environment 3 | network_c | 192.0.2.2 | |

Example: Specifying multiple instances of the same network resource name

| Network environment | Network resource name | IP address | How to specify the "network" and "serveripaddress" options |
|---------------------|-----------------------|------------|---|
| Environment 1 | network_a | 192.0.2.0 | network: network_a,network_b,network_b serveripaddress: 192.0.2.0,192.0.2.1,192.0.2.2 |
| Environment 2 | network_b | 192.0.2.1 | |
| Environment 3 | network_b | 192.0.2.2 | |

Example: Omitting the IP address specification for the second network environment while specifying IP addresses for the first and third network environments

| Network environment | Network resource name | IP address | How to specify the "network" and "serveripaddress" options |
|---------------------|-----------------------|-----------------|--|
| Environment 1 | network_a | 192.0.2.0 | network: network_a,network_b,network_c serveripaddress: 192.0.2.0,,192.0.2.2 |
| Environment 2 | network_b | (Not specified) | |
| Environment 3 | network_c | 192.0.2.2 | |

Example: Omitting the IP address specification for the first and second network environments while specifying an IP address for the third network environment

| Network environment | Network resource name | IP address | How to specify the "network" and "serveripaddress" options |
|---------------------|-----------------------|-----------------|--|
| Environment 1 | Network_a | (Not specified) | network: network_a,network_b,network_c serveripaddress: ,, 192.0.2.2 |
| Environment 2 | Network_b | (Not specified) | |
| Environment 3 | Network_c | 192.0.2.2 | |

Example: Omitting the IP address specification for the first and third network environments while specifying an IP address for the second network environment

| Network environment | Network resource name | IP address | How to specify the "network" and "serveripaddress" options |
|---------------------|-----------------------|-----------------|---|
| Environment 1 | Network_a | (Not specified) | network: network_a,network_b,network_c serveripaddress: , 192.0.2.1 |
| Environment 2 | Network_b | 192.0.2.1 | |
| Environment 3 | Network_c | (Not specified) | |

3.18 Information Registration to CMDB (Management Product of Virtual Environment)

In the following operation components, when you manage the virtual environment with ServerView Resource Orchestrator, the management product information and the authentication information of the Management Server are acquired from CMDB. Therefore, it is necessary to store needed information in CMDB beforehand.

- Start virtual server
- Stop virtual server
- Restart virtual server
- Build virtual server
- Delete virtual server
- Change virtual server system
- Obtain a list of virtual servers
- Obtain detailed information about the virtual server
- Create snapshot of virtual server
- Restore snapshot of virtual server
-

Also, for the following operation components, obtain product information for virtual software and management product authentication information from CMDB (this information must have been stored in CMDB beforehand):

- Start virtual server
(if not managing virtual server that is subject of operation with ServerView Resource Orchestrator)
- Stop virtual server
(if not managing virtual server that is subject of operation with ServerView Resource Orchestrator)
-

3.18.1 Information of Management Product of Virtual Environment

Register If information of the management product of the virtual environment is not registered in Configuration Management Database(CMDB). In addition, if the management product of the virtual environment has cluster configurations, check that the representative IP address of the cluster system has been registered correctly.

In [LogicalServer] and [InstalledSoftware], confirm whether following information is registered, and register if it is not registered. And relate registered [InstalledSoftware] with [LogicalServer].

Table 3.1 Set content to LogicalServer

| Attribute | Set value |
|-------------------|---|
| Unique identifier | Optional value |
| Host name | The host name of the Management Server of the virtual environment |
| IP address | IP address of the Management Server of the virtual environment (*1) |

*1: If the management product of the virtual environment has cluster configurations, specify the representative IP address of the cluster system.

Table 3.2 Set content to InstalledSoftware
(If managing server with ServerView Resource Orchestrator)

| Attribute | Set value |
|-------------------|---|
| Unique identifier | Optional value |
| Product name | ServerView Resource Orchestrator or ServerView Resource Orchestrator Manager or FJSVrcvmr |
| Special note | The port number to perform REST communication with ServerView Resource Orchestrator(*1) |

*1: It is possible to omit it. If it is omitted, the port number uses 23461.

Table 3.3 Set content of installed software (InstalledSoftware)
(If not managing with ServerView Resource Orchestrator)

| Attribute | Set value |
|-------------------|-----------------------|
| Unique identifier | Optional value |
| Product name | VMware vCenter Server |

Table 3.4 Set content of relation

| Reference source | Reference destination |
|------------------|-----------------------|
| LogicalServer | InstalledSoftware |

Note

- When some virtual servers are managed with ServerView Resource Orchestrator but others are not, register both the ServerView Resource Orchestrator information and the VMware information.
- When the Management Server and virtual environment management server are the same, set the IP address values to one of the following.

For IPv4:

- "localhost"
- "127.0.0.1"

For IPv6:

- "localhost"
- "::1"



Refer to "Registering, Updating and Deleting Configuration Items" in the *Systemwalker Runbook Automation Operation Guide* for information on how to register data on CMDB.

3.18.2 Authentication Information of Management Product of Virtual Environment

Set the authentication information of the Management product of the virtual environment by using swrba_uaimport command.

1. Use the swrba_uaimport command to register the user name and password which are registered as administrator on the virtual environment's management server in the CMDB [user account] design record.

- Example of input file specified by swrba_uaimport command (CSV format)

```
"IP address of the virtual environment Management Server","OS","Name of the user registered as the administrator in the virtual environment management product","Password of the user registered as the administrator in the virtual environment management product","false","false",,"comment"
```

Refer to "swrba_uaimport (User Information Import Command)" in the *Systemwalker Runbook Automation Reference Guide*.

2. Check that the following information is registered in the CMDB [Installed software] observed record.

Table 3.5 Set content of installed software (InstalledSoftware)

| Attribute | Set value |
|-------------------|---|
| Unique identifier | Optional value |
| Product name | <ul style="list-style-type: none"> - If managing server with ServerView Resource Orchestrator: ServerView Resource Orchestrator or ServerView Resource Orchestrator or FJSVrcvmr - Otherwise: VMware vCenter Server |



Refer to "CI View" in the *Systemwalker Runbook Automation Operation Guide* for information on how to check CMDB information.

3. Use swrba_uaimport to relate Installed software to the registered user account.

Table 3.6 Related set content

| Reference source | Reference destination |
|--------------------|-----------------------|
| Installed software | User account |



Refer to "Registering, Updating and Deleting Configuration Items" in the *Systemwalker Runbook Automation Operation Guide* for information on how to relate data in CMDB.

3.19 vCenter Server Settings

For the following operation components, use VMware vSphere PowerCLI or Windows PowerShell to execute virtual server operations on a vCenter Server. This section describes the required environment settings.

- Stop the virtual server on the VM host
- Set the maintenance mode of the VM host
- Stop the VM host forcibly
- Start virtual server
(if not managing virtual server that is subject of operation with ServerView Resource Orchestrator)
- Stop virtual server
(if not managing virtual server that is subject of operation with ServerView Resource Orchestrator)

Setting environment variables

To use the targeted operation components, environment variables must be set.

Add the following to the vCenter server system environment variables path. Restart the vCenter Server to enable the added environment variables.

- Path to the VMware vSphere Power CLI script

```
<VMware vSphere PowerCLI installation folder>\Scripts
```



If the VMware vSphere PowerCLI installation folder is not changed, see below for the default path to the VMware vSphere PowerCLI script.

32-bit architecture:

```
C:\Program Files\VMware\Infrastructure\vSphere PowerCLI\Scripts
```

64-bit architecture:

```
C:\Program Files (x86)\VMware\Infrastructure\vSphere PowerCLI\Scripts
```

Changes to PowerShell run policy

The Windows PowerShell script run policy must be changed to "RemoteSigned". Refer to the Windows PowerShell manual for information on the run policy.

To change the run policy, start the PowerShell as administrator and then execute the following command:

```
Set-ExecutionPolicy RemoteSigned
```

For 64-bit architecture, execute using the PowerShell editions shown below:

| vCenter Server environment | | PowerShell to be executed |
|--|--|---------------------------|
| If the Management Server is the same as the vCenter Server | | x86 PowerShell |
| If the Management Server is not the same as the vCenter Server | If 32-bit Systemwalker Runbook Automation Agent is installed on the vCenter Server | |
| | If 64-bit Systemwalker Runbook Automation Agent is installed on the vCenter Server | 64-bit PowerShell |

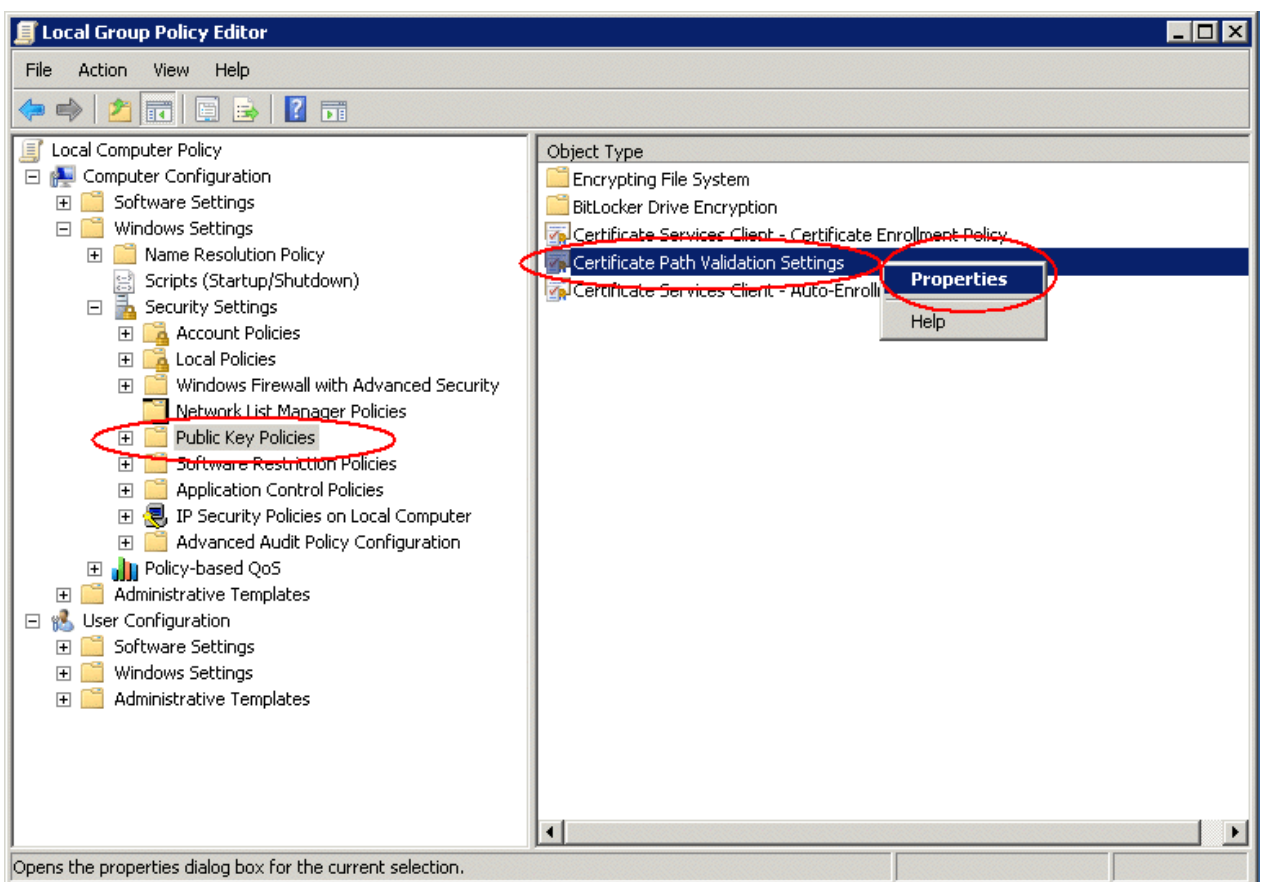
VMware vSphere Power CLI port number settings

The targeted operation components use VMware vSphere Power CLI to execute operation requests to the VMware vCenter Server. VMware vSphere Power CLI carries out HTTPS communication with the VMware vCenter Servers. Therefore, open port 443 (HTTPS) on the firewall.

Certificate path verification settings

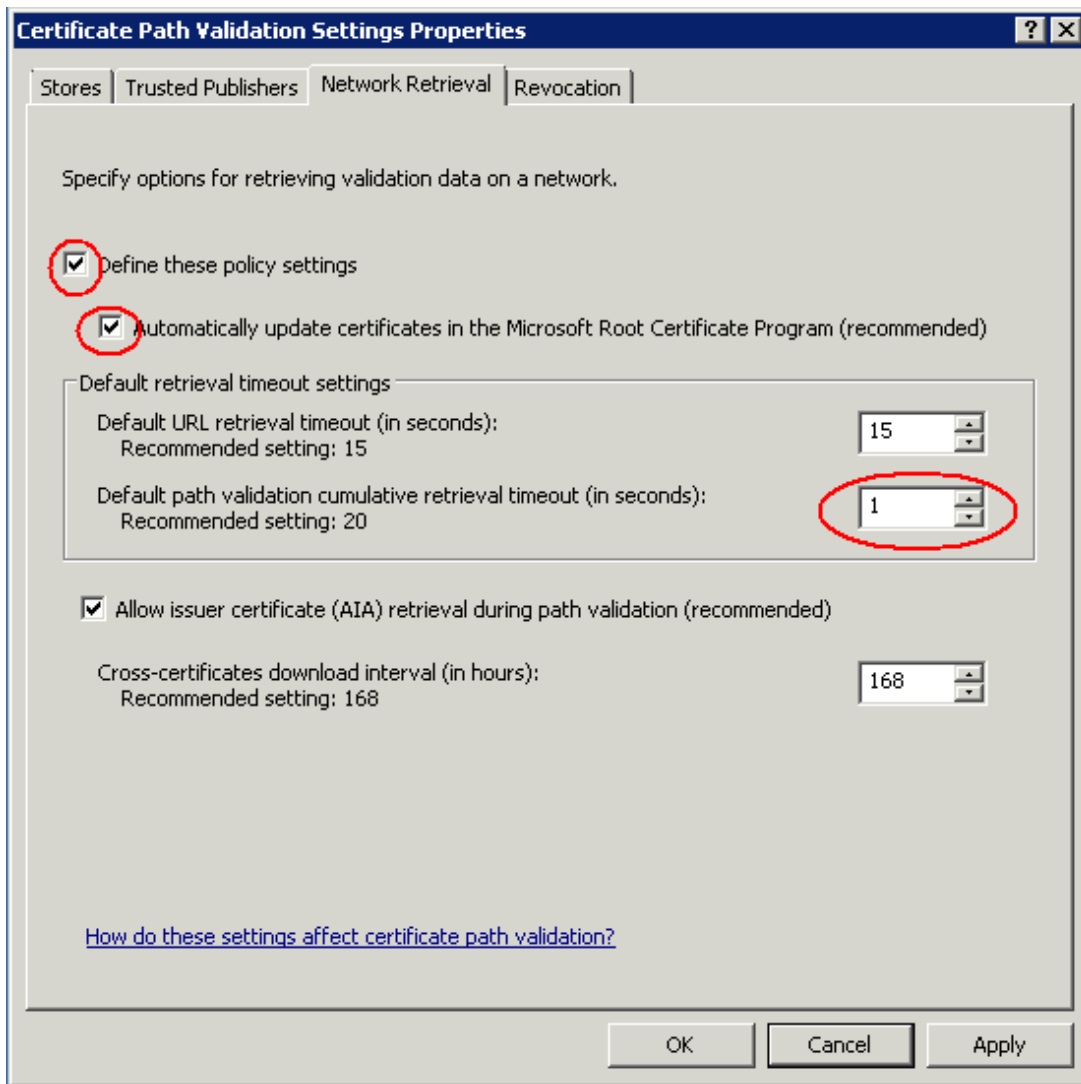
The targeted operation components use VMware vSphere Power CLI to execute operation requests to the VMware vCenter Server. If the vCenter server network environment is not connected to the internet, connecting to VMware vCenter Server may take some time. This can be avoided by applying the following settings.

1. On the **Start** menu, click **Run**.
2. Type "gpedit.msc" to open the Group Policy Editor.
3. Go to **Computer Configuration >> Windows Settings >> Security Settings >> Public Key Policies**, then in the right pane, right-click **Certificate Path Validation Settings**, and select **Properties**.



4. Click the **Network Retrieval** tab, and specify the following:
 - Select **Define these policy settings**.
 - Select **Automatically update certificates using the Microsoft Root Certificate Program (recommended)**.

- Set **Default path validation cumulative retrieval timeout (in second): Default = 20 to 1.**



Note

Products attempting to obtain a digital signature from the Internet may become unable to do so. The above settings should only be used when the vCenter Server network environment is not connected to the Internet.

3.20 Information Registration to CMDB (Confirm Information of Normal Running Status of Server)

In Operation components: *Check whether the server is running normally*, if the following settings confirming running status are omitted, they will be collected from CMDB automatically.

If there are many target servers to be confirmed and many information to be confirmed, with registering required information to CMDB previously, it is convenient not to need to set in input options every times.

- Service name
- Port number

3.20.1 Registering Confirm Information of Normal Running Status of Server

Registering confirm information of running status

First of all, determine the belonged group name to be confirmed target server , the service name to be confirmed, and port number.

For example, if there are 3 types (Web server/AP server/DB server) target server.

And if the confirmed group name are "Web", "AP", "DB". Determine confirmed service name, and port number in each confirmed group name. Service name and port number can be specified multiply.

Additionally, in confirmed group name, use only one-byte alphabet and numbers, "-"(hyphen), "_"(underscore), and "/"(diagonal).

| Confirmed group name | Service name | Port number |
|----------------------|---------------|-------------|
| Web | IISADMIN | 80 |
| AP | Apache Tomcat | 8080 |
| DB | SQL Server | 1433 |

Register confirm information of running status determined above to CMDB. Register confirm information to expected record.

According to above confirm information, for "logical node", "service/daemon", and "OS process" of expected record , confirm whether the following information are registered. If no register, register it. Also relate registered "service/daemon" and "OS process" to "logical node"

Table 3.7 Setting information to Logical Node [LogicalServer](expected record)

| Attribute | Setting value |
|------------|----------------------|
| Unique ID | Confirmed group name |
| IP Address | Optional value |

Table 3.8 Setting information to service/daemon [OSService](expected record)

| Attribute | Setting value |
|--------------|---|
| Unique ID | Optional value |
| Service name | Service name to confirm starting status (Service name of Windows) |

Table 3.9 Setting information to OS process [Process](expected record)

| Attribute | Setting value |
|--------------|---|
| Unique ID | Optional value |
| Process name | Port number or service name to confirm whether can be connected |

Table 3.10 Setting information of association

| Refer from | Refer to |
|--------------|----------------|
| logical node | Service/daemon |
| logical node | OS process |

Registering Information of Confirmed Target Server

Register "Group name to confirm" which apply in confirmed target server to "Logical node" of confirmed target server. Register it to observed record.

For "logical node" of observed record, confirm whether the following information is registered. If no registered, register it.

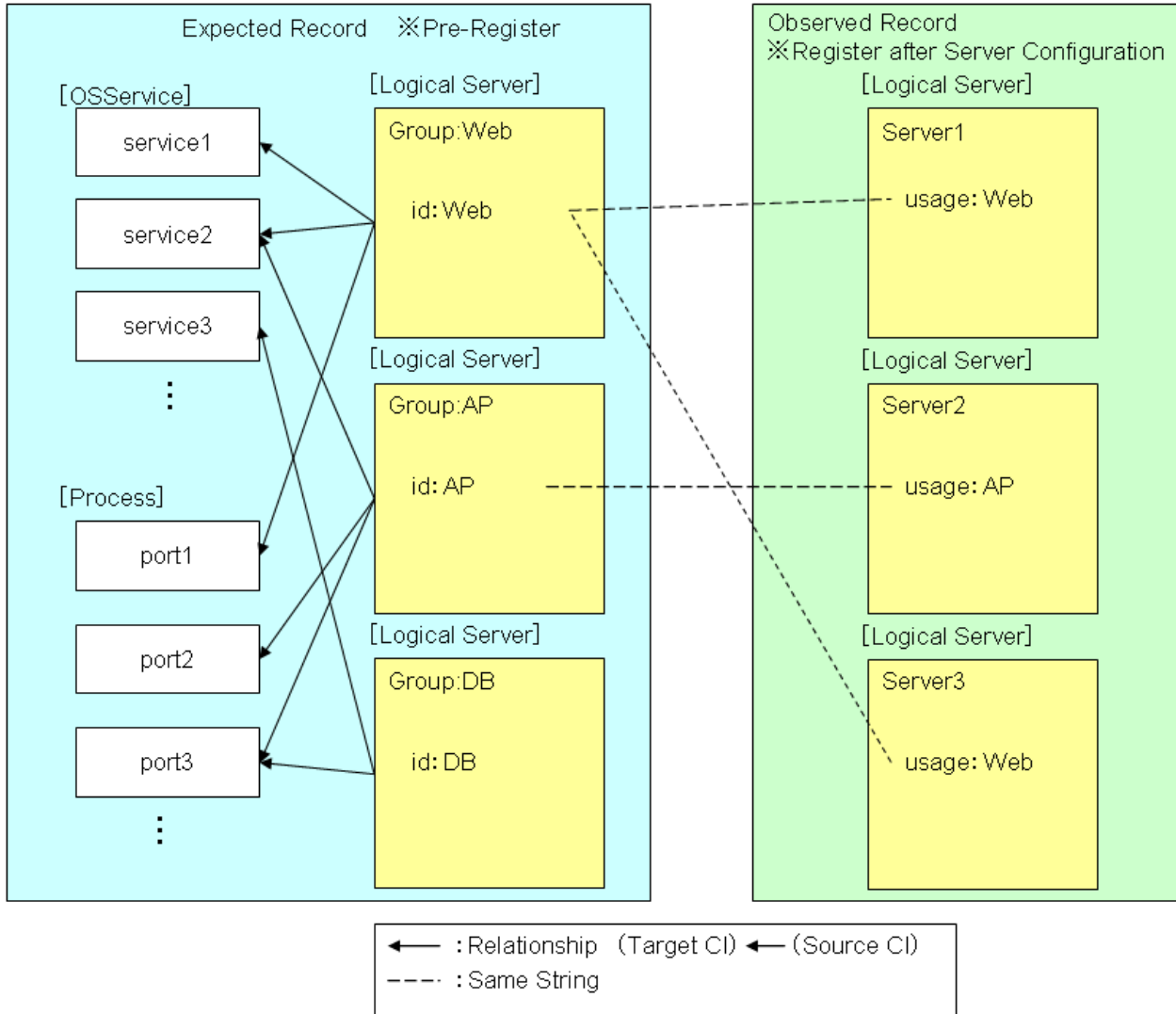
Table 3.11 Setting information of logical node [LogicalServer](Observed record)

| Attribute | Setting value |
|-----------|-----------------------|
| Use | Group name to confirm |



For the operation to register data to CMDB, refer to the *Configuration Management* in the "Systemwalker Runbook Automation Operation Guide"

The relationship between "logical node", "Service/daemon", and "OS process" are described below.



In above figure, confirmed group name, service name and port number are registered as below.

| Confirmed group name | Service name | port number |
|----------------------|--------------------|-------------|
| Web | service1, service2 | port1 |
| AP | service2 | port2,port3 |
| DB | service3 | port3 |

Also, the confirmation of running status of server1 and server3 can be executed by registering information of Web group, and the confirmation of running status of server2 by registering information of AP group.

3.20.2 Referring Confirm Information of Normal Running Status of Server

With using operation component "Obtain configuration information", you can obtain confirm information of running status registered to CMDB, and you can specify obtained value as input information for the following operation components.

- To confirm service start
You can specify it in service option.
- To confirm whether it is possible to connect with port
You can specify it in port option.

The specifiable value in *service* option of operation component " Check that the service has started " can be obtained from CMDB by specifying in *searchxpath* and *xpath* option of operation component "Obtain configuration information" as below.

Table 3.12 Obtain service name to confirm start

| Option name | Setting value |
|-------------|---|
| searchxpath | /%LogicalServer[./#expected/rc:LogicalServer[@id='Group name']]/&GRelation/%OSService |
| xpath | entities/cmdb:item/cmdb:record/ns0:OSService/attribute::name |

The specifiable value in *port* option of operation component " Check whether connection to the port is possible " can be obtained from CMDB by specifying in *searchxpath* and *xpath* option of operation component " Obtain configuration information " as below.

Table 3.13 Obtain port number to confirm whether it is possible to connect

| Option name | Setting value |
|-------------|---|
| searchxpath | /%LogicalServer[./#expected/rc:LogicalServer[@id='Group name']]/&GRelation/%Process |
| xpath | entities/cmdb:item/cmdb:record/ns0:Process/attribute::name |

Also, if the group name to confirm is unknown, it can be obtained from CMDB by specifying in *searchxpath* and *xpath* option of operation component " Obtain configuration information " as below.

Table 3.14 Obtain group name to confirm

| Option name | Setting value |
|-------------|--|
| searchxpath | /%LogicalServer[./#observed/rc:LogicalServer[@hostname='host name']] or /%LogicalServer[./#observed/rc:LogicalServer[@ipAddress='IP address']] |
| xpath | entities/cmdb:item/cmdb:record/ns0:LogicalServer/attribute::usage |

3.21 Detailed Code of File Transfer Infrastructure

If you detect abnormality when the instructions of the operation to each server using the file transfer infrastructure are executed, the operation components are ended with return value 187 or 189. When this happens, the detailed code for the file transfer infrastructure is output to the execution results of the operation component using the following format.

```
[LinkExprBA] CategoryCode : Error category
[LinkExprBA] ErrorCode    : Error code
[LinkExprBA] DetailCode   : Error details
```

Remove the cause of the error based on the error category and error code.

Details of the error categories and error codes are covered below.

Error Classification: 40, Error Code: 10

[Description]

In communication processing with the Business Server using the file transfer infrastructure, because the following abnormalities had been detected, the processing of the operation components was discontinued.

- The specification of OS type is different from OS of the Business Server.

[Measures]

Confirm the specification of OS type. If the specification of OS type is correct, there is a possibility that abnormality is occurring in the file transfer infrastructure of the Business Server. Confirm the system log or event log in the Business Server whether abnormality is not occurring in the file transfer infrastructure of the Business Server.

Error Classification: 40, Error Code: 30

[Description]

In communication processing with the Business Server using the file transfer infrastructure, because the following abnormalities had been detected, the processing of the operation components was discontinued.

- The line fault occurred. The following causes are thought.
 - Abnormality occurred in the circuit to the Business Server.
 - Abnormality occurred in the file transfer infrastructure of the Business Server.
 - There is mistake in IP address information of own server set to the hosts file.

[Measures]

Confirm the following information:

- Confirm whether abnormality is not occurring in the circuit to the Business Server.
- Confirm the system log or event log in the Business Server whether abnormality is not occurring in the file transfer infrastructure of the Business Server.
- Confirm a set value of the hosts file.

Error Classification: 40, Error Code: 40

Error Classification: 40, Error Code: 50

Error Classification: 40, Error Code: 60

[Description]

In communication processing with the Business Server using the file transfer infrastructure, because the following abnormalities had been detected, the processing of the operation components was discontinued.

- In the file transfer infrastructure of the Business Server, the system error that it is impossible to continue processing occurred.

[Measures]

Confirm the system log or event log in the Business Server whether abnormality is not occurring in the file transfer infrastructure of the Business Server.

Error Classification: 50, Error Code: 10

[Description]

In communication processing with the Business Server using the file transfer infrastructure, because the following abnormalities had been detected, the processing of the operation components was discontinued.

- File transfer infrastructure is not started in the Management Server.

[Measures]

Start the file transfer infrastructure in the Management Server.

[Windows]

Restart "Systemwalker File Transfer Library Control" service.

[Linux]

```
# service FJSVlnkbs start
```

[Solaris]

```
# /etc/init.d/FJSVlnkbs start
```

Error Classification: 50, Error Code: 60

[Description]

In communication processing with the Business Server using the file transfer infrastructure, because the following abnormalities had been detected, the processing of the operation components was discontinued.

- The time-out was occurred in the communication with the Business Server.

The following causes are thought.

- Slowdown of Business Server
- Overload of communication environment
- Processing delay of the file transfer infrastructure or Agent.

[Description]

Confirm the following:

- Confirm whether the Business Server is not slowing down.
- Confirm the status of the load of the communication environment.
- Confirm the system log or event log in the Business Server.

Error Classification: 50, Error Code: 80

[Description]

In communication processing with the Business Server using the file transfer infrastructure, because the following abnormalities had been detected, the processing of the operation components was discontinued.

- It failed in the network communication connection with the Business Server.

[Description]

Confirm the following:

- There is a possibility that the file transfer infrastructure is not setting up in the Business Server. Confirm whether the file transfer infrastructure is setting up.
- There is a possibility that the Business Server is stopping. Confirm the startup status of the Business Server.
- There is a possibility that the file transfer infrastructure is not starting in the Business Server. Start the file transfer infrastructure.

[Windows]

Restart "Systemwalker File Transfer Library Control" service.

[Linux]

```
# service FJSVlnkbs start
```

[Solaris]

```
# /etc/init.d/FJSVlnkbs start
```

- There is a possibility that IP address of the corresponding Business Server name specified for the hosts file is incorrect. Confirm IP address specified for the hosts file.
- If the port number of the file transfer infrastructure has been changed, there is a possibility that information of the port number is incorrect. Confirm whether the port number set to the network definition of the Business Server and the port number set to the network definition of the file transfer infrastructure is corresponding. Refer to *How to Change Port Numbers* in the *Systemwalker Runbook Automation Installation Guide* for the setting of the port number.
- When it is a connection of TCP/IP and the server of connection destination is PC server, there is a possibility that the connection demand to exceed the number that WinSock is treatable at the same time is occurred in the Business Server.
- There is a possibility that the connection is refused by the firewall on the communication route.

- When the Business Server is Windows system, there is a possibility that the connection is being refused by the security setting of the Windows firewall etc.

Error Classification: 50, Error Code: 90

[Description]

In communication processing with the Business Server using the file transfer infrastructure, because the following abnormalities had been detected, the processing of the operation components was discontinued.

- It failed in the name resolution of the Business Server name.

[Measures]

Confirm whether the host name specified for a Business Server is correctly described in the hosts file or DNS.

Error Classification: 50, Error Code: 100

[Description]

One of the following errors has been detected with the communication processing with a Business Server using the file transfer infrastructure, and so, the processing for the operation component has been terminated.

- A temporary shortage of resources occurred.
- The number of operation component instances awaiting execution due to the number of instances exceeding the multiplicity limit has exceeded the maximum number allowed.

[Measures]

Check that there are no other operation processes running, and then restart the file transfer infrastructure on the Management Server.

[Windows]

Restart the "Systemwalker File Transfer Library Control" service.

[Linux]

```
# service FJSVlnkbs stop
# service FJSVlnkbs start
```

[Solaris]

```
# /etc/init.d/FJSVlnkbs stop
# /etc/init.d/FJSVlnkbs start
```

Chapter 4 Reference for QuickForm UI Widgets

This chapter gives information of QuickForm UI widgets.

4.1 Introduction

This chapter gives an overview of the UI widgets.

4.1.1 UI Widgets

"UI widgets" is a generic name for a group of widgets defined in a QuickForm. There are the following two types:

- [Screen Widgets](#)
- [Additional Functional Widgets](#)

Screen Widgets

"Screen widgets" is a group of widgets which are displayed on the screen such as text input fields, tables, etc. Widgets are transformed into HTML elements at runtime in the Web browser if you specify widgets in the accepted format for HTML.

The following table shows all screen widgets:

| Name | Type (This value is defined to type property) | Overview |
|-----------------------------|---|--|
| Text | IBPMText | The widget to display text. This corresponds to <code>text</code> in HTML. |
| TextInput | IBPMTextInput | The widget to input and edit a single line of text. This corresponds to <code><input type="text" value="value"></code> and <code><input type="password" value="value"></code> in HTML. |
| CheckBox | IBPMCheckBox | The widget to display an "on/off" (selected or cleared) check box. This corresponds to <code><input type="checkbox" value="value "></code> in HTML. |
| RadioButton | IBPMRadioButton | The widget to display a radio button. This corresponds to <code><input type="radio" value="value"></code> in HTML. |
| TextArea | IBPMTextArea | The widget to input and edit one or more lines of text. This corresponds to <code><textarea></code> in HTML. |
| Select | IBPMSelect | The widget to display a list from which single or multiple items can be selected. This corresponds to <code><select> <option></code> in HTML. |
| ComboBox | IBPMComboBox | The widget to display a combo box (sometimes called "dropdown box"), which consists of an input field and a list of items from which a single item can be selected. It is also possible to enter text directly in the input field. |
| DateInput | IBPMDateInput | A type of TextInput widget. This widget to input and edit the date and time. |
| NumberInput | IBPMNumberInput | A type of TextInput widget. This widget to input and edit numerical values. |
| SelectList | IBPMSelectList | The widget to display a list from which single or multiple items can be selected. |
| CheckList | IBPMCheckList | The widget to display a list with check box items. |

| Name | Type (This value is defined to type property) | Overview |
|-----------------------------------|---|---|
| ViewContainer | IBPMViewContainer | The general container widget. This widget can contain HTML elements, and the whole can be handled as one widget. ViewContainer itself does not have a view component. |
| Panel | IBPMPanel | The widget to display a container with a title bar. This consists of title part and body part. This widget can contain HTML elements for the body part. |
| ViewStack | IBPMViewStack | The widget to switch between containers in the same position. |
| TabPanel | IBPMTabPanel | The widget to display containers on tabbed pages. Users can switch between pages by clicking the tabs. |
| FragmentContainer | IBPMFragmentContainer | The container widget to load and display contents from an external source after the page has been displayed. |
| Calendar | IBPMCalendar | The widget to display a calendar and select a date. |
| PopupCalendar | IBPMPopupCalendar | The widget to display a popup calendar window. |
| CalendarButton | IBPMCalendarButton | The button widget to display a popup calendar when pressed. This is used with PopupCalendar. |

Additional Functional Widgets

Additional functional widgets add functions to screen widgets. The following table shows all additional function widgets:

| Name | Type (This value is defined to type property) | Overview |
|----------------------------------|---|--|
| RadioButtonGroup | RadioButtonGroup | The widget to group radio buttons. Using this widget, you can group radio buttons together into a group. |

4.1.2 Using UI Widgets

This subsection explains the method for describing UI widgets, and describes the setting of style.

4.1.2.1 Describing UI Widgets

UI widgets are described in HTML using the <div> tag or tag.

Format for the <div> tag:

```
<div rcf:id="widget ID" rcf:type="widget type" rcf:property_name="value" ... ></div>
```

Format for the tag:

```
<span rcf:id="widget ID" rcf:type="widget type" rcf:property_name="value" ... ></span>
```

| Attribute | Description |
|-----------|--|
| rcf:id | Specifies the widget ID (optional). In Systemwalker Runbook Automation Studio, you can specify a User Defined Attribute (UDA) in this property to overwrite other specific property with the UDA value when the widget is initialized. And the value is saved to the UDA value. This id property's value format is <code>uda_ plus <identifier of the UDA></code> . Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA. |

| Attribute | Description |
|-------------------|--|
| rcf:type | Specifies the widget type. |
| rcf:property_name | Specifies details such as the properties and style properties defined for each widget. |

For example, to relate this widget to UDA (UDA id is Variable1) and to specify the maxLength property and the color property for TextInput, describe as follows:

```
<span rcf:id="uda_Variable1" rcf:type="IBPMTTextInput" rcf:maxLength="10" rcf:color="blue">
</span>
```

Note that you can describe some screen widgets with either the <div> tag or the tag, but you must describe certain screen widgets with the <div> tag.

For the widgets that you can describe with either <div> or , note the following difference in display:

- When described with the <div> tag, line feed is inserted before and after the widget.
- When described with the tag, line feed is not inserted before and after the widget.

For more details on each screen widget, refer to [4.2 Screen Widgets](#).

For additional functional widgets, there is no difference whether you describe the <div> tag or tag.

Point

Note the following points when describing UI widgets:

- End tags

Always include an end tag, even when describing widgets that contain no child elements. If you describe such widgets as empty elements, subsequent widgets may not be displayed.

- Correct example:

```
<span rcf:id="id1" rcf:type="IBPMTTextInput"></span>
```

- Incorrect example:

```
<span rcf:id="id2" rcf:type="IBPMTTextInput" />
```

- Character strings starting with "rcf-"

Character strings that start with "rcf-" have a special meaning in QuickForm. For this reason, do not specify a character string starting with "rcf-" as the value of the following:

- HTML id attributes
- HTML style attributes
- rcf:id attributes

- rcf:id attributes and HTML id attributes

When you specify the rcf:id attribute, the ID value that you specify must satisfy the following conditions:

- It must be unique in the window for which it is specified.

For example, during delayed loading of a window (when only a part of the window is prepared separately and the window information is loaded in the background while the user operates the window), all of the widget IDs, including the window information loaded by delayed loading, must be unique.

- It must not duplicate any of the values of HTML id attributes for the window.

If you specify an ID for an HTML element using the id attribute, it cannot be the same as any of the widget IDs for that window. If a value is duplicated, correct behavior cannot be guaranteed.

- Array elements

With properties that have String or Number arrays as values, you can specify multiple array elements by separating them with semi-

colons (;).

Example: For the options property of SelectList

```
<div rcf:type="IBPMSelectList" rcf:options="item1;item2;item3"></div>
```

For empty array elements, specify an empty string as the attribute value.

You cannot specify other types of array (such as Object type) as the attribute value.

4.1.2.2 Style Settings

There are two ways to specify the style of screen widgets:

- [Settings Using Style Properties](#)
- [Settings Using CSS](#)

Settings Using Style Properties

You can set the styles that you specify for screen widgets as properties (style properties).

For example, to change the background color, character color and font size of the TextInput widget, specify as follows:

```
<span rcf:type="IBPMTextInput"
rcf:backgroundColor="#FFFFFF" rcf:color="#000000" rcf:fontSize="large"></span>
```

Note also that any specified style properties that cannot be specified for screen widgets are ignored.

The style property includes the style property to the entire parts and the style property to specific parts.

Please refer to section [4.2.5 Style Properties](#) for the naming convention of the style property.

For details of style properties for each widget, please refer to the explanation of each widget.

Settings Using CSS

You can specify a class name for a screen widget using the styleClass property. Using the class name, you can describe styles in CSS.

The following is an example of a description for the SelectList widget.

```
<style type="text/css">
.myClass .rcf-SelectList{
  width: 100px;
  height: 200px;
  color: blue;
  border-color: black;
  background-color: lightgrey;
}
.myClass .rcf-SelectList-optionSelected {
  color: red;
}
</style>

<div rcf:type="IBPMSelectList" rcf:styleClass="myClass" rcf:options="foo;bar">
</div>
```

When you specify a class name for a screen widget using the styleClass property, you can describe in CSS the styles that can be specified in the style properties of that widget.

Note the following rules that affect describing styles in CSS:

- If the style property name is entirely in lower case (for example: width, height), the name can be specified as is in CSS:
- If the style property name contains uppercase characters (for example: backgroundColor, fontSize), each uppercase character must be changed to lower case and preceded by a dash (-) in CSS, as in the examples below.
 - Change "backgroundColor" to "background-color".

- Change "fontSize to "font-size".
- If the style property name contains a prefix (also called a part name), such as titleHeight or bodyPadding, specify the style property name with a specific class name in CSS. (For example ".myClass" is the class name specified in styleClass.)

For the titleHeight of the Panel:

```
.myClass .rcf-Panel-title {  
    height: 30px;  
}
```

For the bodyBackgroundColor of the Panel:

```
.myClass .rcf-Panel-body {  
    background-color: white;  
}
```

Note that, the result of defining styles in CSS that you cannot define in screen widget style properties has not been determined.

4.1.2.3 Attributes that can be used with UI Widget div tags and span tags

You can only use attributes that start with "rcf:" and the style attributes in UI widget <div> tags and tags.

The CSS style properties that you can include in the style attribute are as follows:

- position
- top
- left
- z-index

You cannot use the style property with the [PopupCalendar](#).

4.1.2.4 Number of Screen Widgets per Page

It is recommended to use no more than 50 screen widgets on a single page. This total includes widgets that are not initially displayed, but are displayed later using widgets such as [ViewStack](#) and [FragmentContainer](#).

In the case of a large number of widgets, the page may take a long time to display and the messages may be displayed.

Note that, depending on the performance of the client machine, even if you include fewer than 50 screen widgets, the page may take a long time to display or an error message may be displayed if you use many complex widgets such as [Calendar](#).

4.2 Screen Widgets

This chapter describes the screen widgets.

4.2.1 Form Widgets

Form widgets are widgets mainly for allowing users to enter data, for example text boxes, radio buttons, etc.

This section explains how to use form widgets.

4.2.1.1 Text

Text is the widget to display text.

Sample Display

Text

Format

```
<div rcf:type="IBPMText" ... ></div>
```

Or

```
<span rcf:type="IBPMText" ... ></span>
```

Note

You cannot specify child elements. Refer to [4.4.1.4 Behavior when child elements are specified for widgets that cannot contain child elements](#) or details.

Point

This widget is displayed in the following way:

- Using with <div> tag, line feed is inserted before and after the widget.
- Using with tag, line feed is not inserted before and after the widget.

Properties

The meaning of the column headers is as follows:

- Required: Whether or not the property is a required setting.
- Default Value: The value assumed if the property is not set.

| Name | Data Type | Description | Required | Default Value |
|---------------|-----------|---|----------|---------------|
| value | String | Specifies text. If you specify a UDA to the id property, this property is overwritten by the UDA value when the widget is initialized. Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA. | No | "" |
| title | String | Specifies the text to be displayed in the tooltip. | No | "" |
| labelProvider | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |

You can also specify common properties for widgets. Refer to [4.2.4 Common Properties for Screen Widgets](#) for details.

Note

If you specified a long character string to the title property, it is automatically wrapped or cut out.

Note on displaying text which includes special characters.

When you display text which includes special characters, you must replace special character by escape character.

The correspondence table are as follows:

| special character | escape character |
|---|------------------|
| & | & |
| < | < |
| > | > |
| " | " |
| ' | ' |
| Line feed character (\r\n or \r or \n) |  |
| Space (single-byte space or tab) | |

Example: In the case of the character string <formatted"text">,you specify the text to property of UDA as follows:

```
[Before Conversion]
<formatted"text">
(1)      (2) (2)(3)
```

```
[After Conversion]
&lt;formatted&quot;text&quot;&gt;
(1)      (2) (2) (3)
```

If you specify the special character to property by mistake,you remove the character.

Then if QuickForm doesn't work correctly, you should check the property in the Source View.

Style Properties

| Part Name | Prefix | Class Name | Available Styles |
|--------------|--------|------------|---|
| Whole widget | None | rcf-Text | <ul style="list-style-type: none"> - Color - Font - Text (except for textIndent, textAlign, and whiteSpace) - Border - Binding |

Refer to [4.2.5 Style Properties](#) for details.

Note

Notes on borders

When a border is specified in Text, it may be incorrectly displayed as in the illustration below.

London bridge is falling down.

This can be avoided by using one of the following ways:

- Adding an empty line under the Text widget

```
<div rcf:type="IBPMTText" rcf:value="character string"></div>
<br />&nbsp;
```

- Specifying the position:relative style attribute in <div> or tag for Text widget

```
<div rcf:type="IBPMText" style="position:relative" rcf:value="character string"></div>
```

4.2.1.2 TextInput

TextInput is the widget to input and edit a single line of text.

Sample Display



You can undo using Ctrl+Z. Refer to [4.4.1.7 Undo Using Ctrl+z in Text Input Widgets](#) for details.

Format

```
<div rcf:type="IBPMTextInput" ... ></div>
```

Or

```
<span rcf:type="IBPMTextInput" ... ></span>
```



Note

You cannot specify child elements. Refer to [4.4.1.4 Behavior when child elements are specified for widgets that cannot contain child elements](#) for details.



Point

This widget is displayed in the following way:

- Using with <div> tag, line feed is inserted before and after the widget.
- Using with tag, line feed is not inserted before and after the widget.

Properties

The meaning of the column headers is explained in [Properties](#) topic of the section 4.2.1.1 Text.

| Name | Data Type | Description | Required | Default Value |
|---------------|-----------|---|----------|---------------|
| value | String | Specifies text. If you specify a UDA to the id property, this property is overwritten by the UDA value when the widget is initialized. Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA. | No | "" |
| title | String | Specifies the text to be displayed in the tooltip. | No | "" |
| labelProvider | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |

| Name | Data Type | Description | Required | Default Value |
|------------|-----------|--|----------|---------------|
| enabled | Boolean | Specifies whether or not this widget is enabled. - true: Enabled - false: Disabled You cannot operate this widget. | No | true |
| readOnly | Boolean | Specifies whether or not this widget is read-only. - true: Read-only - false: Writable | No | false |
| password | Boolean | Specifies whether or not password input is required. - true: A password is required. The input does not appear as text, but as asterisks or bullets, depending on the browser. - false: A password is not required. | No | false |
| maxLength | Number | Specifies the maximum text length. - 1 or higher: The specified number means the maximum number of characters allowed for this widget. (0 or lower is invalid.) - None: Browser limitations apply. | No | None (-1) |
| autoEscape | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |
| tabIndex | Number | Specifies the tab order when moving the focus with the Tab key. You can specify it in the same way as the tabIndex attribute in HTML. The focus moves in ascending order if you specify integers greater than zero. | No | 0 |
| uppercase | Boolean | Specifies whether or not single-byte and double-byte alphanumeric characters are converted to uppercase. - true: Input characters are converted to uppercase. Characters are converted when they are initially displayed and when the input is determined (when the focus is lost). - false: Input characters are not converted to uppercase. | No | false |
| imeMode | String | - Cannot be specified in Systemwalker Runbook Automation Studio | No | auto |
| mandatory | Boolean | Specifies whether or not the entered value is required. | No | false |

| Name | Data Type | Description | Required | Default Value |
|------|-----------|--|----------|---------------|
| | | <ul style="list-style-type: none"> - true: Required Error message is displayed in error field when the value is empty. - false: Not required | | |

You can also specify common properties for widgets. Refer to [4.2.4 Common Properties for Screen Widgets](#) for details.

 **Note**

If you specified a long character string to the title property, it is automatically wrapped or cut out.

Style Properties

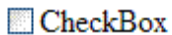
| Part Name | Prefix | Class Name | Available Styles |
|--------------|--------|-------------------|---|
| Whole widget | None | rcf-IBPMTextInput | <ul style="list-style-type: none"> - Size - Color - Font (except lineHeight) - Text (except textIndent and whiteSpace) - Border - Padding |

Refer to [4.2.5 Style Properties](#) for details.

4.2.1.3 CheckBox

CheckBox is the widget to display a check box.

Sample Display



Format

```
<div rcf:type="IBPMCheckBox" ... ></div>
```

Or

```
<span rcf:type="IBPMCheckBox" ... ></span>
```

 **Note**

You cannot specify child elements. Refer to [4.4.1.4 Behavior when child elements are specified for widgets that cannot contain child elements](#) for details.

 **Point**

This widget is displayed in the following way:

- Using with <div> tag, line feed is inserted before and after the widget.

- Using with tag, line feed is not inserted before and after the widget.

Properties

The meaning of the column headers is explained in [Properties](#) topic of the section 4.2.1.1 Text.

| Name | Data Type | Description | Required | Default Value |
|----------|-----------|---|----------|---------------|
| value | String | Specifies the value of the check box. | No | "" |
| checked | Boolean | Specifies whether or not the button is checked. - true: Checked - false: Unchecked If you specify a UDA to the id property, this property is overwritten by the UDA value when the widget is initialized and the value of the check box is saved to the UDA value. - Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA. | No | false |
| title | String | Specifies the text to be displayed in the tooltip. If an empty string is specified, the tooltip is not displayed. | No | "" |
| label | String | Specifies the label text for the check box. | No | "" |
| enabled | Boolean | Specifies whether or not this widget is enabled. - true: Enabled - false: Disabled You cannot operate this widget. | No | true |
| tabIndex | Number | Specifies the tab order when moving the focus with the Tab key. You can specify it in the same way as the tabindex attribute in HTML. The focus moves in ascending order if you specify integers greater than zero. | No | 0 |

You can also specify common properties for widgets. Refer to [4.2.4 Common Properties for Screen Widgets](#) for details.



Note

Notes on using the title property

If you specified a long character string to the title property, it is automatically wrapped or cut out.

Notes on using the label property

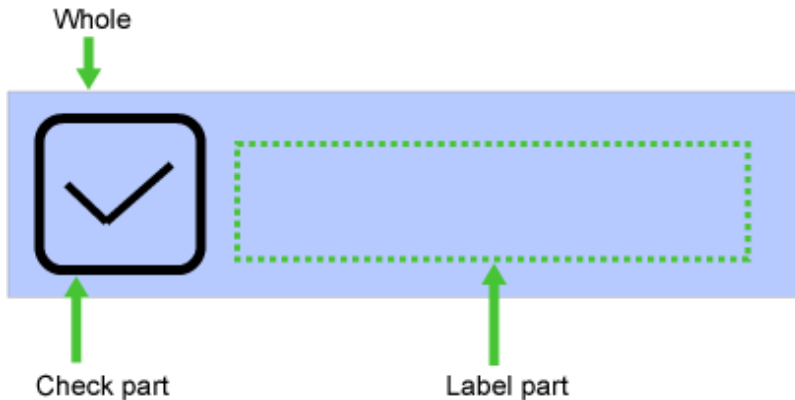
If you specified a long character string whose width is greater than the CheckBox width to the label property, it is wrapped by default.

Style Properties

The style properties are shown below.

| Part Name | Prefix | Class Name | Available Styles |
|--------------|--------|--------------------|--|
| Whole widget | None | rcf-CheckBox | <ul style="list-style-type: none"> - Size - Color - Border - Padding |
| Label | label | rcf-CheckBox-label | <ul style="list-style-type: none"> - Color - Font - Text (except textIndent, textAlign, and whiteSpace) |

Figure 4.1 Structure of CheckBox Widget



Refer to [4.2.5 Style Properties](#) for details.

4.2.1.4 RadioButton

RadioButton is the widget for displaying a radio button.

Point

You can use this with [RadioButtonGroup](#) to group radio buttons that are mutually exclusive.

Sample Display



Format

```
<div rcf:type="IBPMRadioButton" ... ></div>
```

Or

```
<span rcf:type="IBPMRadioButton" ... ></span>
```

Note

You cannot specify child elements. Refer to [4.4.1.4 Behavior when child elements are specified for widgets that cannot contain child elements](#) for details.

Point

This widget is displayed in the following way:

- Using with <div> tag, line feed is inserted before and after the widget.
- Using with tag, line feed is not inserted before and after the widget.

Properties

The meaning of the column headers is explained in [Properties](#) topic of the section 4.2.1.1 Text.

| Name | Data Type | Description | Required | Default Value |
|---------|-----------|--|----------|---------------|
| value | String | Specifies the value of the radio button. | No | "" |
| checked | Boolean | Specifies whether or not the radio button is selected. <ul style="list-style-type: none">- true: Selected- false: Not selected If you specify a UDA to the id property, this property is overwritten by the UDA value when the widget is initialized. And the value of the radio button is saved to the UDA value. Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA. | No | false |
| title | String | Specifies the text to be displayed in the tooltip. If an empty string is specified, the tooltip is not displayed. | No | "" |
| label | String | Specifies the label text for the radio button. | No | "" |
| enabled | Boolean | Specifies whether or not this widget is enabled. <ul style="list-style-type: none">- true: Enabled- false: Disabled You cannot operate this widget. | No | true |

| Name | Data Type | Description | Required | Default Value |
|----------|-----------|---|----------|---------------|
| tabIndex | Number | Specifies the tab order when moving the focus with the Tab key. You can specify it in the same way as the tabIndex attribute in HTML. The focus moves in ascending order if you specify integers greater than zero. | No | 0 |

You can also specify common properties for widgets. Refer to [4.2.4 Common Properties for Screen Widgets](#) for details.

Note

Notes on using the title property

If you specified a long character string to the title property, it is automatically wrapped or cut out.

Notes on using the label property

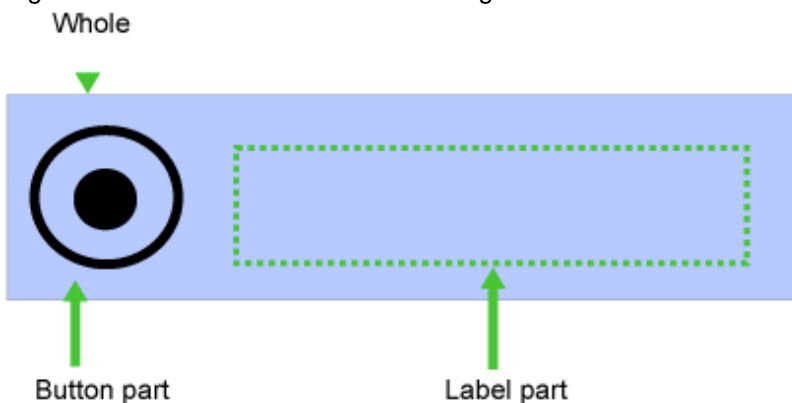
If you specified a long character string whose width is greater than the RadioButton width to the label property, it is wrapped by default.

Style Properties

The style properties are shown below.

| Part Name | Prefix | Class Name | Available Styles |
|--------------|--------|-----------------------|--|
| Whole widget | None | rcf-RadioButton | <ul style="list-style-type: none"> - Size - Color - Border - Padding |
| Label | label | rcf-RadioButton-label | <ul style="list-style-type: none"> - Color - Font - Text (except textIndent, textAlign, and whiteSpace) |

Figure 4.2 Structure of RadioButton Widget



Refer to [4.2.5 Style Properties](#) for details.

Note

To relate the selective state of two or more RadioButton in one UDA, combine with the Java action (evaluation of Script).

Example: When you want to relate the selective state of two or more RadioButton in one UDA which is lang, use the following description.

The following three UDA is used in this example.

- lang:[DataType(String)]: This is UDA to describe the selective state of two RadioBotton.
- lang_en:[DataType(String)]: This is UDA to describe RadioBotton "English".
- lang_jp:[DataType(String)]: This is UDA to describe RadioBotton "Japanese".

Language: English Japanese

```
<div rcf:id="uda_0744236677" rcf:type="IBPMText" rcf:value="Language:" style="left: 31px; top: 30px; position: absolute"></div>

<div rcf:id="uda_lang_en" rcf:type="IBPMRadioButton" rcf:value="English" rcf:label="English" rcf:width="100px" rcf:height="20px" style="left: 104px; top: 29px; position: absolute"></div>
<div rcf:id="uda_lang_jp" rcf:type="IBPMRadioButton" rcf:value="Japanese" rcf:label="Japanese" rcf:width="100px" rcf:height="20px" style="left: 190px; top: 29px; position: absolute"></div>
<div rcf:type="RadioButtonGroup" rcf:targets="uda_lang_en;uda_lang_jp"></div>
```

Note: Two radiobuttons should be made a group with RadioButtonGroup. For more information about RadioButtonGroup, refer to [4.3.1 Grouping Functions](#).

Add the end action (evaluation of script) to the Activity node that added QuickForm, and describe the script field as follows.

```
if (uda.get("jang_en") == "true") {
    uda.set("lang", "English");
} else if (uda.get("lang_jp") == "true") {
    uda.set("lang", "Japanese");
}
```

In this example, "true" is set to UDA(lang_en) when English is selected, and when Japanese is selected, "True" is set to UDA(lang_jp). In the end action of the Activity node, if the value of UDA(lang_en) is "true", "English" which means the Radiobutton(English) is selected is stored in UDA(lang), and if value of UDA(lang_jp) is "true", "Japanese" which means the Radiobutton(Japanese) is selected is stored in UDA(lang).

4.2.1.5 TextArea

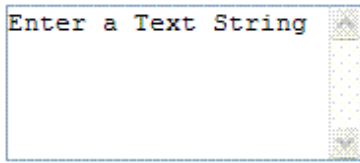
TextArea is the widget to display an input field for one or more lines of text.

Note

About line feed code

If the character string entered in TextArea contains a line feed, it is represented in the character string value of the value property as "\n"(LF, character code 10).

Sample Display



You can undo using Ctrl+Z. Refer to [4.4.1.7 Undo Using Ctrl+z in Text Input Widgets](#) for details.

Format

```
<div rcf:type="IBPMTextArea" ... ></div>
```

Or

```
<span rcf:type="IBPMTextArea" ... ></span>
```

Note

You cannot specify child elements. Refer to [4.4.1.4 Behavior when child elements are specified for widgets that cannot contain child elements](#) for details.

Point

This widget is displayed in the following way:

- Using with <div> tag, line feed is inserted before and after the widget.
- Using with tag, line feed is not inserted before and after the widget.

Properties

The meaning of the column headers is explained in [Properties](#) topic of the section 4.2.1.1 Text.

| Name | Data Type | Description | Required | Default Value |
|-------|-----------|--|----------|---------------|
| value | String | Specifies text. If you specify a UDA to the id property, this property is overwritten by the UDA value when the widget is initialized. And the value entered in the input field is saved to the UDA value. Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA. | No | "" |
| title | String | Specifies the text to be displayed in the tooltip. If an empty string is specified, the tooltip is not displayed. | No | "" |

| Name | Data Type | Description | Required | Default Value |
|---------------|-----------|---|----------|---------------|
| labelProvider | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |
| enabled | Boolean | Specifies whether or not this widget is enabled. - true: Enabled - false: Disabled You cannot operate this widget. | No | true |
| readOnly | Boolean | Specifies whether or not this widget is read-only. - true: Read-only - false: Writable | No | false |
| rows | Number | Specifies the number of rows. You can specify an integer greater than or equal to 1. If a widget height is specified in the height style property, that specification takes precedence. | No | 2 |
| cols | Number | Specifies the number of characters the TextArea can contain, taking into account the average character width. You can specify values of 1 or more. If a widget width is specified in the width style property, that specification takes precedence. | No | 20 |
| tabIndex | Number | Specifies the tab order when moving the focus with the Tab key. You can specify it in the same way as the tabIndex attribute in HTML. The focus moves in ascending order if you specify integers greater than zero. | No | 0 |
| imeMode | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |
| mandatory | Boolean | Specifies whether or not the entered value is required. - true: Required Error message is displayed in error field when the value is empty. - false: Not required | No | false |

You can also specify common properties for widgets. Refer to [4.2.4 Common Properties for Screen Widgets](#) for details.

Note

If you specified a long character string to the title property, it is automatically wrapped or cut out.

Style Properties

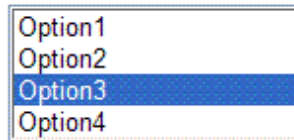
| Part Name | Prefix | Class Name | Available Styles |
|--------------|--------|--------------|--|
| Whole widget | None | rcf-TextArea | <ul style="list-style-type: none">- Size- Color- Font- Text (except whiteSpace and textIndent)- Border- Padding |

Refer to [4.2.5 Style Properties](#) for details.

4.2.1.6 Select

Select is the widget to display a list box from which single or multiple items can be selected.

Sample Display



Format

```
<div rcf:type="IBPMSelect" ... ></div>
```

Or

```
<span rcf:type="IBPMSelect" ... ></span>
```

Note

You cannot specify child elements. Refer to [4.4.1.4 Behavior when child elements are specified for widgets that cannot contain child elements](#) for details.

Point

This widget is displayed in the following way:

- Using with `<div>` tag, line feed is inserted before and after the widget.
- Using with `` tag, line feed is not inserted before and after the widget.

Properties

The meaning of the column headers is explained in [Properties](#) topic of the section 4.2.1.1 Text.

| Name | Data Type | Description | Required | Default Value |
|------------------|--------------|---|---|---------------|
| options | String Array | <p>Specifies the available options in the list. You can specify Strings as an array. The label and value for each item have the same value. If an element of array is an empty string, an error occurs.</p> <p>If you specify a UDA to the prop_options property, this property is overwritten by the UDA value when the widget is initialized.</p> | It is necessary to set the value of either the options property or the prop_options property. | [] |
| prop_options | String | <p>Specifies a String type UDA in specific format.</p> <ul style="list-style-type: none"> - This UDA value has the available options which are separated by comma. - The label and value for each item have the same value. <p>Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA.</p> | | "" |
| multiple | Boolean | <p>Specifies whether or not multiple options can be selected.</p> <ul style="list-style-type: none"> - true: Multiple selections - false: Single selection | No | false |
| selectedIndex | Number | <p>In case of single selection,</p> <ul style="list-style-type: none"> - Specifies the selected index (starting from zero) by default. - If -1 is specified, no item is selected. - If an invalid value is specified, an error occurs (RCF12604). - If you specify a UDA to the id property, this property is overwritten by the value depending on the UDA value when the widget is initialized; and the value depending on the selected index is saved to the UDA value. Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA. <p>In case of multiple selections,</p> <ul style="list-style-type: none"> - Specifies the last selected index. | No | -1 |
| selectedIndex es | Number Array | <p>Specifies an array of selected indexes (starting from zero). Indexes are stored in the order in which items are selected. You can specify the initial selection.</p> | No | [] |

| Name | Data Type | Description | Required | Default Value |
|----------------|--------------|--|----------|--|
| | | <p>If an invalid value is specified, an error occurs (RCF12604).</p> <p>If you specify a UDA to the id property, this property is overwritten by the value depending on the UDA value when the widget is initialized; and values depending on selected indexes are saved to the UDA value in comma separated format.</p> <p>Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA.</p> | | |
| selectedValue | String | <p>In case of single selection,</p> <ul style="list-style-type: none"> - Specifies the value of the selected item by default. - If an empty string is specified, no item is selected. - If an invalid value is specified, an error occurs (RCF12605). <p>In case of multiple selections,</p> <ul style="list-style-type: none"> - Specifies the value of the last selected item. Values are stored in the order in which items are selected. | No | "" |
| selectedValues | String Array | <p>Specifies a value array of the selected items. Values are stored in the order in which items are selected.</p> <p>You can specify the initial selection.</p> <p>If an invalid value is specified, an error occurs (RCF12605).</p> | No | [] |
| size | Number | <p>Specifies the height (the number of rows) of the selection list.</p> <p>You can specify an integer greater than 1.</p> <p>If you specify a value less than 1, an error occurs.</p> | No | (Set automatically) In case of single selection: 1 In case of multiple selections: 4 |
| title | String | <p>Specifies the text to be displayed in the tooltip. If an empty string is specified, the tooltip is not displayed.</p> | No | "" |
| enabled | Boolean | <p>Specifies whether or not this widget is enabled.</p> <ul style="list-style-type: none"> - true: Enabled - false: Disabled <p>You cannot operate this widget.</p> | No | true |
| tabIndex | Number | <p>Specifies the tab order when moving the focus with the Tab key.</p> <p>You can specify it in the same way as the</p> | No | 0 |

| Name | Data Type | Description | Required | Default Value |
|-----------|-----------|--|----------|---------------|
| | | tabindex attribute in HTML. The focus moves in ascending order if you specify integers greater than zero. | | |
| mandatory | Boolean | Specifies whether or not the entered value is required. - true: Required Error message is displayed in error field when the value is empty. - false: Not required | No | false |

You can also specify common properties for widgets. Refer to [4.2.4 Common Properties for Screen Widgets](#) for details.

Note

- If you specify the prop_options property to relate to a UDA, the available options cannot contain commas since commas are used to separate options.
- If you specified a long character string to the title property, it is automatically wrapped or cut out.

Relations between the multiple property and the selected state properties

The behavior of the following properties is different depending on the value of the 'multiple' property:

- selectedIndex
- selectedIndexes
- selectedValue
- selectedValues

As a rule, you have to use these properties as follows:

- In case of single selection (multiple=false)
 - selectedIndex
 - selectedValue

If selectedIndex and selectedValue are specified together, selectedIndex takes precedence.

- In case of multiple selections (multiple=true)
 - selectedIndexes
 - selectedValues

If selectedIndexes and selectedValues are specified together, selectedIndexes takes precedence.

Style Properties

| Part Name | Prefix | Class Name | Available Styles |
|--------------|--------|------------|--|
| Whole widget | None | rcf-Select | - Width - Color - Font (except lineHeight) |

Refer to [4.2.5 Style Properties](#) for details.

Additional Notes

- About multiple selections

The operations for making multiple selections using the keyboard keys and the mouse are as follows by default:

To add or cancel individual selections,

- Click an item while pressing the Ctrl key

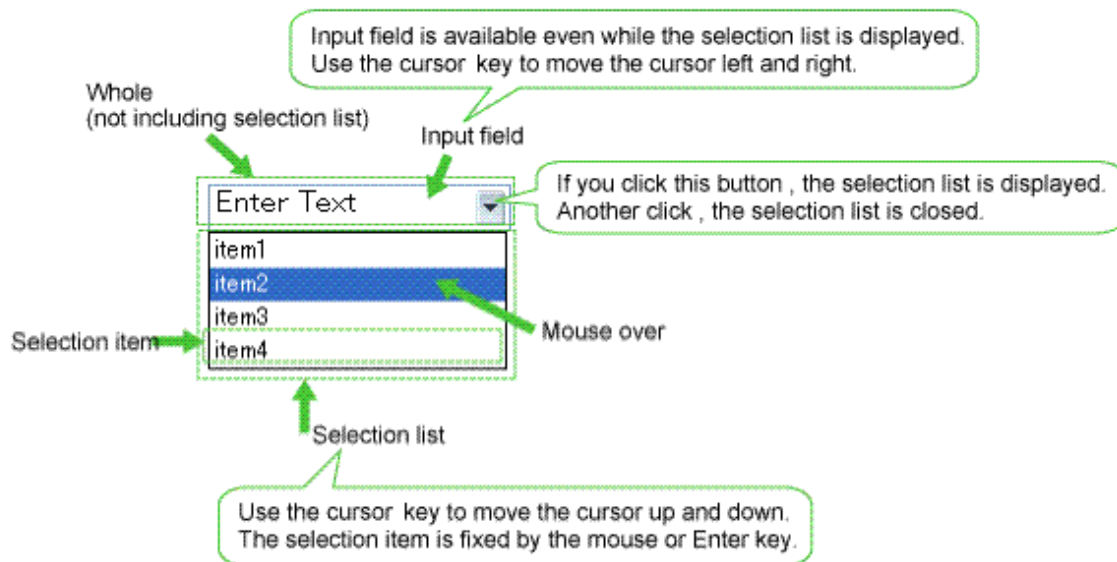
To select an area,

- Press the cursor key while pressing the Shift key
- Drag the mouse

4.2.1.7 ComboBox

ComboBox is the widget for displaying a combo box, which consists of an input field and a list of items from which a single item can be selected.

Sample Display



You can undo using Ctrl+Z. Refer to [4.4.1.7 Undo Using Ctrl+z in Text Input Widgets](#) for details.

Note

In cases where you place a ComboBox at the bottom of a form, or you set a large number of selection items in the list without setting the height for the widget, the ComboBox may not fit inside the form boundaries.

If this happens, depending on the browser, the user cannot see the entire list and the only way for the user to make selections is by using the keyboard.

For this reason, always make sure that the ComboBox widget is set to fit completely inside the form boundaries.

Format

```
<div rcf:type="IBPMComboBox" ... ></div>
```

Note

You cannot specify child elements. Refer to [4.4.1.4 Behavior when child elements are specified for widgets that cannot contain child elements](#) for details.

Point

Line feed is inserted before and after the widget.

Properties

The meaning of the column headers is explained in [Properties](#) topic of the section 4.2.1.1 Text.

| Name | Data Type | Description | Required | Default Value |
|--------------------|--------------|---|---|---------------|
| list | String Array | Specifies the values of items to display in the list. The contents of the array are Strings. If you specify a UDA to the prop_list property, this property is overwritten by the UDA value when the widget is initialized. | It is necessary to set the value of either the list property or the prop_list property. | [] |
| prop_list | String | Specifies a String type UDA in specific format. This UDA value has the available options which are separated by comma. Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA. | | "" |
| buttonImage | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |
| fixButtonImageSize | Boolean | Specifies whether or not the size of the drop down button image is fixed. - true: Fixed - false: Resized depend on the widget size Refer to Example for fixButtonImageSize property for details. | No | false |
| buttonImage Size | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |
| mandatory | Boolean | Specifies whether or not the entered value is required. | No | false |

| Name | Data Type | Description | Required | Default Value |
|------|-----------|--|----------|---------------|
| | | <ul style="list-style-type: none"> - true: Required Error message is displayed in error field when the value is empty. - false: Not required | | |

You can also specify TextInput properties. Refer to [Properties](#) in 4.2.1.2 [TextInput](#) for details.

You can also specify common properties for widgets. Refer to 4.2.4 [Common Properties for Screen Widgets](#) for details.

Note

- If you specify the prop_list property to relate to a UDA, the available options cannot contain commas since commas are used to separate options.
- If you specified a long character string to the title property, it is automatically wrapped or cut out.

Point

- If the maxLength property is specified, character strings in the selection list must be no longer than the maximum number of characters specified in maxLength.
- If the value of the uppercase property is "true", letters of the Roman alphabet in the selection list are converted to uppercase for display.

Example for fixButtonImageSize property

The size of the drop down button image is different depending on the fixButtonImageSize property.

- fixButtonImageSize=false

If you change the width style property and the height style property, the size of the dropdown button image (in pixels) is changed as follows:

- Width: width/10(omit decimals) px
- Height: height-2 px



- fixButtonImageSize=true

If you change the width style property and the height style property, the size of the drop-down button image (in pixels) is not changed.



Style Properties

| Part Name | Prefix | Class Name | Available Styles |
|--------------|--------|----------------------------|---|
| Whole widget | None | rcf- ComboBox | <ul style="list-style-type: none"> - Size - Border |
| Input field | input | rcf- ComboBox- input | <ul style="list-style-type: none"> - Color - Font - Text (except textIndent, textAlign and whiteSpace) |

| Part Name | Prefix | Class Name | Available Styles |
|-----------------------------------|-------------|----------------------------------|--|
| Selection list | list | rcf- ComboBox- list | - Color - Font - Text (except textIndent, textAlign and whiteSpace) - Border - height for size |
| Selection item without the cursor | item | rcf- ComboBox- item | - Border |
| Selection item with the cursor | itemHovered | rcf- ComboBox- itemHovered | - Color |

Refer to [4.2.5 Style Properties](#) for details.

Additional Notes

- About combo box size:
The height and width of the widget are specified in pixel units ("px"). If you use any other units for these settings, widgets may not be correctly displayed.
- Selecting value from a list:
When you use the mouse to display the list, you cannot drag the mouse over items in the list in the same movement in order to select an item. After displaying the list, you must click the item once more to select it.

4.2.1.8 DateInput

DateInput is the widget to input and edit the date.

Sample Display

May, 11 2010 19:32:26

You can undo using Ctrl+Z. Refer to [4.4.1.7 Undo Using Ctrl+z in Text Input Widgets](#) for details.

Format

```
<div rcf:type="IBPMDateInput" ... ></div>
```

Or

```
<span rcf:type="IBPMDateInput" ... ></span>
```



Note

You cannot specify child elements. Refer to [4.4.1.4 Behavior when child elements are specified for widgets that cannot contain child elements](#) for details.



Point

This widget is displayed in the following way:

- Using with <div> tag, line feed is inserted before and after the widget.

- Using with tag, line feed is not inserted before and after the widget.

Properties

The meaning of the column headers is explained in [Properties](#) topic of the section 4.2.1.1 Text.

| Name | Data Type | Description | Required | Default Value |
|-----------|-----------|---|----------|---------------|
| date | - | Cannot be specified in Systemwalker Runbook Automation Studio. You can specify a UDA in the id property to define the date and time. The value entered in the input field is saved to the UDA value. Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA. | - | - |
| utc | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |
| converter | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |
| refocus | Boolean | Specifies whether or not the focus is returned to the widget when the conversion from the input text into the Date object fails. - true: Focus is returned - false: Focus is not returned | No | false |
| mandatory | Boolean | Specifies whether or not the entered value is required. - true: Required Error message is displayed in error field when the value is empty. - false: Not required | No | false |


You can also specify TextInput properties. Refer to [Properties](#) in [4.2.1.2 TextInput](#).

You can also specify common properties for widgets. Refer to [4.2.4 Common Properties for Screen Widgets](#).



When you select the DateInput widget in the Palette View, and you drop this widget to the Ajax Page Editor, the following widgets are defined together.

- DateInput,
- PopupCalendar
- CalendarButton

May, 11 2010 19:32:26 

If you want to relate the UDA to DateInput widget, you need to define `uda_+<this UDA identifier>` to the following properties.

- id property of DateInput.
- targetDateInputId property of PopupCalendar.

When you display the calendar by clicking the calendar button, and select the date, and press the OK button, the selected date and 00:00 is set to the field of DateInput.

Note

- If you specified a long character string to the title property, it is automatically wrapped or cut out. If an empty string is specified, nothing is displayed.
- Input text is only converted to a JavaScript Date object when the input field loses the focus and its value is different from the previous one.
- The value property cannot be specified in Systemwalker Runbook Automation Studio.
- The refocus property is to get back the focus when the conversion from the input text into the Date object fails. However, it may not work correctly in the following case:
 - When moving the focus to area outside a page (such as the browser address bar or a toolbar). For example, when clicking the address bar or displaying the address bar dropdown list, focus may be shifted away from DateInput.
- If you are using DATE UDA and enter "January 01, 1970 00:00:00" as the default value while adding the UDA, the value of date displayed in the form will be empty. If you keep DateInput control empty, the value stored in the mapped DATE type UDA will be "January 01, 1970 00:00:00".

Style Properties

The style properties for this widget are the same as for TextInput. Refer to [Style Properties in 4.2.1.2 TextInput](#) for details. However, note that the class name is "rcf-IBPMDateInput". Refer to [4.2.5 Style Properties](#) for details.

4.2.1.9 NumberInput

NumberInput is the widget to display an input field for integers and real numbers.

Sample Display

123.456

You can undo using Ctrl+Z. Refer to [4.4.1.7 Undo Using Ctrl+z in Text Input Widgets](#) for details.

Format

```
<div rcf:type="IBPMNumberInput" ... ></div>
```

Or

```
<span rcf:type="IBPMNumberInput" ... ></span>
```

Note

You cannot specify child elements. Refer to [4.4.1.4 Behavior when child elements are specified for widgets that cannot contain child elements](#) for details.

This widget is displayed in the following way:

- Using with <div> tag, line feed is inserted before and after the widget.
- Using with tag, line feed is not inserted before and after the widget.

Properties

The meaning of the column headers is explained in [Properties](#) topic of the section 4.2.1.1 Text.

| Name | Data Type | Description | Required | Default Value |
|--------------|-----------|---|----------|---------------|
| number | Number | Specifies numerical value data. If you specify a UDA to the id property, this property is overwritten by the UDA value when the widget is initialized. And the value entered in the input field is saved to the UDA value. Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA. | No | 0 |
| converter | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |
| refocus | Boolean | Specifies whether or not the focus is returned to the widget when the conversion from the input text into the Date object fails. - true: Focus is returned - false: Focus is not returned | No | false |
| mandatory | Boolean | Specifies whether or not the entered value is required. - true: Required Error message is displayed in error field when the value is empty. - false: Not required | No | false |
| minimumValue | Number | Specifies the minimum value for the input field. | No | "" |
| maximumValue | Number | Specifies the maximum value for the input field. | No | "" |

You can also specify TextInput properties. Refer to [Properties](#) in [4.2.1.2 TextInput](#).

You can also specify common properties for widgets. Refer to [4.2.4 Common Properties for Screen Widgets](#).

Note

- If you specified a long character string to the title property, it is automatically wrapped or cut out.
- Input text is only converted to a JavaScript number object when the input field loses the focus and its value is different from the previous one.
- The value property cannot be specified in Systemwalker Runbook Automation Studio.
- The refocus property is function to get back the focus when the conversion from the input text into the number object fails. However, it may not work correctly in the following case:
When moving the focus to area outside a page (such as the browser address bar or a toolbar). For example, when clicking the address bar or displaying the address bar dropdown list, focus may be shifted away from NumberInput.
- The value of the minimumValue property and the maximumValue property is not checked in the editor. Therefore, it is necessary to specify the following values for these properties.
 - Numerical value (value that can be specified with type INTEGER, LONG, FLOAT, and BIGDECIMAL of UDA)
 - Value that the maximum value (value of maximumValue property) becomes more than minimum value (value of minimumValue property) when the maximum value and minimum value are specified

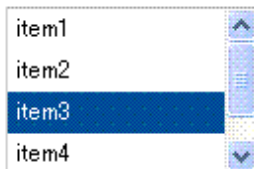
Style Properties

The style properties for this widget are the same as for TextInput. Refer to [Style Properties](#) in [4.2.1.2 TextInput](#) for details. However, note that the class name is "rcf-IBPMDateInput". Refer to [4.2.5 Style Properties](#) for details.

4.2.1.10 SelectList

SelectList is the widget to display a list from which single or multiple items can be selected.

Sample Display



Format

```
<div rcf:type="IBPMSelectList" ... ></div>
```

Note

You cannot specify child elements. Refer to [4.4.1.4 Behavior when child elements are specified for widgets that cannot contain child elements](#) for details.

Point

Line feed is inserted before and after the widget.

Properties

The meaning of the column headers is explained in [Properties](#) topic of the section [4.2.1.1 Text](#).

| Name | Data Type | Description | Required | Default Value |
|------------------|--------------|--|---|---------------|
| options | String Array | Specifies the available value options in the list. If you specify a UDA to the prop_options property, this property is overwritten by the UDA value when the widget is initialized. | It is necessary to set the value of either the options property or the prop_options property. | [] |
| prop_options | String | Specifies a String type UDA in specific format. This UDA value has the available value options which are separated by comma. Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA. | | "" |
| labelProvider | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |
| multiple | Boolean | Specifies whether or not multiple options can be selected. - true: Multiple selections - false: Single selection | No | false |
| selectedIndex | Number | In case of single selection, - Specifies the selected index (starting from zero) by default. - If -1 is specified, no item is selected. - If an invalid value is specified, an error occurs (RCF13302). - If you specify a UDA to the id property, this property is overwritten by the value depending on the UDA value when the widget is initialized; and the value depending on the selected index is saved to the UDA value. Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA. In case of multiple selections, - Specifies the last selected index. | No | -1 |
| selectedIndex es | Number Array | Specifies an array of selected indexes (starting from zero). Indexes are stored in the order in which items are selected. You can specify the initial selection. If an invalid value is specified, an error occurs (RCF13302). If you specify a UDA to the id property, this property is overwritten by the value depending on the UDA value when the widget is initialized. And values depending on selected indexes are saved to the UDA value in a comma-separated format. | No | -1 |

| Name | Data Type | Description | Required | Default Value |
|-----------|-----------|---|----------|---------------|
| | | Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA. | | |
| title | String | Specifies the text to be displayed in the tooltip. If an empty string is specified, the tooltip is not displayed. | No | "" |
| enabled | Boolean | Specifies whether or not this widget is enabled. <ul style="list-style-type: none"> - true: Enabled - false: Disabled You cannot operate this widget. | No | true |
| tabIndex | Number | Specifies the tab order when moving the focus with the Tab key. You can specify it in the same way as the tabIndex attribute in HTML. The focus moves in ascending order if you specify integers greater than zero. | No | 0 |
| renderer | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |
| mandatory | Boolean | Specifies whether or not the entered value is required. <ul style="list-style-type: none"> - true: Required Error message is displayed in error field when the value is empty. - false: Not required | No | false |

You can also specify common properties for widgets. Refer to [4.2.4 Common Properties for Screen Widgets](#).

Note

- If you specify the prop_options property to relate to a UDA, the available options cannot contain commas since commas are used to separate options.
- If you specified a long character string to the title property, it is automatically wrapped or cut out.

Point

- In case of single selection,
 - Only one item can be selected at any one time. You need to use the selectedIndex property. If no value is specified, the first item in the list is selected by default.
 - You can change the selected item by clicking on the item.
 - You can use the vertical cursor key to move the selection between items.
- In case of multiple selections,
 - You need to use the selectedIndexes property. If no value is specified, no item in the list is selected by default.
 - You can add selections by clicking on the item. If you click a selected item, you clear the selection.

- You can use the vertical cursor key to move the focus between items (mouseover items) and the space key to select/deselect items.

Style Properties

Style properties of whole widgets are shown below.

| Part Name | Prefix | Class Name | Available Styles |
|--------------|--------|----------------|--|
| Whole widget | None | rcf-SelectList | <ul style="list-style-type: none"> - Size - Color - Font (except lineHeight) - Text (except textIndent, textAlign and whiteSpace) - Border - Padding |

Refer to [4.2.5 Style Properties](#) for details.

Style of selected items

| Prefix | Class | Style Properties | Description | Default |
|-----------------------------------|-----------------------------------|------------------|---|---------------------|
| optionSelected (selected item) | rcf-SelectList- optionSelected | backgroundColor | Specifies the background color of the selected item. | #004E98 |
| | | color | Specifies the font color of the selected item. | #FFFFFF F(white) |
| optionHovered (mouseover item) | rcf-SelectList- optionHovered | backgroundColor | Specifies the background color of the mouseover item. | #316AC 5 |
| | | color | Specifies the font color of the mouseover item. | #FFFFFF F(white) |

Relations between display and style properties

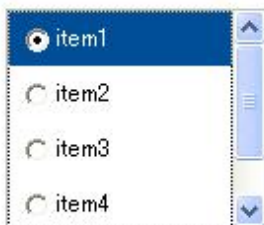
The style properties for this widget are the same as for CheckList. However, no check boxes are displayed. Refer to [Style Properties](#) in [4.2.1.11 CheckList](#) for details.

4.2.1.11 CheckList

CheckList is the widget to display a list with check button items from which single or multiple items can be selected.

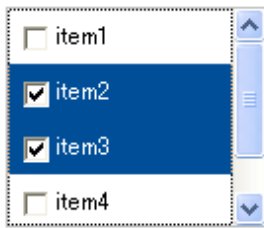
Sample Display

Figure 4.3 Single Selection Mode



In single selection mode, radio buttons are displayed.

Figure 4.4 Multiple Selections Mode



In multiple selections mode, check boxes are displayed.

Format

```
<div rcf:type="IBPMCheckList" ... ></div>
```

Note

You cannot specify child elements. Refer to [4.4.1.4 Behavior when child elements are specified for widgets that cannot contain child elements](#) for details.

Point

Line feed is inserted before and after the widget.

Properties

The meaning of the column headers is explained in [Properties](#) topic of the section 4.2.1.1 Text.

| Name | Data Type | Description | Required | Default Value |
|---------------|--------------|---|---|---------------|
| options | Array | Specifies the available value options in the list. If you specify a UDA to the prop_options property, this property is overwritten by the UDA value when the widget is initialized. | It is necessary to set the value of either the options property or the prop_options property. | [] |
| prop_options | String | Specifies a String type UDA in specific format. This UDA value has the available value options which are separated by comma. Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA. | | "" |
| labelProvider | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |
| multiple | Boolean | Specifies whether or not multiple options can be selected. - true: Multiple selections - false: Single selection | No | false |
| selectedIndex | Number Array | In case of single selection, | No | -1 |

| Name | Data Type | Description | Required | Default Value |
|-----------------|--------------|--|----------|---------------|
| | | <ul style="list-style-type: none"> - Specifies the selected index (starting from zero) by default. - If -1 is specified, no item is selected. - If an invalid value is specified, an error occurs (RCF13402). - If you specify a UDA to the id property, this property is overwritten by the value depending on the UDA value when the widget is initialized; and the value depending on the selected index is saved to the UDA value. <p>Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA.</p> <p>In case of multiple selections,</p> <ul style="list-style-type: none"> - Specifies the last selected index. | | |
| selectedIndexes | Number Array | <p>Specifies an array of selected indexes (starting from zero). Indexes are stored in the order in which items are selected. You can specify the initial selection. If an invalid value is specified, an error occurs (RCF13402).</p> <p>If you specify a UDA to the id property, this property is overwritten by the value depending on the UDA value when the widget is initialized. And values depending on selected indexes are saved to the UDA value in a comma-separated format.</p> <p>Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA.</p> | No | [] |
| title | String | Specifies the text to be displayed in the tooltip. If an empty string is specified, the tooltip is not displayed. | No | "" |
| enabled | Boolean | <p>Specifies whether or not this widget is enabled.</p> <ul style="list-style-type: none"> - true: Enabled - false: Disabled <p>You cannot operate this widget.</p> | No | true |
| tabIndex | Number | <p>Specifies the tab order when moving the focus with the Tab key. You can specify it in the same way as the tabIndex attribute in HTML. The focus moves in ascending order if you specify integers greater than zero.</p> | No | 0 |
| mandatory | Boolean | Specifies whether or not the entered value is required. | No | false |

| Name | Data Type | Description | Required | Default Value |
|------|-----------|--|----------|---------------|
| | | <ul style="list-style-type: none"> - true: Required Error message is displayed in error field when the value is empty. - false: Not required | | |

You can also specify common properties for widgets. Refer to [4.2.4 Common Properties for Screen Widgets](#).

Note

- If you specify the prop_options property to relate to a UDA, the available options cannot contain commas since commas are used to separate options.
- If you specified a long character string to the title property, it is automatically wrapped or cut out.

Point

- You can specify the initial selections to the selectedIndex property. If no value is specified, no item in the list is selected by default.
- In case of single selection, you can use the vertical cursor key to move the selection between items.
- In case of multiple selections, you can use the vertical cursor key to move the focus between items.

Style Properties

Style properties of whole widgets are shown below.

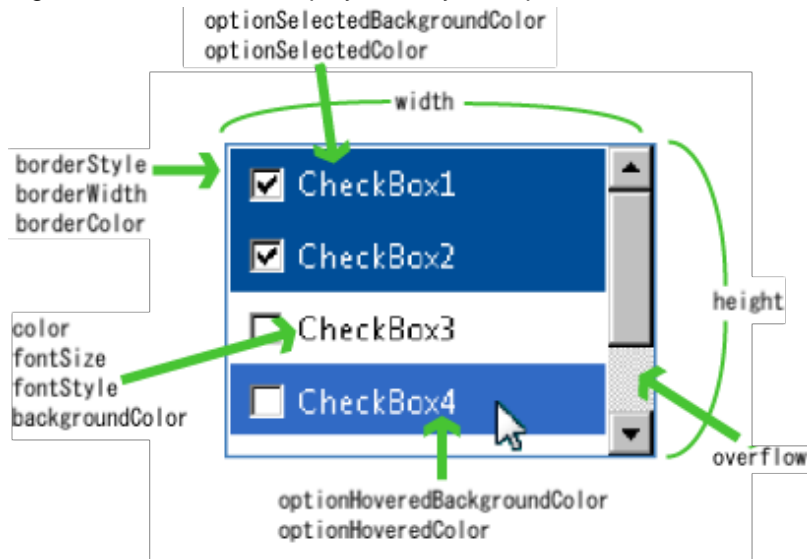
| Part Name | Prefix | Class Name | Available Styles |
|--------------|--------|---------------|--|
| Whole widget | None | rcf-CheckList | <ul style="list-style-type: none"> - Size - Color - Font (except lineHeight) - Text (except textIndent, textAlign and whiteSpace) - Border - Padding |

Refer to [4.2.5 Style Properties](#) for details.

Style of selected items

| Prefix | Class | Style Properties | Description | default |
|-----------------------------------|----------------------------------|---------------------|---|--------------------|
| optionSelected (selected item) | rcf-CheckList- optionSelected | backgroundC olor | Specifies the background color of the selected item. | #004E98 |
| | | color | Specifies the font color of the selected item. | #FFFFFF (white) |
| optionHovered (mouseover item) | rcf-CheckList- optionHovered | backgroundC olor | Specifies the background color of the mouseover item. | #316AC5 |
| | | color | Specifies the font color of the mouseover item. | #FFFFFF (white) |

Figure 4.5 Relation of Display and Style Properties



If the size of the items is too large for the display area, the widget is displayed in the following way:

- If the width of item is greater than the width of the display area, item beyond the right margin is hidden. The horizontal scrollbar is not displayed.
- If the height of items is greater than the height of the display area, the vertical scrollbar is displayed to allow users to view all items.

Additional Notes

- Moving the focus with the Tab key
In case of single selection, the focus is moved to the radio button within the widget when you press the Tab key to move the focus. To move the focus to the next widget, press the Tab key again.

4.2.2 Container Widgets

Container widgets are widgets for placing multiple screen widgets.

This section explains how to use container widgets.

4.2.2.1 ViewContainer

ViewContainer is the widget for specifying screen information (container).

ViewContainer can contain HTML elements in child elements, and the whole can be handled as one widget. ViewContainer is used in [ViewStack](#) and [TabPanel](#) to specify views.

Format

```
<div rcf:type="IBPMViewContainer" ... >
  HTML element
</div>
```



Point

You can specify HTML elements and UI widgets in child elements.

Properties

The meaning of the column headers is explained in [Properties](#) topic of the section 4.2.1.1 Text.

| Name | Data Type | Description | Required | Default Value |
|-------|-----------|---|----------|---------------|
| label | String | Specifies the tab name when used as a child element of the tab panel. | No | "" |

You can also specify common properties for widgets. Refer to [4.2.4 Common Properties for Screen Widgets](#).

Style Properties

| Part Name | Prefix | Class Name | Available Styles |
|--------------|--------|-------------------|--|
| Whole widget | None | rcf-ViewContainer | <ul style="list-style-type: none"> - Size - Color - Border - Padding - Overflow |

Refer to [4.2.5 Style Properties](#) for details.

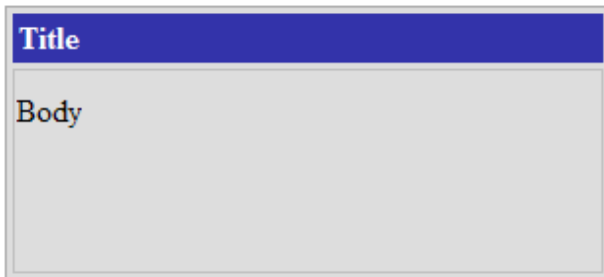
Additional Notes

- ViewContainer is used with [ViewStack](#) or [TabPanel](#).
- If ViewContainer is used without ViewStack or TabPanel, it is drawn in the same way as the <div> element.
- You can add only a widget of Advanced Category to a ViewContainer.
- You cannot add a widget of Basic Category to a ViewContainer.

4.2.2.2 Panel

Panel is the widget to display a container with a title bar. This consists of title part and body part.

Sample Display



Format

```
<div rcf:type="IBMPPanel" ... >
  HTML element
</div>
```

Point

You can specify HTML elements and UI widgets in child elements. These widgets are used as contents of the body part.

Properties

The meaning of the column headers is explained in [Properties](#) topic of the section 4.2.1.1 Text.

| Name | Data Type | Description | Required | Default Value |
|-------|-----------|--|----------|---------------|
| label | String | Specifies the label text for the title part. If you specify a UDA to the id property, this property is overwritten by the UDA value when the widget is initialized. Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA. | No | "" |

You can also specify common properties for widgets. Refer to [4.2.4 Common Properties for Screen Widgets](#).

Style Properties

| Part Name | Prefix | Class Name | Available Styles |
|--------------|--------|-----------------|--|
| Whole widget | None | rcf-Panel | - Size (*) - Color - Border - Padding |
| title part | title | rcf-Panel-title | - Size (except width) - Color - Font - Text (except white-space) - Border - Padding - Margin |
| body part | body | rcf-Panel-body | - Color - Font - Text - Border - Padding - Overflow |

(*) The default width is 300px.

Refer to [4.2.5 Style Properties](#) for details.

Additional Notes

About Panel size

- The width and height is specified in the style properties. It may not be displayed correctly if the width and height are specified in CSS.
- The width and height are specified in pixel units ("px"). If you use any other units for these settings, widgets may not be correctly displayed.

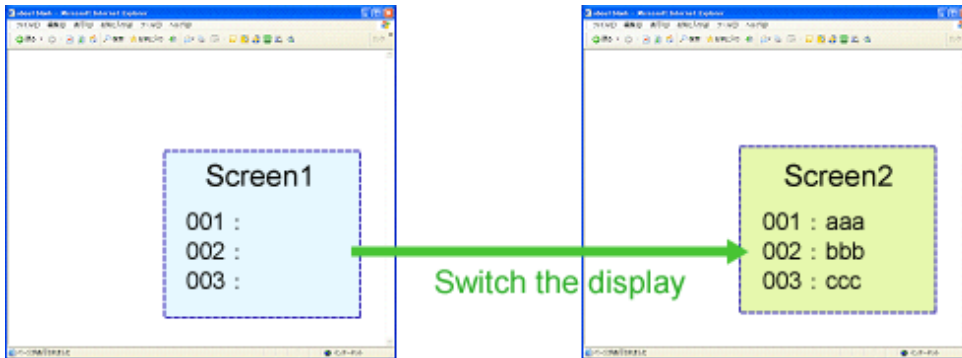
- The minimum size for elements in the body part is 100px x 100px. If you attempt to specify a smaller size, 100px x 100px is set.

4.2.2.3 ViewStack

ViewStack is the widget for grouping interchangeable screen information (container). ViewStack is used to switch between containers in the same location.

You can use [ViewContainer](#) or [FragmentContainer](#) for the container. Describe the information (HTML content) of each screen as child elements of the container.

Figure 4.6 Behavior of ViewStack



Format

```
<div rcf:type="IBPMViewStack" ... >
  <div rcf:type="IBPMViewContainer">
    HTML element
  </div>
  <div rcf:type="IBPMFragmentContainer" rcf:src="about:blank">
  </div>
  ...
</div>
```

Point

- You have to define at least one child element.
- You can define [ViewContainer](#) or [FragmentContainer](#) in the child element.
- If you define anything other than ViewContainer or FragmentContainer in the child element, it cannot be displayed.

Properties

The meaning of the column headers is explained in [Properties](#) topic of the section 4.2.1.1 Text.

| Name | Data Type | Description | Required | Default Value |
|---------------|-----------|---|----------|---------------|
| selectedIndex | Number | Specifies the selected index by default. The index increments automatically by 1, starting at 0, in the order in which the containers defined as child elements appear. If you specify an index that does not exist, all containers are | No | 0 |

| Name | Data Type | Description | Required | Default Value |
|-------------------|-----------|---|----------|---------------|
| | | invisible (visibility:hidden; display:none). If you specify a UDA to the id property, this property is overwritten by the UDA value when the widget is initialized. Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA. | | |
| selectedIndexLock | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |

You can also specify common properties for widgets. Refer to [4.2.4 Common Properties for Screen Widgets](#).

Style Properties

| Part Name | Prefix | Class Name | Available Styles |
|--------------|--------|---------------|--|
| Whole widget | None | rcf-ViewStack | <ul style="list-style-type: none"> - Size - Color - Border - Padding - Overflow |

Refer to [4.2.5 Style Properties](#) for details.

Additional Notes

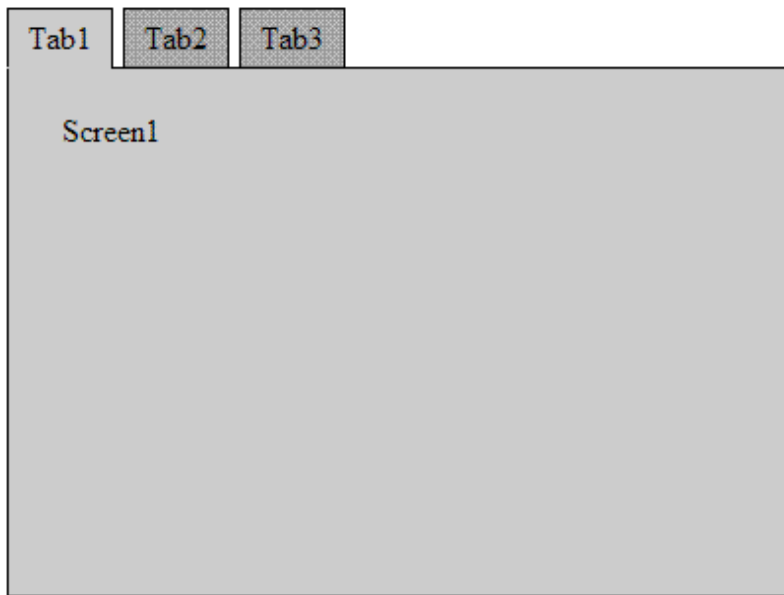
If the size of the content to display in the ViewStack widget (including the title part) exceeds the size of the whole widget, the widget may not be displayed correctly. In such a case, set the size of the whole widget so that it is large enough for all content.

4.2.2.4 TabPanel

TabPanel is the widget for grouping tab-switched screen information (container). TabPanel is used to switch the display by clicking tabs.

When the tab or a form widget in this widget is focused, you can switch tabs by keyboard operation. You can also customize keys for tab switching.

Sample Display



Format

```
<div rcf:type="IBPMTabPanel" ... >
  <div rcf:type="IBPMViewContainer" rcf:label="tab 1">
    HTML element
  </div>
  <div rcf:type="IBPMFragmentContainer" rcf:label="tab 2" ... >
  </div>
  ...
</div>
```

Point

- You have to define at least one child element.
- You can define [ViewContainer](#) or [FragmentContainer](#) in the child element.
- If you define anything other than [ViewContainer](#) or [FragmentContainer](#) in the child element, it cannot be displayed.

Properties

The meaning of the column headers is explained in [Properties](#) topic of the section 4.2.1.1 Text.

| Name | Data Type | Description | Required | Default Value |
|---------------|-----------|---|----------|---------------|
| selectedIndex | Number | Specifies the selected index by default. The index increments automatically by 1, starting at 0, in the order in which the containers defined as child elements appear. If you specify an index that does not exist, all containers are invisible (visibility:hidden; display:none). If you specify a UDA to the id property, this property is overwritten by the UDA | No | 0 |

| Name | Data Type | Description | Required | Default Value |
|-----------------------------|-----------|--|----------|---|
| | | value when the widget is initialized. Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA. | | |
| tabPosition | String | Specifies the tab location. | No | TOP_LEFT |
| nextKey | String | Specifies the key for switching to the next tab. Refer to Specifying keys for details. | No | Ctrl+right cursor key ("39+CTRL") |
| previousKey | String | Specifies the key for switching to the previous tab. Refer to Specifying keys for details. | No | Ctrl+left cursor key ("37+CTRL") |
| tabSeparator | Boolean | Specifies whether or not to leave a gap between tabs. - true: Gapped - false: Not gapped. | No | true |
| tabRenderer | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |
| tabIndex | Number | Specifies the tab order when moving the focus with the Tab key. You can specify it in the same way as the tabindex attribute in HTML. The focus moves in ascending order if you specify integers greater than zero. | No | 0 |
| selectedIndexLocked | Boolean | Specifies whether or not the switching view is locked. - true: Locked You cannot switch the view. - false: Not locked | No | false |

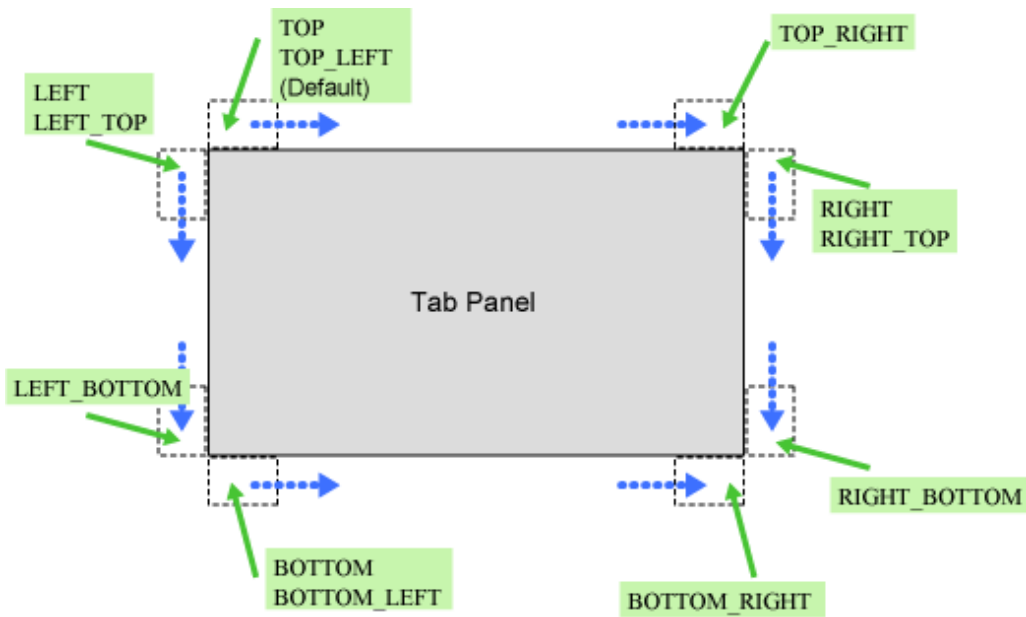
You can also specify ViewContainer properties. Refer to [Properties](#) in [4.2.2.1 ViewContainer](#) for details.

You can also specify common properties for widgets. Refer to [4.2.4 Common Properties for Screen Widgets](#) for details.

Specifying basic tab position

Using the tabPosition property, you can specify the location of the first tab and the direction in which subsequent tabs are located.

- This property is not case-sensitive.
- In the diagram below, the blue dotted lines represent the direction in which subsequent tabs are located.
- Regardless of the direction of tabs, the text in the tab label always runs from left to right.



Specifying keys

Using the nextKey property and previousKey property, you can specify a key to switch the selected tab. You can specify the following keys separated by a plus sign (+):

- Number or alias: Key code
- ALT: Alt key
- CTRL: Ctrl key
- SHIFT: Shift key

The key code is required, and must be specified first.

The table below contains examples.

| Example | Description |
|-------------------|---|
| 13 | Enter key |
| 13 + SHIFT | Enter key + Shift key |
| 13 + CTRL + SHIFT | Enter key + Ctrl key + Shift key |
| SHIFT | Invalid (no key code) |
| CTRL+13 | Invalid (key code is not specified first) |

You can specify the key code number or the alias listed in the table below. The resulting behavior is the same. For example, "ENTER+SHIFT" is handled in the same way as "13+SHIFT".

| Alias | Label on Key | Actual Key Code |
|-----------|---------------|-----------------|
| BACKSPACE | Backspace key | 8 |
| TAB | Tab key | 9 |
| ENTER | Enter key | 13 |
| ESC | Esc key | 27 |
| SPACE | Space key | 32 |
| PAGEUP | Page Up key | 33 |
| PAGEDOWN | Page Down key | 34 |

| Alias | Label on Key | Actual Key Code |
|--------|------------------|-----------------|
| END | End key | 35 |
| HOME | Home key | 36 |
| LEFT | Left cursor key | 37 |
| UP | Up cursor key | 38 |
| RIGHT | Right cursor key | 39 |
| DOWN | Down cursor key | 40 |
| INSERT | Insert key | 45 |
| DELETE | Delete key | 46 |
| F1 | F1 key | 112 |
| F2 | F2 key | 113 |
| F3 | F3 key | 114 |
| F4 | F4 key | 115 |
| F5 | F5 key | 116 |
| F6 | F6 key | 117 |
| F7 | F7 key | 118 |
| F8 | F8 key | 119 |
| F9 | F9 key | 120 |
| F10 | F10 key | 121 |
| F11 | F11 key | 122 |
| F12 | F12 key | 123 |

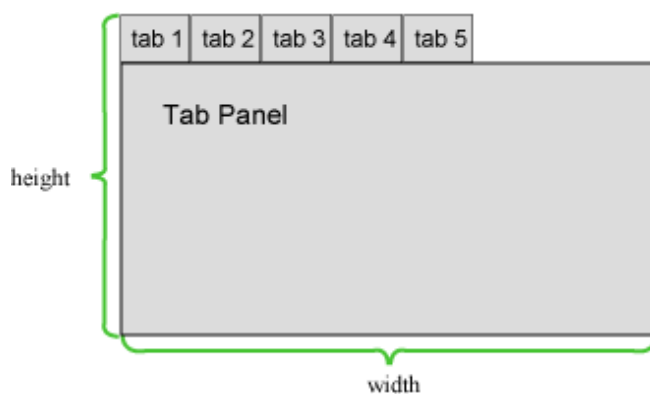
Style Properties

Width and height

Specify the TabPanel width and height using the height and width properties. Each property includes the tab height (width).

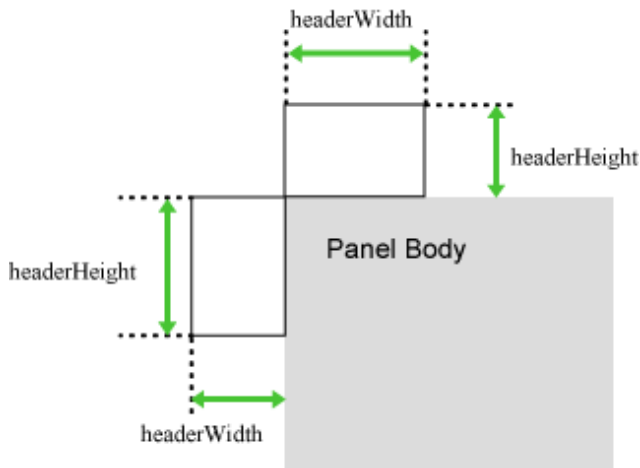
By default, the width is 100% and the height is auto.

When the height is auto, the tab panel height is changed to match the height of ViewContainer or FragmentContainer displayed in the panel.



Specifying tab size

Regardless of the tab location, the default value of the headerWidth and headerHeight properties is auto.

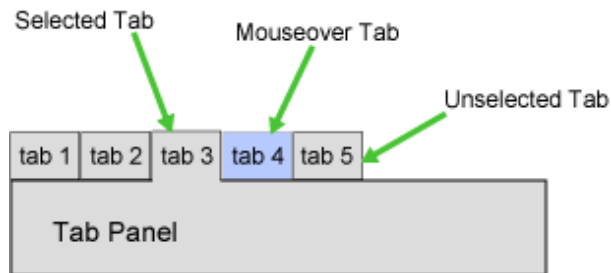


If tabs are placed on the left or right side, the tab width depends on the length of the longest tab label.

If tabs are placed at the top or bottom, the tab width is individually different depending on the length of each tab label.

Tab ornamentation properties

The description figure is shown below.



Style Properties

| Part Name | Prefix | Class Name | Style Classification | Description |
|--------------|-------------|--------------------------|--|--|
| Whole widget | none | rcf-TabPanel | - Size | Size of whole widget |
| Header | header | rcf-TabPanel-header | - Size | Size of tab part Tab height and width can be specified, depending on tab location |
| Body | body | rcf-TabPanel-body | - Color - Border - Padding | Body part |
| Tab | tab | rcf-TabPanel-tab | - Color - Font - Text - Border - Padding | Individual tab style |
| Selected tab | tabSelected | rcf-TabPanel-tabSelected | - Color | Selected tab style |

| Part Name | Prefix | Class Name | Style Classification | Description |
|---------------|--------------|---------------------------|--|--|
| | | | - Font - Text - Border - Padding | |
| Mouseover tab | tabHovered | rcf-TabPanel-tabHovered | - Color - Font - Text - Border - Padding | Mouseover tab style |
| Separator | tabSeparator | rcf-TabPanel-tabSeparator | - Size - Border | Distance between tabs TOP/BOTTOM: width LEFT/RIGHT: height |
| Blank | tabBlank | rcf-TabPanel-tabBlank | - Border - Padding | Tabbed side style except tab header |

Refer to [4.2.5 Style Properties](#) for details.

When selected tab and mouseover tab overlap

When the selected tab and mouseover tab overlap, the order in the tab style class is tabSelected, tabHovered.

Styles only available in CSS

tab, tabSelected, tabHovered, tabSeparator, and tabBlank can only be specified in CSS.

Notes on customizing

The default style settings of the body and tab are different depending on whether tabs are placed. The default style settings are as follows:

- Body
 - Tabbed side
border-style: none
 - Untabbed sides
border-style: solid
- Tab
 - All sides
border-color: #000

However, if the tab is selected and the mouse is not over the tab, the border color of the tab on the side adjoining the body is the same as the tab background-color.
This behavior is the same if you customize the background color.

Additional Notes

About TabPanel size

- The size properties are specified in pixel units ("px"). This is also the same for border width, margins and padding. If you use any other units for these settings, widgets may not be correctly displayed.

- If the size of the content to display in the TabPanel widget (including the title part) exceeds the size of the whole widget, the widget may not be displayed correctly. In such a case, set the size of the whole widget so that it is large enough for all content.

About focus

When the TabPanel is focused using the Tab key, the focus shifts to the header part. The behavior is the same if tabs are switched using keys specified in the nextKey and previousKey properties.

When the header part is focused, the whole header part is focused, not just the header part of an individual tab.

When a widget in the body is focused, it is possible to switch tabs using keys specified in the nextKey and previousKey properties, but when the focus shifts using the Tab key, not the TabPanel but the widget itself is targeted.

About tab switching keys (nextKey, previousKey) settings

- If you specify a global event control key as a tab switching key, tabs may not switch correctly. For this reason, do not specify global event control keys as tab switching keys.
- If you specify a browser shortcut key as a tab switching key, tab switching takes precedence and so the shortcut key process may be cancelled. For this reason, do not specify important shortcut keys as tab switching keys.

Example:

If you specify "66+CTRL(Ctrl + B) " as a tab switching key, and press Ctrl + B to execute a widget function. You cannot use Ctrl + B to open "Organize Favorites" in Internet Explorer.

4.2.2.5 FragmentContainer

FragmentContainer is the widget for specifying screen information (container) in a separate file.

Whereas ViewContainer describes HTML elements as child elements in the same file, FragmentContainer describes HTML elements in a separate file.

Data of HTML in FragmentContainer (referred to hereafter as Fragment HTML) is retrieved by asynchronous communication. Note that Fragment HTML does not conform to a DTD as simple HTML.

Retrieved Fragment HTML are inserted into HTML with FragmentContainer (referred to hereafter as Container HTML), and then the data is reflected.

Examples:

- To improve the speed of initialization
Use with TabPanel or ViewStack to enable delay loading of container content.
- To disperse development
Because development resources (files) are divided, development can be dispersed.


Format

```
<div rcf:type="IBPMFragmentContainer" rcf:src="about:blank" ... ></div>
```



You cannot specify child elements. Refer to [4.4.1.4 Behavior when child elements are specified for widgets that cannot contain child elements](#) for details.

Figure 4.7 FragmentContainer in Use
Container HTML Description Image

```
<html>
<div rcf:id="uda_Variable1"
rcf:type="IBPMFragmentContainer"
rcf:src="about:blank" >

</div>
</html>
```

Sample HTML Fragment Description

```
<div rcf:id="uda_0685861775"
rcf:type="IBPMTText"
rcf:value="Name:">
</div>
<div rcf:id="uda_name"
rcf:type="IBPMTTextInput">
</div>
<div rcf:id="uda_0439885142"
rcf:type="IBPMTText"
rcf:value="Address:">
</div>
<div rcf:id="uda_address"
rcf:type="IBPMTTextInput">
</div>
```

Start retrieval using activate method.

As with ordinary HTML, Fragment HTML can use UI widgets.

Properties

The meaning of the column headers is explained in [Properties](#) topic of the section 4.2.1.1 Text.

| Name | Data Type | Description | Required | Default Value |
|-----------------|-----------|---|----------|-------------------|
| src | String | In Systemwalker Runbook Automation Studio, specify "about:blank". You have to specify a UDA to the id property to define the URL of Fragment HTML. Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA. | Yes | - |
| showStatus | Boolean | Specifies whether or not the FragmentContainer status before activate (such as Initialized, Loading, and Error) is displayed. - true: Displayed - false: Not displayed | No | true |
| statusIconImage | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |
| timeout | Number | Specifies the timeout period for retrieving Fragment HTML. The units are milliseconds. If you specify a value less than 1, an error occurs. | No | 60000(60 seconds) |

You can also specify ViewContainer properties. Refer to [Properties](#) in [4.2.2.1 ViewContainer](#) for details.

You can also specify common properties for widgets. Refer to [4.2.4 Common Properties for Screen Widgets](#) for details.

Style Properties

| Part Name | Prefix | Class Name | Available Styles |
|--------------|--------|-------------------------------|--|
| Whole widget | None | rcf- FragmentCont ainer | - Size - Color - Border - Padding - Overflow |

Refer to [4.2.5 Style Properties](#) for details.

Additional Notes

- FragmentContainer is used in [ViewStack](#) and [TabPanel](#) to specify views.
- If FragmentContainer is used without ViewStack or TabPanel, it is displayed in the same way as an ordinary <div> tag.
- Fragment HTML are added to the HTML body. For this reason, you cannot define HTML header elements in Fragment HTML.
- Before assigning the UDA value to FragmentContainer, the value is first encoded and then assigned.
- For FragmentContainer, you should not change the rcf:src="about:blank" during design time. If you change the value of src property, one of the following messages is displayed:
 - Object expected.
 - 'excArrayObj' is undefined.



Note

- You can add only a widget of Advanced Category to a Fragment HTML. You cannot add a widget of Basic Category to a Fragment HTML.
- If you use a Fragment HTML, you have to do the following operations.
 1. Create a file by the QuickForm Wizard Dialog (execute New > QuickForm command).
-> An Ajax Page Editor is displayed.
 2. Delete lines other than the following lines in the Source View of the Ajax Page Editor.

```
<script type="text/javascript" src="../../rcf_config.js" charset="UTF-8"></script>
<script type="text/javascript" src="../../acf/file/rcf/rcf.js" charset="UTF-8"></script>
<body>
</body>
```

The content of edited file (jsp) is the following.

```
<script type="text/javascript" src="../../rcf_config.js" charset="UTF-8"></script>
<script type="text/javascript" src="../../acf/file/rcf/rcf.js" charset="UTF-8"></script>
<body>
</body>
```

3. Put UI widget by using Ajax page editor.

The content of file (jsp) that is added the UI widget is the following.

```
<script type="text/javascript" src="../../rcf_config.js" charset="UTF-8"></script>
<script type="text/javascript" src="../../acf/file/rcf/rcf.js" charset="UTF-8"></script>
<body>

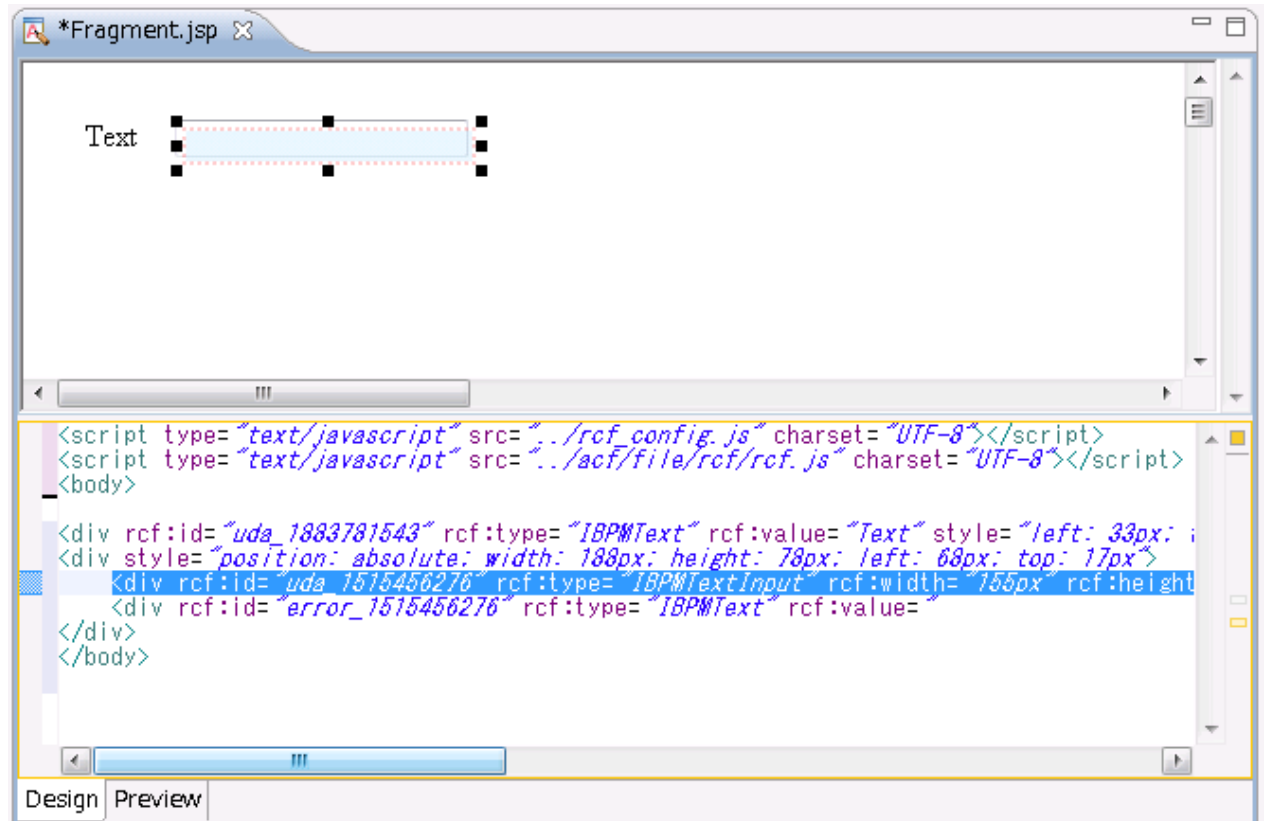
<div rcf:id="uda_1883781543" rcf:type="IBPMText" rcf:value="Text" style="left: 33px; top:
29px; position: absolute"></div>
<div style="position: absolute; width: 188px; height: 78px; left: 68px; top: 17px">
  <div rcf:id="uda_1515456276" rcf:type="IBPMTextInput" rcf:width="155px" rcf:height="20px">
```

```

style="left: 12px; top: 12px; position: absolute"></div>
  <div rcf:id="error_1515456276" rcf:type="IBPMTText"
rcf:value="
" rcf:color="#FF0000" rcf:width="155px"
rcf:height="20px" style="left: 14px; top: 46px; position: absolute"></div>
</div>
</body>

```

The screen image is the following.



4. Delete description other than added UI widget. Execute upload and export of the application under this condition. The content of edited file (jsp) is the following.

```

<div rcf:id="uda_1883781543" rcf:type="IBPMTText" rcf:value="Text" style="left: 33px; top:
29px; position: absolute"></div>
<div style="position: absolute; width: 188px; height: 78px; left: 68px; top: 17px">
  <div rcf:id="uda_1515456276" rcf:type="IBPMTTextInput" rcf:width="155px" rcf:height="20px"
style="left: 12px; top: 12px; position: absolute"></div>
  <div rcf:id="error_1515456276" rcf:type="IBPMTText"
rcf:value="
" rcf:color="#FF0000" rcf:width="155px"
rcf:height="20px" style="left: 14px; top: 46px; position: absolute"></div>
</div>

```

When you edit fragment HTML again, rewrite the deleted description (underlined part).

```

<script type="text/javascript" src="..rcf_config.js" charset="UTF-8"></script>
<script type="text/javascript" src="..acf/file/rcf/rcf.js" charset="UTF-8"></script>
<body>
<div rcf:id="uda_1883781543" rcf:type="IBPMTText" rcf:value="Text" style="left: 33px; top:
29px; position: absolute"></div>
<div style="position: absolute; width: 188px; height: 78px; left: 68px; top: 17px">
  <div rcf:id="uda_1515456276" rcf:type="IBPMTTextInput" rcf:width="155px" rcf:height="20px"
style="left: 12px; top: 12px; position: absolute"></div>
  <div rcf:id="error_1515456276" rcf:type="IBPMTText"
rcf:value="
" rcf:color="#FF0000" rcf:width="155px"
rcf:height="20px" style="left: 14px; top: 46px; position: absolute"></div>

```



```
</div>
</body>
```

4.2.3 Calendar Widgets

Calendar widgets are widgets for displaying calendars. You can display a calendar directly in the form or display a pop-up calendar.

This section explains how to use calendar widgets.

4.2.3.1 Calendar

Calendar is the widget for displaying a calendar. Users can select a date in the displayed calendar.

Sample Display

The diagram illustrates two calendar widget displays. The left display is a standard calendar grid with days of the week (Su, Mo, Tu, We, Th, Fr, Sa) as column headers and dates (1-31) as row entries. A date (14) is highlighted in blue, indicating it is the selected date. A date (16) is highlighted in light blue, indicating it is the focused date. The right display is a pop-up calendar with a title bar (2011/12), navigation buttons (Previous month, Next month), and a grid with days of the week (Su, Mo, Tu, We, Th, Fr, Sa) as column headers and dates (1-31) as row entries. A date (14) is highlighted in blue, indicating it is the selected date. A date (16) is highlighted in light blue, indicating it is the focused date.

Selected date
- Click
- Space key

Focused date
- Mouse over
- Arrow keys

Format

```
<div rcf:type="IBPMCalendar" ... ></div>
```

Note

You cannot specify child elements. Refer to [4.4.1.4 Behavior](#) when child elements are specified for widgets that cannot contain child elements for details.

Point

Properties

The meaning of the column headers is explained in [Properties](#) topic of the section [4.2.1.1 Text](#).

| Name | Data Type | Description | Required | Default Value |
|------------------------|--------------|---|----------|---|
| year | Number | Specifies the year to display in the calendar (1 or more). | No | Current year of the system date |
| month | Number | Specifies the month to display in the calendar (0-11). | No | Current month of system date |
| firstDayOfWeek | Number | Specifies the first day of the week to display in the first day column. The range of values is from 0 (Sunday) to 6 (Saturday). | No | 0 (Sunday) |
| selectedDates | - | Cannot be specified in Systemwalker Runbook Automation Studio. You can specify a UDA in the id property to specify the selected date. And the value selected in the calendar is saved to the UDA value. Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA. | - | - |
| daysOfWeek | String array | Specifies the days of the week listed across the top of the Calendar (from Sunday to Saturday). You can specify a sequence of seven day-of-the-week character strings separated by semi-colon starting from Sunday. If you specify more or less than seven day-of-the-week character strings, an error occurs. For example: "S;M;T;W;T;F;S" | No | ["Su.", "Mo.", "Tu.", "We.", "Th.", "Fr.", "Sa."] |
| holidays | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |
| specialDates | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |
| dateToolTips | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |
| naviType | String | Specifies how to display the navigator. - ALL: Displays Previous Month button, Next Month button and title. - TITLE: Displays title only. - NONE: Does not display the navigator. | No | ALL |
| naviButtonRenderer | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |
| naviTitleLabelProvider | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |

| Name | Data Type | Description | Required | Default Value |
|-----------------------|-----------|--|----------|---------------|
| dayOfWeekCellRenderer | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |
| dateCellRenderer | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |
| tabIndex | Number | Specifies the tab order when moving the focus with the Tab key. You can specify it in the same way as the tabIndex attribute in HTML. The focus moves in ascending order if you specify integers greater than zero. | No | 0 |
| selectable | Boolean | Specifies whether or not the date can be selected. - true: Selectable - false: Not selectable | No | true |
| selectMode | - | Cannot be specified in Systemwalker Runbook Automation Studio. Users can only select one date. | - | - |
| utc | - | Cannot be specified in Systemwalker Runbook Automation Studio. | - | - |

You can also specify common properties for widgets. Refer to [4.2.4 Common Properties for Screen Widgets](#) for details.

Point

When you want to change the character string displayed as a day of the week, specify the character string in the daysOfWeek property.
Example: When you want to change the day of the week to Sun;Mon;Tues;Wed;Thurs;Fri;Sat, describe the following.

```
<div rcf:type="IBPMCalendar" rcf:daysOfWeek=Sun;Mon;Tues;Wed;Thurs;Fri;Sat ></div>
```

Mouse operations

| Operation | Process |
|-----------------------------------|---|
| Clicking on Previous Month button | Displays the previous month. |
| Clicking on Next Month button | Displays the next month. |
| Clicking on a date | Toggles the selection status of the clicked date. |
| Double-clicking on a date | Selects the clicked date. |
| Hovering over a date | The date over which the mouse is hovering gets the focus. |

Keyboard operations

| Operation | Process | |
|--------------|--|--|
| Space | Toggles the selection status of the focused date. | |
| Left cursor | - | Shifts the focus to the previous day (within the displayed range). |
| | + SHIFT | Displays the previous month. |
| Right cursor | - | Shifts the focus to the next day (within the displayed range). |
| | + SHIFT | Displays the next month. |
| Up cursor | Shifts the focus back one week (within the displayed range). | |

| Operation | Process |
|-------------|---|
| Down cursor | Shifts the focus forward one week (within the displayed range). |
| Home | Shifts the focus to the first day of the displayed month. |
| End | Shifts the focus to the last day of the displayed month. |
| PageUp | Displays the previous month. |
| PageDown | Displays the next month. |

Style Properties

| Part Name | Prefix | Class Name | Available Styles |
|--|-------------------------------|---|--|
| Whole widget (external frame) | None | rcf-IBPMCalendar | - Size - Border |
| Cell (common to all) | cell | rcf-IBPMCalendar-cell | - Size - Color - Font - Border - Cell |
| Navigation title | naviTitle | rcf-IBPMCalendar-naviTitle | - Size (except width) - Color - Font - Border - Cell |
| Navigation button | naviButton | rcf-IBPMCalendar-naviButton | - Size (except width) - Color - Font - Border - Cell |
| Day of the week header (common) | dayOfWeek | rcf-IBPMCalendar-dayOfWeek | - Size (except width) - Color - Font - Border - Cell |
| Day of the week header (individual) | dayOfWeek0 - dayOfWeek6 | rcf-IBPMCalendar-dayOfWeek0 - rcf-IBPMCalendar-dayOfWeek6 | - Color - Font - Border - Cell |
| Date (common within the current month) | date | rcf-IBPMCalendar-date | - Color - Font - Border |

| Part Name | Prefix | Class Name | Available Styles |
|--|---------------------------------|---|---|
| | | | - Cell |
| Date (per day of the week within the current month) | date0 - date6 | rcf-IBPMCalendar-date0 - rcf-IBPMCalendar-date6 | - Color - Font - Border - Cell |
| Date (common except within the current month) | otherMonth | rcf-IBPMCalendar-otherMonth | - Color - Font - Border - Cell |
| Date (per day of the week except within the current month) | otherMonth0 - otherMonth6 | rcf-IBPMCalendar-otherMonth0 - rcf-IBPMCalendar-otherMonth6 | - Color - Font - Border - Cell |
| Focused date | focus | rcf-IBPMCalendar-focus | - Color - Font - Border - Cell |
| Selected date | selected | rcf-IBPMCalendar-selected | - Color - Font - Border - Cell |
| Holiday | holiday | rcf-IBPMCalendar-holiday | - Color - Font - Border - Cell |
| Special day | special0 - special9 | rcf-IBPMCalendar-special0 - rcf-IBPMCalendar-special9 | - Color - Font - Border - Cell |

Refer to [4.2.5 Style Properties](#) for details.

Note

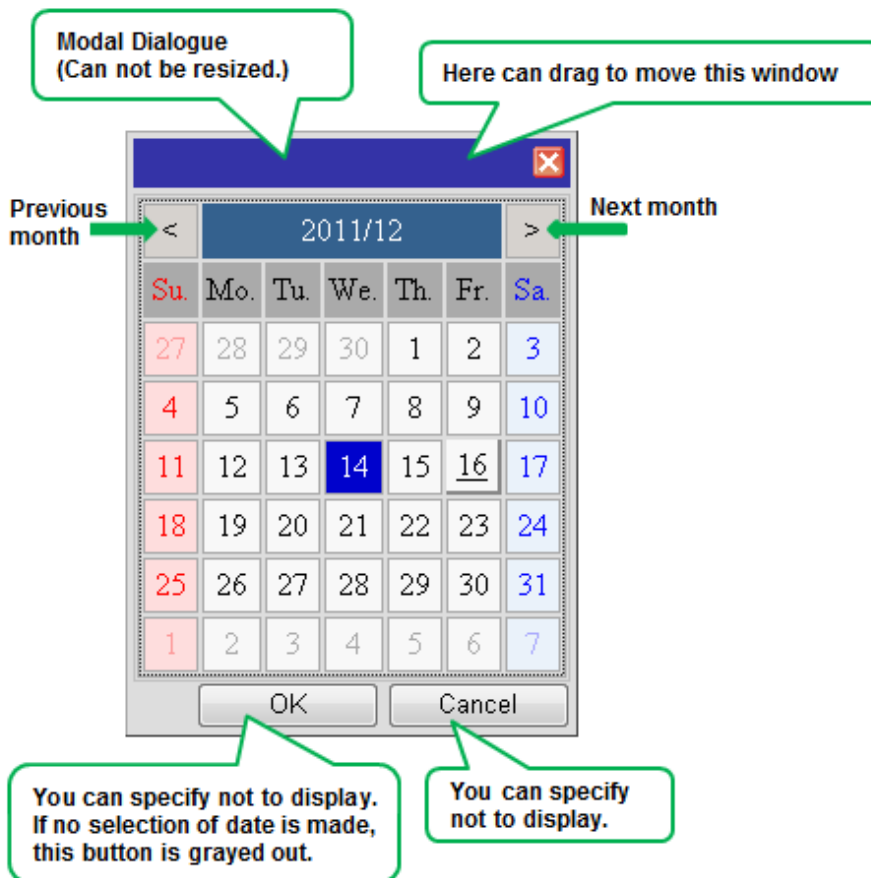
- The calendar is a table with TD elements for each day.
- You can also specify custom styles for days of the week in Date (within the current month), Date (except within the current month) and Day of the week header.
In such a case, add a numerical value denoting the day of the week after the prefix and class name.
(For example: Sunday0...Saturday6)

- The default order of priority for date cell styles is as follows:
 1. selected
 2. focus
 3. special0..9
 4. holiday
 5. date0..6 / otherMonth0..6
 6. date / otherMonth
 7. cell
- Apart from whole widget (external frame), you can only set styles using CSS. When setting styles in CSS, specify the styles in reverse order of priority.
- Styles set in CSS take precedence over default styles. If you only define styles of low priority (such as cell or date) in CSS, default styles of higher priority (such as selected or focus) may be ignored. To avoid this, define all required styles in the correct order of priority.

4.2.3.2 PopupCalendar

PopupCalendar is the widget for displaying a pop-up calendar. PopupCalendar is used with [CalendarButton](#) to create a pop-up window in which users can select a date.

Sample Display



Format

```
<span rcf:id="uda_var1" rcf:type="IBPMDateInput" ...></span>
<div rcf:id="IBMPopupCalendar_1" rcf:type="IBMPopupCalendar"
rcf:targetDateInputId="uda_var1" ...></div>
<span rcf:id="CalendarButton_1" rcf:type="CalendarButton" rcf:target="IBMPopupCalendar_1" ...></span>
```

Note

You cannot specify child elements. Refer to [4.4.1.4 Behavior when child elements are specified for widgets that cannot contain child elements](#) for details.

Properties

The meaning of the column headers is explained in [Properties](#) topic of the section 4.2.1.1 Text.

| Name | Data Type | Description | Required | Default Value |
|-------------------|-----------|---|----------|---------------|
| selectedDate | - | Cannot be specified in Systemwalker Runbook Automation Studio. You can specify a UDA in the id property to specify the selected date. And the value selected in the calendar is saved to the UDA value. Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA. | - | - |
| labelOK | String | Specifies the label text on the OK button. If you specify an empty string (""), the button is not displayed. (*) | No | "OK" |
| labelCancel | String | Specifies the label text on the cancel button. If you specify an empty string (""), the button is not displayed. (*) | No | "Cancel" |
| targetDateInputId | String | Specifies the ID of the DateInput to display the date selected in the calendar. | No | "" |

(*)If you specify an empty string for both labelOK and labelCancel, the footer part (where the OK button and cancel button are displayed) is not displayed.

You can also specify common properties for widgets. Refer to [4.2.4 Common Properties for Screen Widgets](#) for details.

Note

You can not specify the following properties of Calendar:

- firstDayOfWeek
- daysOfWeek

Point

When you want to change the character string displayed in the button of the footer, specify it in the `labelOK` property or in the `labelCancel` property.

Example: When you want to change the character string of the cancel button to "CANCEL", write the following description.

```
<div rcf:id="IBMPopupCalendar_1" rcf:type="IBMPopupCalendar" rcf:targetDateInputId="uda_var1"
rcf:labelCancel="CANCEL"></div>
```

Style Properties

Style properties of this widget are shown below.

| Part Name | Prefix | Class Name | Available Styles |
|---------------------|--------|--------------------------|---------------------------------------|
| OK/Cancel button | button | rcf-PopupCalendar-button | - Color - Font (except lineHeight) |

You can also specify Calendar style properties. Refer to [Style Properties](#) in [4.2.3.1 Calendar](#) for details.

However, note that the prefix and class name of the style property for the whole widget (external frame) is as follows:

- Prefix: calendar
- Class name: rcf-IBPMCalendar-calendar

Refer to [4.2.5 Style Properties](#) for details.

Additional Notes

- You cannot use `<div>` tag style attributes (such as position, top and left) with this widget. Refer to [4.1.2.3 Attributes that can be used with UI Widget div tags and span tags](#) for details.
- Specify the top and left in style properties. Values specified in CSS are ignored.

4.2.3.3 CalendarButton

`CalendarButton` is the widget to display a pop-up calendar. `CalendarButton` is used with [PopupCalendar](#).

`PopupCalendar` is displayed when `CalendarButton` is clicked or when the Enter key or space key is pressed with focused `CalendarButton`.

Sample Display



Format

```
<div rcf:type="CalendarButton" rcf:target="popupCalendar1" ... ></div>
```

Or

```
<span rcf:type="CalendarButton" rcf:target="popupCalendar1" ... ></span>
```

Note

You cannot specify child elements. Refer to [4.4.1.4 Behavior when child elements are specified for widgets that cannot contain child elements](#) for details.

This widget is displayed as follows:

- Using with <div> tag, line feed is inserted before and after the widget.
- Using with tag, line feed is not inserted before and after the widget.

Properties

The meaning of the column headers is explained in [Properties](#) topic of the section 4.2.1.1 Text.

| Name | Data Type | Description | Required | Default Value |
|----------|-----------|---|----------|-----------------|
| alt | String | Specifies alternative text for the image. | No | Calendar Button |
| enabled | Boolean | Specifies whether or not the button is active (enabled). - true: Active - false: Inactive | No | true |
| target | String | Specifies the ID of the displayed PopupCalendar. | Yes | - |
| tabIndex | Number | Specifies the tab order when moving the focus with the Tab key. You can specify it in the same way as the tabIndex attribute in HTML. The focus moves in ascending order if you specify integers greater than zero. | No | 0 |

You can also specify common properties for widgets. Refer to [4.2.4 Common Properties for Screen Widgets](#) for details.

Example

A sample display and corresponding specification of PopupCalendar, DateInput and Text (for displaying an error message) are as follows:



```

...
<span rcf:id="uda_var1" rcf:type="IBPMDateInput" ...></span>
<div rcf:id="IBMPopupCalendar_1" rcf:type="IBMPopupCalendar"
rcf:targetDateInputId="uda_var1" ...></div>
<span rcf:id="CalendarButton_1" rcf:type="CalendarButton" rcf:target="IBMPopupCalendar_1" ...></span>
...

```

The input order is as follows:

1. Click CalendarButton.
PopupCalendar is displayed.
2. Select a date in PopupCalendar.
The date is input in DateInput through the UDA var1.

Style Properties

| Part Name | Prefix | Class Name | Available Styles |
|--------------|--------|------------------------|-----------------------------|
| Whole widget | None | rcf- CalendarButton | - Border - verticalAlign |

Details of the verticalAlign style are as follows:

| Name | Data Type | Description | Default Value |
|---------------|-----------|---|---------------|
| verticalAlign | String | Specifies the vertical alignment of the button. You can specify the CSS vertical-align property value. | baseline |

Refer to [4.2.5 Style Properties](#) for details.

4.2.4 Common Properties for Screen Widgets

This section lists and describes the common properties for screen widgets.

The meaning of the column headers is explained in [Properties](#) topic of the section 4.2.1.1 Text.

| Name | Data Type | Description | Required | Default Value |
|------------|-----------|---|----------|-------------------------------|
| id | String | Specifies the widget ID. (*) The specified character string must satisfy the following conditions: <ul style="list-style-type: none"> - The first character must be an alphanumeric character. - The second and subsequent characters must be alphanumeric characters, numbers, underscores, hyphens, colons or periods. Leading and trailing whitespace is ignored. If any other characters are specified, an error occurs. You cannot specify an empty string. In Systemwalker Runbook Automation Studio, you can specify a UDA in this property to overwrite other specific property with the UDA value when the widget is initialized. And the value is saved to the UDA value. However, note that the selectedIndex or selectedIndexes property is overwritten by the index depending on the specified UDA value when Select, SelectList or CheckList is initialized. And the value depending on the selected index is saved to the UDA value. Refer to How to specify a UDA in the property for details. | No | Widget name _Serial number |
| type | String | Specifies the widget type. | Yes | None |
| styleClass | String | Specifies the style class name. You cannot specify this in an additional functional widget. | No | "" |

(*)This is different to the HTML id attribute. Not a rcf:id attribute but an id attribute must be specified to specify the HTML id attribute.

Properties related with UDA specified in the id property

The following table lists widgets whose id property is used to relate it with UDA:

| Widget | Property | Type of UDA which can be specified in the id property |
|-------------------|-----------------------------------|--|
| Text | value | STRING, BOOLEAN, INTEGER, LONG, FLOAT, BIGDECIMAL, XML |
| TextInput | value | STRING, BOOLEAN, INTEGER, LONG, FLOAT, BIGDECIMAL |
| CheckBox | value | STRING, BOOLEAN |
| RadioButton | value | STRING, BOOLEAN |
| TextArea | value | STRING, BOOLEAN, INTEGER, LONG, FLOAT, BIGDECIMAL, XML |
| Select | selectedIndex, selectedIndexes | STRING, INTEGER, LONG, FLOAT, BIGDECIMAL (*) |
| ComboBox | value | STRING, INTEGER, LONG, FLOAT, BIGDECIMAL |
| DateInput | date | DATE |
| NumberInput | number | INTEGER, LONG, FLOAT, BIGDECIMAL |
| SelectList | selectedIndex, selectedIndexes | STRING, INTEGER, LONG, FLOAT, BIGDECIMAL (*) |
| CheckList | selectedIndex, selectedIndexes | STRING, INTEGER, LONG, FLOAT, BIGDECIMAL (*) |
| Panel | label | STRING, BOOLEAN, DATE, INTEGER, LONG, FLOAT, BIGDECIMAL, XML |
| ViewStack | selectedIndex | INTEGER |
| TabPanel | selectedIndex | INTEGER |
| FragmentContainer | src | STRING |
| Calendar | selectedDates | DATE, LONG |
| PopupCalendar | selectedDate | DATE, LONG |

(*) In case of multiple selections, you can specify only String type and the values are separated by comma.

How to specify a UDA in the property

In Systemwalker Runbook Automation Studio, you can relate the widget with UDA using some properties.

In such case, the format of the property is as follows:

```
rcf:<property name>="uda_<uda identifier>"
```

Example: If you use the value of UDA Value1 and Options with Select widget, the properties are described as follows:

```
<div rcf:type="IBPMSelect" rcf:id="uda_Value1" rcf:prop_options="uda_Options"...></div>
```

In the above example, note that:

- Not the index but the value of the selected option is stored to UDA Value1.
- In the case of multiple selections, all selected values are stored to UDA Value1 in comma separated format.

Note

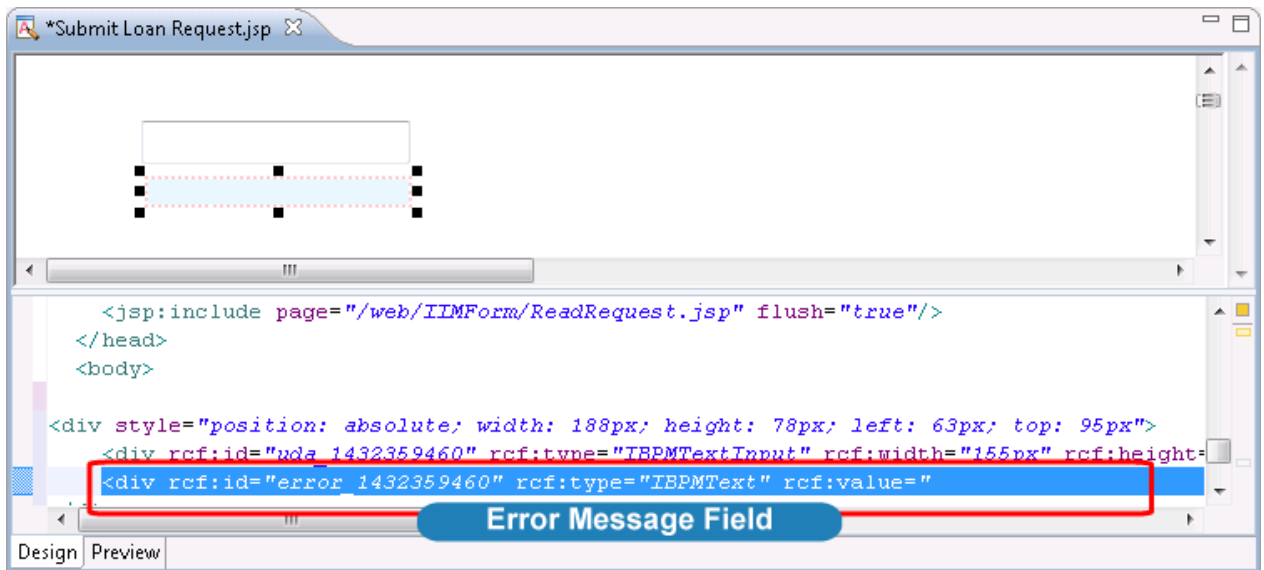
- Use commas to separate values in the prop_options property (used in Select, SelectList, and CheckList widgets) and the prop_list property (used in ComboBox widget).
 - Use semicolon to separate values in the options property (used in Select, SelectList, and CheckList widgets) and the list property (used in ComboBox widget).
 - Note the following behavior for spaces in prop_options and prop_list:
 - If no data is entered after comma, this leads to an empty option being created.
 - If value is empty or contains only spaces then an empty option will be displayed.
 - The Select widget throws an error in case of duplicate options, option containing only spaces, or empty option.
 - If spaces or empty value is the selected option, then value stored in server will be empty.
 - About the mapping of UI widgets and UDA:
 - If invalid UDA (not existing, not supported type) is mapped to the UI widget, each property (value etc.) is not overwritten.
 - If invalid UDA is mapped to DateInput, the empty string is displayed as initial value.
 - Nothing is displayed if the value of INTEGER UDA mapped to ViewStack or TabPanel is beyond the limits of the index that can be used.
 - When the error occurs by processing FragmentContainer added to TabPanel, other Tab of TabPanel cannot be used.
 - About UDA value:
 - All the UDA values that have leading or trailing spaces are displayed as untrimmed values (with spaces) during initial form load.
 - If you update this value and it contains any leading and trailing space, the value saved to the server will be trimmed.
 - In case of multiple selections (Select, SelectList, CheckList), leading and trailing spaces are trimmed for the joint value and not to each individual value.
-

About Error Message Field

When you select the following UI widgets in the Palette View and add these UI widgets to the Ajax Page Editor, the Error Message Field is added together:

- TextInput
- TextArea
- Select
- ComboBox
- DateInput
- NumberInput
- SelectList

- CheckList



Error Message is displayed to this Error Message Field, when you execute the following operations in Console:

- You define "true" to this mandatory property, but the user does not enter this field in Console.
- You related a UDA which does not support type with this UI Widget; etc.

In such case, the format of the property is as follows:

```
rcf:id = error_<uda identifier>
```



Note

If you define a Select widget and define "true" to the multiple property, this widget and this Error Message Field are overlapped. You have to move this Error Message Field.

4.2.5 Style Properties

This section explains style properties for screen widgets.

Refer to [4.1.2.2 Style Settings](#) if you want to know about specifying style properties.

Also, if the style properties are omitted, the browser's default values are used.



Note

If an invalid value is specified in style properties, the setting is ignored.



Point

Style property names for the whole widget

For example, names of style properties for the whole widget are as follows:

- color: Specification of color
- backgroundColor: Specification of background color
- fontSize: Specification of font size.

Style property names for specific widget parts

A style property name for a specific screen widget part consists of a prefix followed by the style property name with no space in between, as follows:

```
[Prefix][Property name start with an uppercase]
```

For example, for the title part:

- titleColor: Specification of title part color
- titleBackgroundColor: Specification of title part background color
- titleFontSize: Specification of title part font size.

Size

| Name | Description |
|--------|--|
| width | Specifies the widget width. You can specify the CSS width property value. If a numerical value is specified, the unit of measurement must also be supplied. |
| height | Specifies the widget height. You can specify the CSS height property value. If a numerical value is specified, the unit of measurement must also be supplied. |

Color

| Name | Description |
|-----------------|---|
| color | Specifies the character color. You can specify the CSS color property value. |
| backgroundColor | Specifies the background color. You can specify the CSS background-color property value. |

Font

| Name | Description |
|------------|--|
| fontFamily | Specifies the character display font. You can specify the CSS font-family property value. |
| fontSize | Specifies the character size. You can specify the CSS font-size property value. If a numerical value is specified, the unit of measurement must also be supplied. |
| fontStyle | Specifies the font style like Italic. You can specify the CSS font-style property value. |
| fontWeight | Specifies the font weight. You can specify the CSS font-weight property value. |
| lineHeight | Specify the amount of vertical space between lines of text. You can specify the CSS line-height property value. If a numerical value is specified, the unit of measurement must also be supplied. |

Text

| Name | Description |
|------------|--|
| textIndent | Specifies the width to indent the first line. You can specify the CSS text-indent property value. If a numerical value is specified, the unit of measurement must also be supplied. |

| Name | Description |
|----------------|--|
| textAlign | Specifies the text alignment. You can specify the CSS text-align property value. |
| textDecoration | Specifies the text decoration. You can specify the CSS text-decoration property value. |
| letterSpacing | Specifies the amount of space between letters. You can specify the CSS letter-spacing property value. If a numerical value is specified, the unit of measurement must also be supplied. |
| wordSpacing | Specifies the amount of space between words. You can specify the CSS word-spacing property value. If a numerical value is specified, the unit of measurement must also be supplied. |
| whiteSpace | Specifies the way in which spaces are handled. You can specify the CSS white-space property value. |

Border

| Name | Description |
|-------------|---|
| borderWidth | Specifies the border width. You can specify the CSS border-width property value. If a numerical value is specified, the unit of measurement must also be supplied. |
| borderStyle | Specifies the border style. You can specify the CSS border-style property value. |
| borderColor | Specifies the border color. You can specify the CSS border-color property value. |

Padding

| Name | Description |
|---------|---|
| padding | Specifies the padding. You can specify the CSS padding property value. If a numerical value is specified, the unit of measurement must also be supplied. |

Margins

| Name | Description |
|--------|--|
| margin | Specifies the margin. You can specify the CSS margin property value. If a numerical value is specified, the unit of measurement must also be supplied. |

Position

| Name | Description |
|----------|--|
| position | Specifies how an element is positioned. You can specify the CSS position property value. |
| top | Specifies how far from the top of the parent element. You can specify the CSS top property value. If a numerical value is specified, the unit of measurement must also be supplied. |
| right | Specifies how far from the right of the parent element. You can specify the CSS right property value. If a numerical value is specified, the unit of measurement must also be supplied. |

| Name | Description |
|--------|--|
| bottom | Specifies how far from the bottom of the parent element. You can specify the CSS bottom property value. If a numerical value is specified, the unit of measurement must also be supplied. |
| left | Specifies how far from the left of the parent element. You can specify the CSS left property value. If a numerical value is specified, the unit of measurement must also be supplied. |

Overflow

| Name | Description |
|----------|---|
| overflow | Specifies the behavior on overflow. You can specify the CSS overflow property value. |

Cell

| Name | Description |
|---------------|---|
| textAlign | Specifies the text alignment. You can specify the CSS text-align property value. |
| verticalAlign | Specifies the vertical alignment of content inside table cells. You can specify the CSS vertical-align property value. |
| whiteSpace | Specifies how whitespace characters should be handled. You can specify the CSS white-space property value. |

4.3 Additional Functional Widgets

This chapter describes additional functional widgets.



Note

- You cannot set multiple additional functional widgets of the same type for a single screen widget. If you set multiple additional functional widgets, your performance cannot be guaranteed.
- If you set an additional functional widget for a widget that is not a target of that additional functional widget, the additional functional widget is ignored.

4.3.1 Grouping Functions

This section explains the content of grouping function settings and describes how to make the settings.

4.3.1.1 RadioButtonGroup

RadioButtonGroup is an additional functional widget to create the mutually exclusive RadioButtons group.

Grouping radio buttons, RadioButtons belonging to the RadioButtonGroup behave as well as the radio button group used in HTML.

- There is a single focus for the whole group
- You can change the selection status of radio buttons in the group using the cursor keys

Format

```
<div rcf:type="RadioButtonGroup" rcf:targets="xxx1; xxx2; ... "></div>
```

Or


```
<span rcf:type="RadioButtonGroup" rcf:targets="xxx1; xxx2; ... "></span>
```

Note

- You cannot specify child elements. Refer to [4.4.1.4 Behavior when child elements are specified for widgets that cannot contain child elements](#) for details.
- There is no difference if it is specified in the <div> tag or the tag because this widget is not displayed on-screen.

Properties

The meaning of the column headers is explained in [Properties](#) topic of the section 4.2.1.1 Text.

| Name | Data Type | Description | Required | Default Value |
|----------------|-----------|--|----------|---------------|
| targets | Array | <p>Specifies the list of RadioButton IDs included in the group.</p> <p>Note that the order of items in the targets property is the order in which the focus shifts.</p> <p>An error occurs if the value of this property is one of the following:</p> <ul style="list-style-type: none">- If no widget with the specified ID exists- If the widget with the specified ID is not a RadioButton- If the value of the value property for the specified RadioButton is an empty string- If multiple RadioButtons with the same value exist in the group | Yes | - |
| selected Value | String | <p>Specifies the selected RadioButton value. If you specify an empty string, the last RadioButton in the order specified in the targets property whose checked property is true is selected.</p> <p>If a value that does not match any value in the group is specified, an error occurs.</p> | No | "" |

Note

For creating a RadioButtonGroup, value property for each radio button of the RadioButtonGroup needs to be provided. As Web Console does not use this value for updating UDA, you can provide any value to radio button value property.

You can also specify common properties for screen widgets and additional functional widgets. For more details, refer to [4.2.4 Common Properties for Screen Widgets](#) and [4.3.2 Common Properties for Additional Functional Widgets](#)

Creating a radio button group

To create a radio button group, specify the IDs of the RadioButton widgets to include in the group in the targets property.

An example is as follows:

```

...
<span rcf:id="radioButton1" rcf:type="IBPMRadioButton" rcf:value="val1" rcf:label="Radio Button
1"></span>
<span rcf:id="radioButton2" rcf:type="IBPMRadioButton" rcf:value="val2" rcf:label="Radio Button
2"></span>
...
<span rcf:id="group1" rcf:type="RadioButtonGroup" rcf:targets="radioButton1; radioButton2" ... ></
span>
...

```

4.3.2 Common Properties for Additional Functional Widgets

This section describes common properties for additional functional widgets.

The meaning of the column headers is explained in [Properties](#) topic of the section 4.2.1.1 Text.

| Name | Data Type | Description | Required | Default Value |
|---------|-----------|---|----------|---------------|
| enabled | Boolean | Specifies whether or not the function is enabled. true: Enabled. false: Disabled. | No | true |

4.4 Notes

This chapter describes notes on using UI widgets.

4.4.1 Notes for Screen Widgets

This section describes notes on screen widgets.

4.4.1.1 General Notes for Screen Widgets

Screen widgets are created using HTML, JavaScript, and CSS.

Because of this, differences in the functionality of the browser in which the widget is used can lead to differences in appearance and performance of the widget.

4.4.1.2 About surrogate pair

Screen widgets precede surrogate pair as 2 characters.

For example, character number of maxLength property for TextInput counts 1 surrogate pair character as 2 characters.

4.4.1.3 Errors for Displaying Screen Widgets

This section lists some representative errors that may occur when a screen widget is displayed.

When such an error occurs, display of the screen widget is interrupted.

- The ID specified in rcf:id is duplicated (RCF11000)
- A value other than "true" or "false" is specified for an attribute that specifies Boolean (RCF11001)
- A value that cannot be interpreted as a numerical value is specified for an attribute that specifies Number (RCF11001)
- A required property of a widget is not specified (RCF11003)

4.4.1.4 Behavior when child elements are specified for widgets that cannot contain child elements

Do not describe child elements for widgets that cannot contain child elements. If you do, the widget behavior is affected in the following:

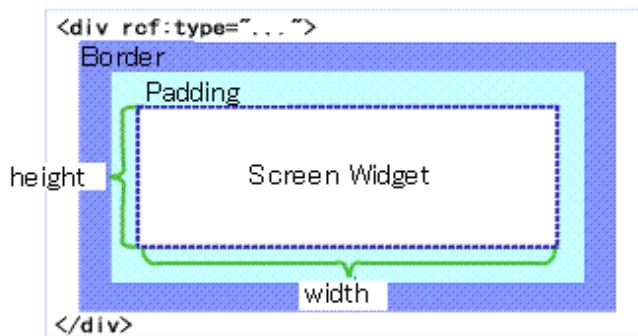
- If the child element contains UI widgets described in `<div>` tags or `` tags:
Widgets described in the child element are ignored.
- If the child element contains any other generally used HTML tags:
The behavior is unstable.

4.4.1.5 The width and height of Screen Widget

Describe screen widgets in `<div>` tags or `` tags.

Width and height of Screen widgets do not include the size of border area and padding area. The description of width and height in `<div>` tags is shown below:

Figure 4.8 Width and Height in `<div>` tag



However, width and height of the following widgets include the size of border area:

- Calendar

4.4.1.6 Layout of Screen Widgets

Screen widgets are designed taking into account the default Windows layout.

If you change the default Windows layout settings (for example in the Display Properties window), screen widgets may not be displayed correctly.

Screen widgets may also not be displayed correctly if you dynamically change the browser text size.

4.4.1.7 Undo Using Ctrl+z in Text Input Widgets

If you press Ctrl+z in a text input widget, the widget reverts to its status when it was focused.

Text input widgets are as follows:

- [TextInput](#)
- [TextArea](#)
- [DateInput](#)
- [NumberInput](#)
- [ComboBox](#)

4.4.1.8 Number of Screen Widgets per Page

Refer to [4.1.2.4 Number of Screen Widgets per Page](#) for details.

4.4.1.9 Notes for zoom in and zoom out a Page Size

Zoom in and zoom out functions are not available. If you do, the screen widgets may not be displayed correctly.

4.4.2 Common Notes for All Widgets

This section provides notes common to all widgets.

4.4.2.1 Notes for Focus Shifting in Internet Explorer

When a UI widget is focused and a scrollbar in another frame is clicked, keyboard input remains available for that widget. However, if keyboard input is made in this status, there is a possibility that the input data may be lost or incorrectly set. For this reason, it is recommended not to input data using the keyboard in this status.

When a part other than a scrollbar is clicked, the relation between focus and keyboard input returns to normal.

It is also recommended to consider whether or not to allow the display of scrollbars in frames when designing screens.

4.4.2.2 Notes for Number Type Data

In Internet Explorer 7, Number types are handled according to the 64-bit double-precision floating-point number specification stipulated in IEEE 754. For this reason, errors specific to floating-point arithmetic may occur for Number type data.

4.4.3 Error Messages

For messages that is output Ajax page editor, Refer to *Systemwalker Runbook Automation Messages Guide "Messages Relating to QuickForm UI Component"*

Chapter 5 REST APIs

5.1 API Reference

5.1.1 API Format

Systemwalker Runbook Automation provides REST interfaces that do not depend on any particular programming language.

5.1.2 HTTP Request

This section describes the structure of the HTTP requests.

URL

The URL has the following format. When specifying IPv6 address, specify it with enclosing the part of IP address in [].

```
http:// <host name or IP address of the Management Server> : <port number>/rbaserver/<each resource operation>
```

HTTP request parameters are specified using the following format after adding a question mark ("?") to the end of the URL.

```
<parameter>=<value>&<parameter>=<value>&.....&<parameter>=<value>
```

HTTP request header

Specify information for basic authentication in the HTTP header.

```
Authorization: Basic <string encoding "UserId:Password" in Base64>
```

Note: "UserId" and "Password" are authentication information for the Systemwalker Runbook Automation Management Server.

5.1.3 List of APIs

The following table lists the available APIs.

| Category | API name | HTTP method | Functional overview |
|--------------------|-------------------------|-------------|---|
| Process definition | ProcessDefinitions | GET | Obtains a list of process definitions |
| Process instance | ProcessInstances | POST | Starts a process |
| | ProcessInstances | GET | Obtains a list of process instances |
| | ProcessInstances/{piid} | GET | Obtains detailed information on process instances |

5.1.4 API Description Format

This section describes the general format used to explain each API in this document.

Description

This section describes the function of the API.

Request URI

/rbaserver/[URI for each API]

Request Parameters

This section lists the request parameters in table format.

| Parameter name | Required? | Item | Item description |
|------------------------|--|-------------|-------------------------------|
| Request parameter name | Yes: Represents a required item | Description | Description of each parameter |
| | | Type | Parameter type |
| | | Value | Parameter value |

Request Body

This section describes the body of each request.

Sample Request

This section describes a sample request.

Response

This section describes the response for each API.

<Status code>

This section describes the status codes.

<XML>

This section describes the response in XML format.

<Element>

This section describes each XML element in table format.

Sample Response

This section describes a sample response.

5.1.5 Reference for Each API

5.1.5.1 Process Definition Interface

This section describes the interface relating to process definitions.

| Action | HTTP method | URI | Remarks |
|----------------------------|-------------|-------------------------------|---------|
| Obtain process definitions | GET | /rbaserver/ProcessDefinitions | |

5.1.5.1.1 Obtain process definitions

Description

This API obtains a list of process definitions.

Request URI

/rbaserver/ProcessDefinitions

HTTP Method

GET

Request Parameters

| Parameter name | Required? | Item | Item description |
|----------------|-----------|-------------|--------------------------|
| state | | Description | Process definition state |

| Parameter name | Required? | Item | Item description |
|----------------|-----------|-------------|---|
| | | Type | string ASCII |
| | | Value | Select one of the following values. To specify multiple values, separate each value with a comma. "draft": Searches for process definitions in draft state "published": Searches for process definitions in published state "obsolete": Searches for process definitions that have been discontinued If this parameter is not specified, the API will target process definitions in all states. |
| appid | | Description | Automated Operation Process Group ID |
| | | Type | string UTF-8 |
| | | Value | Specify an Automated Operation Process Group ID. If this parameter is not specified, the API will target all Automated Operation Process Group IDs. |
| pdname | | Description | Process definition name |
| | | Type | string UTF-8 |
| | | Value | Specify a process definition name. If this parameter is not specified, the API will target all process definition names. |
| namematch | | Description | Search conditions |
| | | Type | string ASCII |
| | | Value | Specify the search pattern for process definition names if the pdname parameter has been specified. If this parameter is omitted, the API will conduct searches using complete matches. Select one of the following values: "forward": Matches the front part of the process definition name "backward": Matches the last part of the process definition name |

Sample Request

```
GET /rbaserver/processdefinitions HTTP/1.1
Host: rbamanager.systemwalker.fujitsu.com
Authorization: Basic c3dyYmFhZG1pbjpwzeXN0ZW13YWxrZXIjMQ==
```

Response

<Status code>

This API returns the following status codes.

| Code | Description |
|------------------|---|
| 200 OK | The request was successful. This code is returned even if an error occurs in the subsequent processing after the request is received. |
| 401 Unauthorized | Authentication information has not been specified. |

<XML>

```
<?xml version="1.0" encoding="UTF-8"?>
<ProcessDefinitionResponse xmlns="http://rba.systemwalker.fujitsu.com">
  <responseStatus>[status of the response]</responseStatus>
  <responseMessage>[response message]</responseMessage>
  <processDefinitions>
```

```

<processDefinition>
  <applicationId>[Automated Operation Process Group ID]</applicationId>
  <processId>[process ID] </processId>
  <name>[process definition name]</name>
  <version>[version]</version>
  <status>[status]</status>
  <owner>[owner]</owner>
  <lastupdate>[date of the last update]</lastupdate>
</processDefinition>
</processDefinitions>
</ProcessDefinitionResponse>

```

<Elements>

| Element name | Item | Item description |
|---------------------------|-----------------------|---|
| ProcessDefinitionResponse | Description | Element holding the response information |
| | Type | None |
| | Number of occurrences | 1 |
| responseStatus | Description | Status of the response. Refer to " 5.2 Response Status Error Codes " for details. |
| | Type | string ASCII |
| | Number of occurrences | 1 |
| responseMessage | Description | Response message. Refer to " 5.3 Response Messages " for details. |
| | Type | string ASCII |
| | Number of occurrences | 1 |
| processDefinitions | Description | Element holding the response information for the process definition information |
| | Type | None |
| | Number of occurrences | 0..1 |
| processDefinition | Description | Response containing process definition information |
| | Type | None |
| | Number of occurrences | 0..* |
| applicationId | Description | Automated Operation Process Group ID |
| | Type | string UTF-8 |
| | Number of occurrences | 1 |
| processed | Description | Process ID |
| | Type | string ASCII |
| | Number of occurrences | 1 |
| name | Description | Process definition name |
| | Type | string UTF-8 |

| Element name | Item | Item description |
|--------------|-----------------------|---|
| | Number of occurrences | 1 |
| version | Description | Version |
| | Type | string ASCII |
| | Number of occurrences | 1 |
| status | Description | Process definition state. The following values are set: "draft": Draft state "published": Published state "obsolete": Discontinued "deleted": Deleted state "private": Registration or update processing in progress |
| | Type | string ASCII |
| | Number of occurrences | 1 |
| owner | Description | Owner |
| | Type | string UTF-8 |
| | Number of occurrences | 1 |
| lastupdate | Description | Date of the last update (GMT) |
| | Type | Datetime |
| | Number of occurrences | 1 |

Sample Response

```
<?xml version="1.0" encoding="UTF-8"?>
<ProcessDefinitionResponse xmlns="http://rba.systemwalker.fujitsu.com">
  <responseStatus>SUCCESS</responseStatus>
  <responseMessage>Process was completed.</responseMessage>
  <processDefinitions>
    <processDefinition>
      <applicationId>Sample</applicationId>
      <processId>10</processId>
      <name>Sample</name>
      <version>1.0</version>
      <status>draft</status>
      <owner>swrbaadmin</owner>
      <lastupdate>2011-04-27T05:49:56</lastupdate>
    </processDefinition>
  </processDefinitions>
</ProcessDefinitionResponse>
```

5.1.5.2 Process Instance Interfaces

This section describes the interfaces relating to process instances.

5.1.5.2.1 Start a process

Description

This interface starts a process.

Request URI

/rbaserver/ProcessInstances

HTTP Method

POST

Request Parameters

| Parameter name | Required? | Item | Item description |
|----------------|-----------|-------------|---|
| appid | Yes | Description | Automated Operation Process Group ID |
| | | Type | string UTF-8 |
| | | Value | Specify the ID of the Automated Operation Process Group to be searched. |
| pdname | Yes | Description | Process definition |
| | | Type | string UTF-8 |
| | | Value | Specify a process definition name. |
| pdversion | | Description | Version of the process definition |
| | | Type | string ASCII |
| | | Value | Specify the version of the process definition to be started. If this parameter is omitted, the API will start the latest version. |

Request Body

Specify the parameter information required for the process to be started. The specification format is the Java property format.

Specify "text/plain" for the content type ("Content-type") and "UTF-8" for the character encoding ("charset").

The content type must be specified even if no parameter information is specified.

Sample Request

```
POST /rbaserver/ProcessInstances?appid=apl1&pdname=sample HTTP/1.1
Host: rbamanager.systemwalker.fujitsu.com:8009
Authorization: Basic c3dyYmFhZG1pbjppzeXN0ZW13YWxrZXIjMQ==
Content-type: text/plain; charset=utf-8

UDA1=value1
UDA2=value2
```

Response

<Status code>

This API returns the following status codes.

| Code | Description |
|------------------|---|
| 200 OK | The request was successful. This code is returned even if an error occurs in the subsequent processing after the request is received. |
| 401 Unauthorized | Authentication information has not been specified. |

<XML>

```
<?xml version="1.0" encoding="UTF-8"?>
<ProcessInstanceResponse xmlns="http://rba.systemwalker.fujitsu.com">
  <responseStatus>[status of the response]</responseStatus>
  <responseMessage>[response message]</responseMessage>
</ProcessInstanceResponse>
```

<Elements>

| Element name | Item | Item description |
|---------------------------|-----------------------|---|
| ProcessDefinitionResponse | Description | Element holding the response information |
| | Type | None |
| | Number of occurrences | 1 |
| responseStatus | Description | Status of the response. Refer to "5.2 Response Status Error Codes" for details. |
| | Type | string ASCII |
| | Number of occurrences | 1 |
| responseMessage | Description | Response message. Refer to "5.3 Response Messages" for details. |
| | Type | string ASCII |
| | Number of occurrences | 1 |
| processInstances | Description | Element holding the response information for the process instance information |
| | Type | None |
| | Number of occurrences | 0..1 |
| processInstance | Description | Response containing process instance information |
| | Type | None |
| | Number of occurrences | 0..* |
| id | Description | Process instance ID |
| | Type | string ASCII |
| | Number of occurrences | 1 |

Sample Response

```
<?xml version="1.0" encoding="UTF-8"?>
<ProcessInstanceResponse xmlns="http://rba.systemwalker.fujitsu.com">
  <responseStatus>SUCCESS</responseStatus>
  <responseMessage>Process was completed.</responseMessage>
  <processInstances>
    <processInstance>
      <id>12013</id>
    </processInstance>
  </processInstances>
</ProcessInstanceResponse>
```

5.1.5.2.2 Obtain a list of process instances

Description

This interface obtains a list of process instances.

Request URI

/rbaserver/ProcessInstances

HTTP Method

GET

Request Parameters

| Parameter name | Required? | Item | Item description |
|----------------|-----------|-------------|--|
| startedafter | | Description | The start date of the period for which the target process was running |
| | | Type | string ASCII |
| | | Value | Specify the date using "yyyy-mm-dd" format. |
| startedbefore | | Description | The end date of the period for which the target process was running |
| | | Type | string ASCII |
| | | Value | Specify the date using "yyyy-mm-dd" format. |
| state | | Description | Process definition state |
| | | Type | string ASCII |
| | | Value | Specify the following values. To specify multiple values, separate each value with a comma. "running" "closed" "suspended" "aborted" "created" "error" |
| piid | | Description | Process instance ID |
| | | Type | string ASCII |
| | | Value | Specify a process instance ID. To specify multiple process instance IDs, separate each ID with a comma. If this parameter is omitted, the API will target all process instance IDs. |
| pdname | | Description | Process definition name |
| | | Type | string UTF-8 |
| | | Value | Specify a process definition name. To specify multiple process definition names, separate each name with a comma. If this parameter is omitted, the API will target all process definitions. |
| namematch | | Description | Search pattern |
| | | Type | string ASCII |
| | | Value | Specify the search pattern for a process definition name. If this parameter is omitted, the API will conduct searches using complete matches. Select one of the following values. |

| Parameter name | Required? | Item | Item description |
|----------------|-----------|-------------|---|
| | | | "forward": Matches the front part of the process definition name "backward": Matches the last part of the process definition name |
| initiator | | Description | The ID of the user starting the process |
| | | Type | string ASCII |
| | | Value | Specify the ID of the user that started the process. To specify multiple user IDs, separate each ID with a comma. If this parameter is omitted, the API will target all user IDs. |
| appid | | Description | Automated Operation Process Group ID |
| | | Type | string UTF-8 |
| | | Value | Specify the ID of the Automated Operation Process Group to be searched. If this parameter is omitted, the API will search for all Automated Operation Process Group IDs. |

Sample Request

```
GET /rba/server/ProcessInstances?state=running&appid=TEST&pdname=Sample HTTP/1.1
Host: rbamanager.systemwalker.fujitsu.com:8009
Authorization: Basic c3dyYmFhZG1pbjBjZjZlXzN0ZW13YWxrZXIjMQ==
```

Response

<Status code>

This API returns the following status codes.

| Code | Description |
|------------------|---|
| 200 OK | The request was successful. This code is returned even if an error occurs in the subsequent processing after the request is received. |
| 401 Unauthorized | Authentication information has not been specified. |

<XML>

```
<?xml version="1.0" encoding="UTF-8"?>
<ProcessInstanceResponse xmlns="http://rba.systemwalker.fujitsu.com">
  <responseStatus>[status of the response]</responseStatus>
  <responseMessage>[response message]</responseMessage>
  <processInstances>
    <processInstance>
      <id>[process instance ID]</id >
      <name>[process definition name]</name>
      <status>[status]</status>
      <initiator>[initiator]</initiator>
    </processInstance>
  </processInstances>
</ProcessInstanceResponse>
```

<Elements>

| Element name | Item | Item description |
|-------------------------|-----------------------|--|
| ProcessInstanceResponse | Description | Element holding the response information |
| | Type | None |
| | Number of occurrences | 1 |

| Element name | Item | Item description |
|------------------|-----------------------|---|
| responseStatus | Description | Status of the response. Refer to " 5.2 Response Status Error Codes " for details. |
| | Type | string ASCII |
| | Number of occurrences | 1 |
| responseMessage | Description | Response message. Refer to " 5.3 Response Messages " for details. |
| | Type | string ASCII |
| | Number of occurrences | 1 |
| processInstances | Description | Element holding the response information for the process instance information |
| | Type | None |
| | Number of occurrences | 0..1 |
| processInstance | Description | Response containing process instance information |
| | Type | None |
| | Number of occurrences | 0..* |
| id | Description | Process instance ID |
| | Type | string ASCII |
| | Number of occurrences | 1 |
| name | Description | Process instance name |
| | Type | string UTF-8 |
| | Number of occurrences | 1 |
| status | Description | State of the process instance. One of the following values is set: "running" "closed" "suspended" "aborted" "created" "error" |
| | Type | string ASCII |
| | Number of occurrences | 1 |
| initiator | Description | User who started the process instance |
| | Type | string UTF-8 |
| | Number of occurrences | 1 |

Sample Response

```
<?xml version="1.0" encoding="UTF-8"?>
<ProcessInstanceResponse xmlns="http://rba.systemwalker.fujitsu.com">
  <responseStatus>SUCCESS</responseStatus>
  <responseMessage>Process was completed.</responseMessage>
  <processInstances>
    <processInstance>
      <id>1234</id>
      <name>Sample</name>
      <status>running</status>
      <owner>swrbaadmin</owner>
    </processInstance>
  </processInstances>
</ProcessInstanceResponse>
```

5.1.5.2.3 Obtain details of process instances

Description

This interface obtains detailed information on process instances.

Request URI

/rbaserver/ProcessInstances/{piid}

piid: Process instance ID

HTTP Method

GET

Request Parameters

None

Sample Request

```
GET /rbaserver/ProcessInstances/1234 HTTP/1.1
Host: rbamanager.systemwalker.fujitsu.com
Authorization: Basic c3dyYmFhZGlpbjBjZjZlXN0ZW13YWxrZXIjMQ==
```

Response

<Status code>

This API returns the following status codes.

| Code | Description |
|------------------|---|
| 200 OK | The request was successful. This code is returned even if an error occurs in the subsequent processing after the request is received. |
| 401 Unauthorized | Authentication information has not been specified. |

<XML>

```
<?xml version="1.0" encoding="UTF-8"?>
<ProcessInstanceResponse xmlns="http://rba.systemwalker.fujitsu.com">
  <responseStatus>[status of the response]</responseStatus>
  <responseMessage>[response message]</responseMessage>
  <processInstances>
    [This tag contains XML in the same format as is output by pi-get option of the swrba_admin
    command]
```

```
</processInstances>
</ProcessInstanceResponse>
```

<Elements>

| Element name | Attribute | Item | Item description |
|-------------------------|-----------|-----------------------|---|
| ProcessInstanceResponse | - | Description | Element holding the response information |
| | | Type | None |
| | | Number of occurrences | 1 |
| responseStatus | - | Description | Status of the response. Refer to " 5.2 Response Status Error Codes " for details. |
| | | Type | string ASCII |
| | | Number of occurrences | 1 |
| responseMessage | - | Description | Response message. Refer to " 5.3 Response Messages " for details. |
| | | Type | string ASCII |
| | | Number of occurrences | 1 |
| processInstances | - | Description | Element holding the response information for the process instance information |
| | | Type | None |
| | | Number of occurrences | 0..1 |
| processInstance | - | Description | Response containing process instance information This is the same as the XML format output by the pi-get option of the swrba_admin command. Refer to " 2.4 Detailed Information File for Process Instance " for details. |
| | | Type | None |
| | | Number of occurrences | 0..1 |

Sample Response

```
<?xml version="1.0" encoding="UTF-8"?>
<ProcessInstanceResponse xmlns="http://rba.systemwalker.fujitsu.com">
  <responseStatus>SUCCESS</responseStatus>
  <responseMessage>Process was completed.</responseMessage>
  <processInstances>
    <Processinstance Completed="" Id="1598173" Initiator="swrbaadmin" Name="pilist_1"
Owner="swrbaadmin" Started="2011-03-18 22:56:37" Status="running">
      <Node Form="" Id="1598174" Name="Start" Status="Completed" Type="Start"/>
      <Node Form="" Id="1598175" Name="Activity1" Status="Running" Timer="" Type="Activity"/>
      <Node Id="1598176" Name="Exit1" Status="Initial" Type="Exit"/>
      <UDA Name="A" Type="STRING" Value="" />
    </Processinstance>
  </processInstances>
</ProcessInstanceResponse>
```



```

        <UDA Name="B" Type="STRING" Value="" />
        <History ConsumerId="1598173" ConsumerType="7" EventCode="0" EventData=""
EventTYPE="__ProcessCreated" Id="1598179" IsHandled="4" ProducerId="1598173" ProducerType="7"
Timestamp="2011-03-18 22:56:37"/>
        <History ConsumerId="1598173" ConsumerType="7" EventCode="0" EventData=""
EventTYPE="__Start" Id="1598180" IsHandled="1" ProducerId="1598173" ProducerType="7"
Timestamp="2011-03-18 22:56:38"/>
        <History ConsumerId="1598174" ConsumerType="3" EventCode="1" EventData=""
EventTYPE="__Activate" Id="1598181" IsHandled="1" ProducerId="1598173" ProducerType="7"
Timestamp="2011-03-18 22:56:38"/>
        <History ConsumerId="1598174" ConsumerType="3" EventCode="0" EventData=""
EventTYPE="__NodeClosed" Id="1598182" IsHandled="4" ProducerId="1598174" ProducerType="3"
Timestamp="2011-03-18 22:56:38"/>
        <History ConsumerId="1598175" ConsumerType="3" EventCode="1" EventData=""
EventTYPE="Action 1" Id="1598183" IsHandled="1" ProducerId="1598177" ProducerType="0"
Timestamp="2011-03-18 22:56:38"/>
    </Processinstance>
</processInstances>
</ProcessInstanceResponse>

```

5.2 Response Status Error Codes

The following table lists the codes displayed in the <responseStatus> element of the response body for the REST interface.

| Error code | Description |
|------------------------------|---|
| AUTHORIZATION_ERROR | An authentication error has occurred. |
| ERROR | An unexpected error has occurred. |
| ILLEGAL_APPLICATION_ID | The Automated Operation Process Group name is invalid. |
| IO_ERROR | An I/O error has occurred within the Management Server. |
| PARAM_ERROR | A parameter error has occurred. |
| PARAM_REQUIRED | A required parameter has not been specified. |
| PARAM_UNNECESSARY | An unnecessary parameter has been specified. |
| SUCCESS | Processing has completed successfully. |
| UNAUTHORIZATION_ERROR | Authentication information has not been specified correctly. |
| VALIDATION_ERROR | A request parameter is invalid. |
| WARNING | An error occurred, but processing continued. |
| WORKFLOW_SERVER_ACCESS_ERROR | An error has occurred with the connection to Interstage Business Process Manager. |

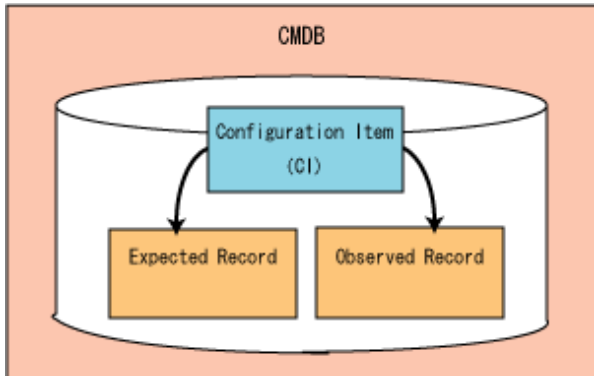
5.3 Response Messages

Refer to "Messages Relating to the REST Interface" in the *Systemwalker Runbook Automation Message Guide* for information on the messages displayed in the <responseMessage> element of the response body for the REST interface.

Chapter 6 Configuration Item Format

This appendix explains the format of configuration items in CMDB. A configuration item is a unit to manage the information of hardware, software and other elements which constitute IT systems.

This product represents a single configuration item as two records: an expected and an observed record. The following figure shows the relationships between configuration items and expected/observed records.



It also describes a configuration item as XML format like below.

```
<?xml version="1.0" encoding="UTF-8"?>
<entities>
  <cmdb:item id="server0001" type="LogicalServer"
xmlns:ns0="urn:xmlns-fujitsu-com:rcxml2004-05"
xmlns:cmdb="http://federation.service.cmdb.fujitsu.com/xsd">
  <cmdb:record type="expected">
    Description of expected record
  </cmdb:record>
  <cmdb:record type="observed">
    Description of observed record
  </cmdb:record>
</cmdb:item>
</entities>
```

- A content of configuration item should be described between the <cmdb:item> start tag and </cmdb:item> end tag. And the "id" and "type" attributes and namespace declaration ("xmlns") should be defined for it.
- An expected record should be described between the <cmdb:record type="expected"> start tag and </cmdb:record> end tag.
- An observed record should be described between the <cmdb:record type="observed"> start tag and </cmdb:record> end tag.
- While each configuration item has a different format of record, each record of its configuration item has same format.

The following sections explain the details of record format with respect to each configuration item type. And the descriptions below would help you with understanding.

- A record is described as consisting of some elements and attributes. In most simple case, this could be just described as one element and some attributes. An element also consists of some attributes and child elements.
- In "Component Type" column, "Attribute" indicates an attribute of element and "Element" indicates a child element.
- The top "Element Name" column of the table indicates the name of configuration item and the rest of "Element Name" columns indicate a child element.
- The "Parent Element" column contains the parent of the child element.
- The "# of" column shows the number of occurrences attributes or child elements: "0..1" means zero or one and "0..*" means zero or more.

- Configuration items are identified by the "id" attribute. It means that even if configuration items have same configuration type, each of them is distinguished by the "id" attribute. Therefore the "id" attribute is a mandatory attribute for configuration item.
- In addition to the "id" attribute, the attributes below are also mandatory.
 - The "ipAddress" attribute of LogicalServer element
 - The "productName" attribute of InstalledSoftware element
 - The "name" attribute of InstalledPatch element

6.1 LogicalServer

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%LogicalServer[./#expected/rc:LogicalServer/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------|----------------|-------------------------|---------------------|----------------|--|-----------|------|
| LogicalServer | | Server node information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | nickname | Attribute | Nickname. Used as the display name for the partition, etc | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | ipAddress | Attribute | IP address | string | 1 |
| | | | hostname | Attribute | Host name. Same as the value obtained by executing the hostname command on the partition | string | 0..1 |
| | | | hosted | Attribute | Host ID Eg, "80f384f0" | string | 0..1 |
| | | | cpuAvailable | Attribute | Number of valid CPUs within the partition | string | 0..1 |
| | | | cpuSockets | Attribute | Number of valid CPU sockets within the partition | string | 0..1 |
| | | | memoryAvailableSize | Attribute | Total amount of normal memory Eg, "8192MB" | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------------|----------------|---|----------------------------|----------------|--|-----------|------|
| | | | interleaveMode | Attribute | Interleave mode Eg, "0" | string | 0..1 |
| | | | powerStatus | Attribute | Power status Format: "on", "off" or "unknown" | string | 0..1 |
| | | | usage | Attribute | Usage | string | 0..1 |
| | | | startDate | Attribute | Date when operation started | dateTime | 0..1 |
| | | | lastUpdate | Attribute | Date when information was last updated | dateTime | 0..1 |
| | | | updateInfo | Attribute | Update information | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| | | | comment | Attribute | Comment | string | 0..1 |
| | | | machineType* | Attribute | Machine attribute | string | 0..1 |
| | | | vendorID | Attribute | Vendor name | string | 0..1 |
| | | | modelName | Attribute | Model | string | 0..1 |
| | | | serialNumber | Attribute | Serial number | string | 0..1 |
| | | | runType | Attribute | Operation configuration | string | 0..1 |
| | | | LogicalServerConfiguration | Element | Component configuration | - | 0..1 |
| | | | SystemSettings | Element | System settings | - | 0..1 |
| | | | InstalledSoftwares | Element | Software that has already been installed | - | 0..1 |
| | | | InstalledPatches | Element | Information about patches | - | 0..1 |
| LogicalServerConfiguration | LogicalServer | Configuration information for the server node | LogicalSystemBoard | Element | Logical system board information | - | 0..* |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------------|----------------|---------------------------------------|-----------|------|
| | | | LIOU | Element | Logical I/O unit information | - | 0..* |
| | | | SCSIDevice | Element | SCSI device information | - | 0..* |
| | | | RAIDDevice | Element | RAID device information | - | 0..* |
| | | | LAN | Element | LAN information | - | 0..* |
| | | | Partition | Element | Partition information | - | 0..1 |
| | | | ServerBlade | Element | Server blade information | - | 0..1 |
| | | | ConsolePath | Element | Console path information | - | 0..1 |
| | | | AdminLAN | Element | Admin LAN information | - | 0..* |
| | | | IPMI | Element | IPMI information | - | 0..1 |
| | | | Management Device | Element | Generic management device information | - | 0..* |
| | | | Other | Element | Generic element | - | 0..* |
| | | | LogicalRemovableDisk | Element | Removable disk information | - | 0..* |
| | | | LogicalNIC | Element | Network card | - | 0..* |
| | | | LogicalCPU | Element | CPU information | - | 0..* |
| | | | LogicalMemory | Element | Memory information | - | 0..* |
| | | | LogicalMouse | Element | Mouse information | - | 0..* |
| | | | LogicalKeyboard | Element | Keyboard information | - | 0..* |
| | | | LogicalFirmware | Element | Firmware information | - | 0..* |
| | | | LogicalPrinter | Element | Printer information | - | 0..* |
| | | | LogicalMonitor | Element | Display information | - | 0..* |
| | | | LogicalDrive | Element | Drive configuration | - | 0..* |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------------|----------------------------|--|-------------------|----------------|---|-----------|------|
| | | | | | n information | | |
| | | | LogicalDisk | Element | Disk information | - | 0..* |
| | | | LogicalPSU | Element | Power supply unit information | - | 0..* |
| | | | LogicalMisc Unit | Element | Generic logical component | - | 0..* |
| | | | LogicalOther Unit | Element | Other logical component | - | 0..* |
| | | | Link | Element | Links between components | - | 0..* |
| LogicalSystemBoard | LogicalServerConfiguration | Information about the logical system board | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Format: "SB#" + value of 'index' attribute, "LSB#" + value of 'index' attribute | string | 0..1 |
| | | | index | Attribute | LogicalSystemBoard (LSB) number (LSB identifier within the cabinet) | string | 0..1 |
| | | | nextPartitionID | Attribute | ID for the next partition | string | 0..1 |
| | | | sbStatus | Attribute | Status of a split system board Format: "ON" "OFF" "NG" "ALM" "DR" "WT" | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------------------|-------------------------------------|--------------------------|----------------|--|-------------|------|
| LIOU | LogicalServerConfiguration | Information about logical I/O units | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | index | Attribute | LIOU number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| LAN | LogicalServerConfiguration | Local Area Network LAN information | id | Attribute | Unique identifier | ID | 1 |
| | | | interface | Attribute | Interface name Eg, "fjgi0" | string | 0..1 |
| | | | physicalPath | Attribute | Physical path name Eg, "/pci@83,2000/FJSV,pwga@1" | string | 0..1 |
| | | | macAddress | Attribute | MAC address Eg, "00:E0:00:C4:84:F0" | string | 0..1 |
| | | | ipAddress | Attribute | IP address Eg, "192.0.2.0" | string | 0..1 |
| | | | netmask | Attribute | Net mask Eg, "fffff00" | string | 0..1 |
| | | | speed | Attribute | Network speed | string | 0..1 |
| | | | caption | Attribute | Display name | string | 0..1 |
| | | | description | Attribute | Interface explanation | string | 0..1 |
| | | | netmaskAddress | Attribute | Representative subnet address | string | 0..1 |
| | | | installedDate | Attribute | Registration date | dateTime | 0..1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | index | Attribute | LAN number | unsignedInt | 0..1 |
| | | | powerManagementSupported | Attribute | Power management targets | boolean | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------------------|-------------------------|-----------------------------|----------------|---|--------------|------|
| | | | powerManagementCapabilities | Attribute | Power management functions | unsignedLong | 0..1 |
| | | | lanStatus | Attribute | LAN status (linkup status) | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| SCSIDevice | LogicalServerConfiguration | SCSI device information | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name (logical device name) | string | 0..1 |
| | | | vendorID | Attribute | Vendor name | string | 0..1 |
| | | | productID | Attribute | Product name | string | 0..1 |
| | | | sizeCode | Attribute | Capacity, development code | string | 0..1 |
| | | | lun | Attribute | LUN | int | 0..1 |
| | | | pciLocation | Attribute | SB location for the PCI | string | 0..1 |
| | | | scsiID | Attribute | SCSI-ID | int | 0..1 |
| | | | physicalPath | Attribute | Physical path name | string | 0..1 |
| | | | firmwareVersion | Attribute | Version of the I/O firmware | string | 0..1 |
| | | | instanceName | Attribute | Instance name | string | 0..1 |
| | | | driverVersion | Attribute | Driver version | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| Partition | LogicalServerConfiguration | Partition information | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | partitioned | Attribute | Partition ID | int | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| | | | memoryMirrorFunction | Attribute | Flag used to enable or disable the MemoryMirror | boolean | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------------------|--------------------------|----------------|----------------|---|-----------|------|
| | | | | | ortion function | | |
| | | | isReserved | Attribute | Flag used to identify whether a partition is reserved | boolean | 0..1 |
| ServerBlade | LogicalServerConfiguration | Server blade information | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | bladeID | Attribute | Blade ID | int | 1 |
| | | | modelCode | Attribute | Model code | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| ConsolePath | LogicalServerConfiguration | Console path information | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | main | Attribute | Main console path | string | 0..1 |
| | | | sub | Attribute | Sub console path | string | 0..1 |
| | | | active | Attribute | Active console path | string | 0..1 |
| AdminLAN | LogicalServerConfiguration | Admin LAN information | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | macAddress | Attribute | MAC address | string | 0..1 |
| | | | ipAddress | Attribute | IP address | string | 0..1 |
| | | | netmask | Attribute | Net mask | string | 0..1 |
| | | | gateway | Attribute | Gateway | string | 0..1 |
| | | | isActive | Attribute | Active/non-active | boolean | 0..1 |
| status | Attribute | Generic status | string | 0..1 | | | |
| SNMP | SystemSettings | SNMP information | id | Attribute | Unique identifier | ID | 1 |
| | | | description | Attribute | Description | string | 0..1 |
| | | | community | Attribute | Community name | string | 1 |
| | | | securityModel | Attribute | Security model Format: "V1", "V3" | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------|----------------------------|--------------------------|--------------------|----------------|---|-----------|------|
| | | | securityLevel | Attribute | Security level Format: "NoauthNopriv" "authNopriv" "authPriv" | string | 0..1 |
| | | | portNumber | Attribute | Port number | int | 0..1 |
| | | | username | Attribute | User name for access | string | 0..1 |
| | | | certifyPhrase | Attribute | Authentication passphrase | string | 0..1 |
| | | | encryptionPhrase | Attribute | Encrypted passphrase | string | 0..1 |
| | | | certifyProtocol | Attribute | Authentication protocol | string | 0..1 |
| | | | encryptionProtocol | Attribute | Encryption protocol | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| IPMI | LogicalServerConfiguration | IPMI information | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | ipAddress | Attribute | IP address | string | 1 |
| | | | portNumber | Attribute | Port number | int | 0..1 |
| | | | username | Attribute | Access ID | string | 1 |
| | | | password | Attribute | Password | string | 1 |
| | | | certifyProtocol | Attribute | Authentication protocol | string | 0..1 |
| | | | encryptionProtocol | Attribute | Encryption protocol | string | 0..1 |
| | | | timeout | Attribute | Timeout | string | 0..1 |
| | | | retries | Attribute | Number of retries | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| ManagementDevice | LogicalServerConfiguration | Server management device | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | type | Attribute | Device type Format: rsb mb mmb smc | string | 0..1 |
| | | | ipAddress | Attribute | IP address | string | 1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------|----------------------------|---------------------|----------------|----------------|------------------------------------|-----------|------|
| | | | netmask | Attribute | Net mask | string | 0..1 |
| | | | macAddress | Attribute | MAC address | string | 0..1 |
| | | | username | Attribute | Access ID | string | 0..1 |
| | | | password | Attribute | Access password | string | 0..1 |
| | | | boxID | Attribute | Cabinet identifier | string | 0..1 |
| | | | boxName | Attribute | Cabinet identification name | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| LogicalFirmware | LogicalServerConfiguration | Firmware | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Eg, "HCP", "POST" | string | 0..1 |
| | | | index | Attribute | Firmware identifier | string | 0..1 |
| | | | name | Attribute | Firmware name Eg, "HCP", "POST" | string | 0..1 |
| | | | version | Attribute | Version Eg, "25.03.0000" | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| LogicalNIC | LogicalServerConfiguration | Network card | id | Attribute | Unique identifier | ID | 0..1 |
| | | | name | Attribute | Network card name | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| LogicalCPU | LogicalServerConfiguration | CPU information | name | Attribute | CPU | string | 0..1 |
| | | | clock | Attribute | Clock speed (units: MHz) | long | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------|----------------------------|---------------------------|------------------|----------------|---|-----------|------|
| | | | status | Attribute | CPU details | string | 0..1 |
| LogicalMemory | LogicalServerConfiguration | Memory information | size | Attribute | Memory size (units: KB) | long | 0..1 |
| | | | index | Attribute | Device locator | string | 0..1 |
| LogicalMouse | LogicalServerConfiguration | Mouse information | type | Attribute | Mouse type name | string | 0..1 |
| | | | numberOfButtons | Attribute | Number of mouse buttons | long | 0..1 |
| LogicalKeyboard | LogicalServerConfiguration | Keyboard information | type | Attribute | Keyboard type name | string | 0..1 |
| LogicalRemovableDisk | LogicalServerConfiguration | Removable Disk (DVD, etc) | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Eg, "DVD", "DAT" | string | 0..1 |
| | | | index | Attribute | Removable disk number | string | 0..1 |
| | | | size | Attribute | Capacity (basic units: MiB) | string | 0..1 |
| | | | type | Attribute | Type Eg, "DVD", "DAT", "CDROM" | string | 0..1 |
| | | | interfaceType | Attribute | Interface type Format: "SCSI" "IDE" "SAS" "SATA" "USB" | string | 0..1 |
| | | | interfaceSetting | Attribute | Setting specific to the interface specified in the 'interfaceType' element "SCSI" -> SCSI-ID "IDE" -> IDE | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------|----------------------------|---------------------------------|-----------------|----------------|--|-----------|------|
| | | | | | connection destination name "SAS" -> SAS value "SATA"-> SATA port name "USB" -> USB connection destination name | | |
| | | | slotType | Attribute | Type of slot | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| LogicalDrive | LogicalServerConfiguration | Drive configuration information | name | Attribute | Drive name | string | 0..1 |
| | | | type | Attribute | Drive type | string | 0..1 |
| | | | maxMediaSize | Attribute | Available capacity | string | 0..1 |
| | | | volumeLabel | Attribute | Volume label | string | 0..1 |
| LogicalDisk | LogicalServerConfiguration | Disk information | vendorID | Attribute | Vendor name | string | 0..1 |
| | | | productID | Attribute | Model name | string | 0..1 |
| | | | size | Attribute | Disk capacity | string | 0..1 |
| | | | interfaceType | Attribute | Disk interface | string | 0..1 |
| | | | description | Attribute | Description | string | 0..1 |
| LogicalPSU | LogicalServerConfiguration | Power supply unit information | option* | Attribute | Power control option | string | 0..1 |
| LogicalMonitor | LogicalServerConfiguration | Monitor | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | nickname | Attribute | Display name (logical device name) | string | 0..1 |
| | | | lowPowerStandby | Attribute | Flag indicating | boolean | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------|----------------------------|---|----------------|----------------|---|-----------|------|
| | | | | | whether the device is in lower power standby mode | | |
| | | | powerOff | Attribute | Flag indicating whether the power is turned off | boolean | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| LogicalPrinter | LogicalServerConfiguration | Printer | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| LogicalMiscUnit | LogicalServerConfiguration | Miscellaneous logical unit (General attributes have already been set up. Additional information can only be expressed using the "additions" attribute.) | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | index | Attribute | Component number | string | 0..1 |
| | | | type | Attribute | Type of component Eg, "PCIBoard", "GSWB" | string | 0..1 |
| | | | serialNumber | Attribute | Serial number | string | 0..1 |
| | | | additions | Attribute | Additional attributes Format: 'Attribute1= | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------|----------------------------|--|----------------|----------------|--|-----------|------|
| | | | | | Value1 Attribute2= Value2 ..." Eg, "currentPID =1 nextPID=2" | | |
| | | | slotType | Attribute | Type of slot | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| LogicalOtherUnit | LogicalServerConfiguration | Other logical unit (This element can be extended more flexibly than "LogicalMiscUnit") | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| | | | - | Text | Arbitrary content | string | 0..1 |
| SystemSettings | LogicalServer | System settings | Network | Element | Network information | - | 0..1 |
| | | | OSSetting | Element | Operating system information | - | 0..1 |
| | | | UserSetting | Element | User information | - | 0..1 |
| | | | DNS | Element | DNS information | - | 0..1 |
| | | | DHCP | Element | DHCP information | - | 0..1 |
| | | | Screen | Element | Screen information | - | 0..1 |
| | | | ScreenSaver | Element | Screen saver information | - | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------------|----------------|------------------------|---------------------|----------------|---|-----------|------|
| | | | Swap | Element | Swap information | - | 0..1 |
| | | | Language | Element | Environment | - | 0..1 |
| | | | FileSystem | Element | File system | - | 0..1 |
| | | | PartitionSetting | Element | Partition information | - | 0..1 |
| | | | NTDomain | Element | NT domain information | - | 0..1 |
| | | | SNMP | Element | SNMP information | - | 0..1 |
| Network | SystemSettings | Network information | ipAddress | Attribute | IP address | string | 0..1 |
| | | | hostname | Attribute | Host name | string | 0..1 |
| | | | gateway | Attribute | Default gateway | string | 0..1 |
| | | | subnetMask | Attribute | Subnet mask | string | 0..1 |
| | | | subnetAddress | Attribute | Subnet address | string | 0..1 |
| | | | RoutingTableSetting | Element | Router information | - | 0..1 |
| RoutingTableSetting | Network | Routing table settings | gateway | Attribute | Default gateway | string | 0..1 |
| OSSetting | SystemSettings | OS information | name | Attribute | Operating system | string | 0..1 |
| | | | buildNumber | Attribute | Operating system build number | string | 0..1 |
| | | | version | Attribute | Service pack | string | 0..1 |
| | | | vendor | Attribute | Company name | string | 0..1 |
| | | | productID | Attribute | Operating system product ID (serial number) | string | 0..1 |
| | | | codeSet | Attribute | Character encoding | string | 0..1 |
| | | | platform | Attribute | Operating system | string | 0..1 |
| | | | Windows | Element | Windows information | - | 0..1 |
| Windows | OSSetting | Windows information | computerName | Attribute | Computer name | string | 0..1 |
| | | | domainName | Attribute | Domain name | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------|----------------|--------------------------|------------------|----------------|--------------------------------|-----------|------|
| | | | windowsDir | Attribute | Windows directory name | string | 0..1 |
| | | | systemDir | Attribute | System directory name | string | 0..1 |
| | | | dosVersion | Attribute | DOS version | string | 0..1 |
| UserSetting | SystemSettings | User information | loginName | Attribute | Login name | string | 0..1 |
| DNS | SystemSettings | DNS information | serverName | Attribute | DNS server name | string | 0..1 |
| DHCP | SystemSettings | DHCP information | serverName | Attribute | DHCP server | string | 0..1 |
| | | | flag | Attribute | DHCP flag | boolean | 0..1 |
| Screen | SystemSettings | Screen information | resolution | Attribute | Screen resolution | string | 0..1 |
| | | | colorDepth | Attribute | Number of colors (units: bits) | int | 0..1 |
| | | | refreshFrequency | Attribute | Screen refresh rate (unit: Hz) | long | 0..1 |
| | | | videoAdapter | Attribute | Video adapter name | string | 0..1 |
| | | | videoMemorySize | Attribute | Video memory size (unit: KB) | long | 0..1 |
| ScreenSaver | SystemSettings | Screen saver information | name | Attribute | Screen saver name | string | 0..1 |
| Swap | SystemSettings | Swap information | size | Attribute | Swap file size (units: KB) | long | 0..1 |
| Language | SystemSettings | Language information | inputSystem | Attribute | Default input language | string | 0..1 |
| FileSystem | SystemSettings | File system | name | Attribute | File system | string | 0..1 |
| | | | type | Attribute | File system type | string | 0..1 |
| | | | mountPoint | Attribute | Mount point | string | 0..1 |
| PartitionSetting | SystemSettings | Partition information | totalSize | Attribute | Partition capacity (units: KB) | long | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|-----------------------|----------------|----------------|---|-----------|------|
| | | | freeSize | Attribute | Free space in the partition (units: KB) | long | 0..1 |
| NTDomain | SystemSettings | NT domain information | name | Attribute | NT domain name | string | 0..1 |

6.2 LogicalServerSoftware

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: /%LogicalServerSoftware[./#expected/rc:LogicalServerSoftware/@id = '...']

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------------|-----------------------|-------------------------------|----------------|----------------|---|-----------|------|
| LogicalServerSoftware | | Software instance information | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | OS | Element | Operating system information | - | 0..1 |
| | | | OSPatch | Element | Operating system patch information | - | 0..* |
| | | | PTF | Element | Program Temporary Fix (PTF) information | - | 0..* |
| | | | Package | Element | Package information | - | 0..* |
| | | | Link | Element | Links between components | - | 0..* |
| OS | LogicalServerSoftware | Operating system information | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Eg, "OS" | string | 0..1 |
| | | | release | Attribute | Release Eg, "Solaris 8 2/02 Fujitsu_3 s28s_u7fj3v3w os_04 SPARC" | string | 0..1 |
| | | | kernelID | Attribute | Kernel identifier Eg, "Generic_1146 65-02" | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|-----------------------|---|----------------|----------------|---|-----------|------|
| OSPatch | LogicalServerSoftware | Operating system patch information | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Format: value of 'pkgName' attribute + "-" + value of 'patchID' attribute | string | 0..1 |
| | | | patchID | Attribute | Patch ID Eg, "913476-01" | string | 0..1 |
| | | | pkgName | Attribute | Package name Eg, "FJSVclptl" | string | 0..1 |
| | | | nameINFO | Attribute | NAME information Eg, "Cluster Standby Patrol Facility" | string | 0..1 |
| PTF | LogicalServerSoftware | PTF (Program Temporary Fix) information | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Eg, "PTF" | string | 0..1 |
| | | | applied | Attribute | Applied/deleted Eg, "applied" | string | 0..1 |
| | | | appliedDate | Attribute | Application date | string | 0..1 |
| | | | version | Attribute | PTF version Eg, "R03051" | string | 0..1 |
| | | | clusterName | Attribute | Cluster name Eg, "fjpcf2.2.1" | string | 0..1 |
| Package | LogicalServerSoftware | Package information | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Format: value of 'name' attribute | string | 0..1 |
| | | | name | Attribute | Package name Eg, "FJSVana" | string | 0..1 |
| | | | version | Attribute | Package version Eg, "1.0,REV=2002.05.1400" | string | 0..1 |

6.3 InstalledSoftware

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: /%InstalledSoftware[./#expected/rc:InstalledSoftware/@id = '...']

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-------------------|----------------|-------------------------------|----------------|---------------------------|---|-----------|------|
| InstalledSoftware | | Installed software | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Software name | string | 0..1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | installedDate | Attribute | Installation date (registration date) | dateTime | 0..1 |
| | | | fileSize | Attribute | Size (units: bytes) | long | 0..1 |
| | | | productName | Attribute | Product name | string | 1 |
| | | | version | Attribute | Version | string | 0..1 |
| | | | fileName | Attribute | File name | string | 0..1 |
| | | | registryKey | Attribute | Registry key name | string | 0..1 |
| | | | vendor | Attribute | Vendor name | string | 0..1 |
| | | | installedPlace | Attribute | Installation destination | string | 0..1 |
| | | | package | Attribute | Package name | string | 0..1 |
| | | | specialNote | Attribute | Special note | string | 0..1 |
| | | | lastUpdate | Attribute | Date the last time the file was updated | dateTime | 0..1 |
| installedServer | Attribute | Installation destination node | string | 0..1 | | | |
| InstalledPatches | | | Element | Information about patches | - | 0..1 | |

6.4 InstalledPatch

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: /%InstalledPatch[./#expected/rc:InstalledPatch/@id = '...']

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------|----------------|---------------------|----------------|----------------|-----------------------|-----------|------|
| InstalledPatch | | Patch information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Software name | string | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | distributeDate | Attribute | Distribution date | dateTime | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|------------------------|----------------|---------------------------------|-------------|------|
| | | | indicateKind | Attribute | Type of instruction | string | 0..1 |
| | | | distributeState | Attribute | Distribution status | string | 0..1 |
| | | | applyState | Attribute | Application status | string | 0..1 |
| | | | errorDate | Attribute | Date when an error was received | dateTime | 0..1 |
| | | | errorCode | Attribute | Error code | unsignedInt | 0..1 |
| | | | errorDetail | Attribute | Detailed error information | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | platform | Attribute | Platform | string | 0..1 |
| | | | productNumber | Attribute | Patch number | string | 0..1 |
| | | | patchLanguage | Attribute | Language type | string | 0..1 |
| | | | applyDate | Attribute | Application date | dateTime | 0..1 |
| | | | distributeIndicateDate | Attribute | Distribution instruction date | dateTime | 0..1 |
| | | | installedServer | Attribute | Installation destination node | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |

6.5 ServerResourcePool

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%ServerResourcePool[./#expected/rc:ServerResourcePool/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------------|--------------------|------------------------------------|--------------------|----------------|----------------------------------|-----------|------|
| ServerResourcePool | | Server resource pool information | id | Attribute | Unique identifier | ID | 1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| | | | Configuration | Element | Component configuration | - | 0..1 |
| Configuration | ServerResourcePool | Server resource pool configuration | LogicalSystemBoard | Element | Logical system board information | - | 0..* |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|------------------------------|-----------|------|
| | | information | LIOU | Element | Logical I/O unit information | - | 0..* |
| | | | Other | Element | Generic element | - | 0..* |
| | | | Link | Element | Links between components | - | 0..* |

6.6 LogicalNetwork

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: /%LogicalNetwork[./#expected/rc:LogicalNetwork/@id = '...']

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------|----------------|-------------------------------------|-----------------------------|----------------|---|-----------|------|
| LogicalNetwork | | Network node | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Name | string | 0..1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | ipAddress | Attribute | Registered IP address | string | 0..1 |
| | | | netmask | Attribute | Net mask | string | 0..1 |
| | | | lastUpdate | Attribute | The date when data was last updated | dateTime | 0..1 |
| | | | updateInfo | Attribute | Update information | string | 0..1 |
| | | | Management | Element | Management information | - | 0..1 |
| | | | Status | Element | Status information | - | 0..1 |
| | | | LogicalNetworkConfiguration | Element | Settings information | - | 0..1 |
| | | | Software | Element | Software information | - | 0..1 |
| | | | Identity | Element | Identification information | - | 0..1 |
| Management | NetworkNode | Network node management information | VirtualTerminal | Element | Information required when network nodes are managed using VirtualTerminal | - | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------|----------------|--|-----------------|----------------|---|-----------|------|
| | | | SNMP | Element | Information required when network nodes are managed using SNMP | - | 0..1 |
| VirtualTerminal | Management | Management information for VirtualTerminal | type | Attribute | Control protocol for virtual terminals Either of the following: "Telnet" "SSH" | string | 0..1 |
| | | | version | Attribute | String indicating the version of SSH being used Either of the following: "v1" "v2" * In principle, if both v1 and v2 can be used, use the higher version (v2) | string | 0..1 |
| | | | manageIPaddress | Attribute | The IP address for logging in via Telnet Not required if the same as the management IP address for the device | string | 0..1 |
| | | | loginUsername | Attribute | User name for logging in via Telnet | string | 0..1 |
| | | | loginPassword | Attribute | Password (encrypted) for logging in via Telnet | string | 0..1 |
| | | | adminPassword | Attribute | Password (encrypted) for moving to privileged mode via Telnet Not required if privileged | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------|----------------|---------------------------------|-----------------|----------------|---|-----------|------|
| | | | | | mode is not needed | | |
| SNMP (Management) | Management | Management information for SNMP | version | Attribute | String indicating the version of SNMP being used Either of the following: "v1" "v2c" "v3" * In principle, if both v1 and v2 can be used, use the higher version (v2) | string | 0..1 |
| | | | manageIPaddress | Attribute | IP address specified when getting and setting information using SNMP Not required if the same as the management IP address for the device | string | 0..1 |
| | | | readCommunity | Attribute | Community name (encrypted) used with SNMP-GET and GETNEXT | string | 1 |
| | | | writeCommunity | Attribute | Community name (encrypted) used with SNMP-SET | string | 0..1 |
| Status (NetworkNode) | NetworkNode | Network node statuses | Interfaces | Element | Information about the status of interfaces | - | 0..1 |
| | | | DynamicRoutings | Element | Information about the status of routings | - | 0..1 |
| | | | SpanningTrees | Element | Information about the | - | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------------|----------------|---------------------|------------------|----------------|---|-----------|------|
| | | | | | status of spanning trees | | |
| | | | LinkAggregations | Element | Information about the status of link aggregations | - | 0..1 |
| | | | Redundancies | Element | Redundancy statuses | - | 0..1 |
| Interfaces (Status) | Status | Interface statuses | Interface | Element | Interface status | - | 0..* |
| Interface (Status) | | Interface status | id | Attribute | Unique identifier | ID | 1 |
| | | | status | Attribute | String indicating the communications status of the interface One of the following: "unknown" # status unknown "other" # status other than the following "up" # Interface up "down" # Interface down "blocked" # Interface blocked | string | 0..1 |
| | | | mode | Attribute | String indicating the communication protocol One of the following: "unknown" # status unknown "other" # A protocol other than the following "simplex-in # Uni-directional (receiving) | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------------------|-----------------|--------------------------|----------------|----------------|---|-----------|------|
| | | | | | "simplex-out" # Uni-directional (sending) "halfDuplex" # Half duplex "fullDuplex" # Full duplex | | |
| | | | speed | Attribute | String indicating the actual communications speed <Format> "Number +Scale" Eg "10Gbps" "100Mbps" "unknown" * For link aggregation or ether channels, use the communication speed for each individual interface, rather than the bundled communication speed. Also, for full duplex interfaces, do not double the speed. | string | 0..1 |
| DynamicRoutings (Status) | Status | Dynamic routing statuses | RoutingTable | Element | Routing table information | - | 0..1 |
| RoutingTable | DynamicRoutings | Routing table | RoutingInfo | Element | Routing information | - | 0..* |
| RoutingInfo | RoutingTable | Routing information | id | Attribute | Unique identifier | ID | 1 |
| | | | protocol | Attribute | Routing protocol One of the | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|---------------------|----------------|--|-----------|------|
| | | | | | following. (Taken from RFC 1213, refer to this document for more information) "other" "local" "netmgmt" "icmp" "egp" "ggp" ... | | |
| | | | type | Attribute | Route type One of the following: "other" # A route type not listed here "invalid" # Invalid route "direct" # Adjacent network "indirect" # Non-adjacent network | string | 0..1 |
| | | | destination Address | Attribute | Network address | string | 0..1 |
| | | | gatewayAddress | Attribute | Gateway address | string | 0..1 |
| | | | subnetmask | Attribute | Subnet mask value | int | 0..1 |
| | | | nexthop | Attribute | IP address for the next hop | string | 0..1 |
| | | | age | Attribute | Generation value for the routing information | int | 0..1 |
| | | | metric1 | Attribute | Metric value 1 for this route This metric value depends on the protocol type, and may not exist The same applies to the | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------------------|------------------|---------------------------|-----------------|----------------|--|-----------|------|
| | | | | | following metric values | | |
| | | | metric2 | Attribute | Metric value 2 for this route | int | 0..1 |
| | | | metric3 | Attribute | Metric value 3 for this route | int | 0..1 |
| | | | metric4 | Attribute | Metric value 4 for this route | int | 0..1 |
| | | | metric5 | Attribute | Metric value 5 for this route | int | 0..1 |
| SpanningTrees (Status) | Status | Spanning tree statuses | STP | Element | STP status | - | 0..1 |
| STP (Status) | SpanningTrees | STP status | STPInterface | Element | STP interface status | - | 0..* |
| STPInterface (Status) | STP | STP interface status | id | Attribute | Unique identifier | ID | 1 |
| | | | status | Attribute | STP status for the interface. (Refer to RFC 1493 for more information) One of the following values: "unknown" "disabled" "blocking" "listening" "learning" "forwarding" "broken" | string | 0..1 |
| LinkAggregations (Status) | Status | Link aggregation statuses | LinkAggregation | Element | Link aggregation status | - | 0..* |
| LinkAggregation (Status) | LinkAggregations | Link aggregation status | id | Attribute | Unique identifier | ID | 1 |
| | | | masterInterface | Attribute | Reference to the Interface(Configuration) element that is the master for this link aggregation | IDREF | 0..1 |
| Redundancies (Status) | Status | Redundancy statuses | HotStandby | Element | Hot standby status | - | 0..* |
| HotStandby (Status) | Redundancies | Hot standby status | id | Attribute | Unique identifier | ID | 1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--|--------------------|---|-------------------------|----------------|--|-----------|------|
| | | | masterIPAd dress | Attribute | IP address of the node that is running as the master within this group | string | 0..1 |
| Configuration (NetworkNode) (Deprecated) | NetworkN ode | Settings information for network nodes | Interfaces | Element | Settings information for logical interfaces | - | 0..1 |
| | | | LinkAggre gations | Element | Settings information for link aggregations | - | 0..1 |
| | | | LoadBalanc ings | Element | Settings information for load balancers | - | 0..1 |
| | | | VLANs | Element | Settings information for VLANs | - | 0..1 |
| | | | SpanningTr ees | Element | Settings information for spanning trees | - | 0..1 |
| | | | Redundanci es | Element | Settings information for redundancies | - | 0..1 |
| | | | StaticRouti ngs | Element | Settings information for static routings | - | 0..1 |
| | | | DynamicRo utings | Element | Settings information for dynamic routings | - | 0..1 |
| | | | AddressTra nslations | Element | Settings information for address translations | - | 0..1 |
| | | | ACL | Element | Settings information for access controls | - | 0..1 |
| LogicalNetwork Configuration | LogicalNe twork | Settings information for network nodes | Interfaces | Element | Settings information for logical interfaces | - | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------------|----------------|---|---------------------|----------------|---|-----------|------|
| | | | LinkAggregations | Element | Settings information for link aggregations | - | 0..1 |
| | | | LoadBalancers | Element | Settings information for load balancers | - | 0..1 |
| | | | VLANs | Element | Settings information for VLANs | - | 0..1 |
| | | | SpanningTrees | Element | Settings information for spanning trees | - | 0..1 |
| | | | Redundancies | Element | Settings information for redundancies | - | 0..1 |
| | | | StaticRoutings | Element | Settings information for static routings | - | 0..1 |
| | | | DynamicRoutings | Element | Settings information for dynamic routings | - | 0..1 |
| | | | AddressTranslations | Element | Settings information for address translations | - | 0..1 |
| | | | ACL | Element | Settings information for access controls | - | 0..1 |
| Interfaces (Configuration) | Configuration | Settings information for logical interfaces | Interface | Element | Settings information for logical interfaces | - | 0..* |
| Interface (Configuration) | Interfaces | Logical interface settings information | id | Attribute | Unique identifier | ID | 1 |
| | | | descr | Attribute | Interface identifier MIB value for 'ifDescr' | string | 0..1 |
| | | | type | Attribute | String indicating the type of interface | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|---------------------|----------------|---|-----------|------|
| | | | | | Basically the value of 'ifType' for MIB-2 for SNMP except that this string can also be "unknown" These values taken from RFC 1573. Refer to this document for more information. "unknown" "other " "regular1822" "hdh1822" "ddnX25" "rfc877x25" "ethernetCsmacd" "iso88023Cs macd" "iso88024TokenBus" ... | | |
| | | | statusconfiguration | Attribute | Communication configuration status for the interface (as distinct from the operational status) One of the following "unknown" # status unknown "other" # status other than the following "up" # Interface up "down" # Interface down "blocked" # | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|--|-----------|------|
| | | | | | Interface blocked | | |
| | | | connector | Attribute | Reference to the physical connector | IDREFS | 0..1 |
| | | | mode | Attribute | Communication protocol setting One of the following: "unknown" # Unknown "other" # A protocol other than the following "Auto" # Automatic "simplex-in" # Uni-directional (receiving) "simplex-out" # Uni-directional (sending) "halfDuplex" # Half duplex "fullDuplex" # Full duplex | string | 0..1 |
| | | | speed | Attribute | Communication speed setting <Format> "Number+Scale" use "unknown" if the scale is unknown and "auto" if the speed is automatic Eg "10Gbps" "100Mbps" "auto" * For link aggregation or ether channels, use the | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------------------|---------------------------|---|------------------------|----------------|---|-----------|------|
| | | | | | communication speed for each individual interface, rather than the bundled communication speed. Also, for full duplex interfaces, do not double the speed. | | |
| | | | status | Attribute | Reference to Interface(Status) | IDREF | 0..1 |
| | | | NetworkAddress | Element | Network address | - | 0..* |
| NetworkAddresses | Interface (Configuration) | Network address | ipAddress | Attribute | IP address | string | 1 |
| | | | subnetmask | Attribute | Subnet mask | string | 1 |
| LinkAggregations (Configuration) | Configuration | Link aggregation information | LinkAggregation | Element | Link aggregation information | - | 0..* |
| LinkAggregation (Configuration) | LinkAggregations | Link aggregation information | id | Attribute | Unique identifier | ID | 1 |
| | | | aggregatedInterface | Attribute | Reference to the Interface(Configuration) that is being aggregated | IDREFS | 0..1 |
| | | | status | Attribute | Reference to the LinkAggregation(Status) | IDREF | 0..1 |
| LoadBalancings | Configuration | Settings information for load balancers | SLBPolicy | Element | SLB settings information | - | 0..* |
| SLBPolicy | LoadBalancings | Policy information for SLB allocation | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | virtualIPAddress | Attribute | Virtual IP address | string | 0..1 |
| | | | SLBService (SLBPolicy) | Element | Allocated service | - | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------------|----------------|--|----------------|----------------|---|-----------|------|
| SLBNodePolicy | SLBContent | Policy information for SLB allocations for each node | id | Attribute | Unique identifier | ID | 1 |
| | | | ipAddress | Attribute | IP address of the interface on the allocated node | string | 0..1 |
| | | | port | Attribute | Specify the port number for the allocation target. Not required in the default case where it is the same as the virtual port | int | 0..1 |
| | | | protocol | Attribute | String indicating the protocol for the allocation target Not required in the default case "tcp" "udp" "any" (default case: either tcp or udp) | string | 0..1 |
| | | | weight | Attribute | Weighting for the allocated node Valid if the allocation protocol is "static weighted" (default = 1) | int | 0..1 |
| SLBService (SLBPolicy) | SLBPolicy | Allocated service | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Service name Eg, "http" "ftp" "dns" | string | 0..1 |
| | | | virtualPort | Attribute | Used to specify the port number for the service when a user-defined local | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|--|-----------|------|
| | | | | | service is defined. | | |
| | | | protocol | Attribute | String indicating the protocol for the allocation target Not required in the default case "tcp" "udp" "any" (default case: either tcp or udp) | string | 0..1 |
| | | | type | Attribute | String indicating the service type One of the following: "TCPElse" # A TCP service not listed below "UDPElse" # A UDP service not listed below "Web" # Web server "FTP" # FTP server "Mail(POP3/IMAP)" # Mail server "Mail(SMTP)" # Mail server "DNS" # DNS server "LDAP" # LDAP server | string | 0..1 |
| | | | SLBContent | Element | Allocated content | - | 0..* |
| SLBContent | SLBService | Allocated content | id | Attribute | Unique identifier | ID | 1 |
| | | | url | Attribute | URL | string | 0..* |
| | | | dispersionType | Attribute | String indicating the balancing protocol One of the following | string | 0..* |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|--------------------------------|-------------------|----------------|--|-----------|------|
| | | | | | "RoundRobin" "WeightedRoundRobin" "LeastConnections" | | |
| | | | SLBNodePolicy | Element | SLB allocation policy information for each node | - | 0..* |
| VLANs | Configuration | Settings information for VLANs | VLAN | Element | VLAN settings information | - | 0..* |
| | | | PVID | Element | PVID settings information | - | 0..* |
| VLAN | VLANs | VLAN settings information | id | Attribute | Unique identifier | ID | 1 |
| | | | vlanID | Attribute | VLAN ID | string | 0..1 |
| | | | vlanName | Attribute | VLAN name | string | 0..1 |
| | | | ipAddress | Attribute | IP address for when addresses are allocated to the VLAN | string | 0..1 |
| | | | subnetmask | Attribute | Subnet mask for when addresses are allocated to the VLAN | string | 0..1 |
| | | | taggedInterface | Attribute | Reference to an interface that has been set up as a tagged port for the VLAN * Interfaces where link aggregation or EtherChannel has been set up have only a master interface reference | IDREFS | 0..1 |
| | | | untaggedInterface | Attribute | Reference to an interface that has been set up as an untagged port | IDREFS | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-------------------------------|----------------|---|----------------|----------------|---|-----------|------|
| | | | | | for the VLAN * Interfaces where link aggregation or EtherChannel has been set up have only a master interface reference | | |
| PVID | VLANs | PVD settings information | id | Attribute | Unique identifier | ID | 1 |
| | | | vlanID | Attribute | VLANID (PVID value set for the interface) | string | 0..1 |
| | | | interface | Attribute | Reference to the interface (configure) where the PVID has been set | IDREF | 0..1 |
| SpanningTrees (Configuration) | Configuration | Settings information for spanning trees | STP | Element | Device STP settings information For CST, etc., the multiplicity is 0, ..., 1. For MST, etc., the multiplicity is 0, ..., *. | STP | 0..* |
| STP (Configuration) | SpanningTree | Device STP settings information | id | Attribute | Unique identifier | ID | 1 |
| | | | instance-id | Attribute | Holds the instance ID for the spanning tree. (Required for MST) | string | 0..1 |
| | | | forwardDelay | Attribute | Transmission delay time | int | 0..1 |
| | | | helloTime | Attribute | Hello time | int | 0..1 |
| | | | maxage | Attribute | Maximum aging time | int | 0..1 |
| | | | maxhop | Attribute | Maximum hop count | int | 0..1 |
| | | | priority | Attribute | Bridge priority | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------------------|----------------|-------------------------------|----------------|----------------|---|-----------|------|
| | | | cost | Attribute | Path cost | int | 0..1 |
| | | | linktype | Attribute | Only required if the protocol is RSTP String indicating the link type "point-to-point" "shared" | string | 0..1 |
| | | | protocol | Attribute | String indicating the protocol type One of the following: "STP" "RSTP" | string | 0..1 |
| | | | mode | Attribute | String indicating the operating mode One of the following: "CST" "PVST" "PVST+" "MST" | string | 0..1 |
| | | | vlanRange | Attribute | Specify the range of VLANIDs using commas and hyphens Eg, 1,2,10-30 The multiplicity for VLANIDs depends on the mode For PVST: 1 For MST: 1..* For CST: 0 | string | 0..1 |
| | | | STPInterface | Element | Reference to the STP settings information for each interface | - | 0..* |
| STPInterface (Configuration) | STP | Port STP settings information | interface | Attribute | Reference to an interface | IDREF | 1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------------------|----------------|---------------------------------------|---------------------------|----------------|--|-----------|------|
| | | | | | where STP has been set up | | |
| | | | cost | Attribute | The value of the 'cost' attribute for this interface | int | 0..1 |
| | | | priority | Attribute | The value of the 'priority' attribute for this interface | int | 0..1 |
| | | | status | Attribute | Reference to the status for the STPInterface item | IDREF | 0..1 |
| Redundancies (Configuration) | Configuration | Settings information for redundancies | HotStandby(Configuration) | Element | Hot standby information | - | 0..* |
| HotStandby (Configuration) | Redundancies | Hot standby information | id | Attribute | Unique identifier | ID | 1 |
| | | | groupID | Attribute | The ID for a hot standby group that allows it to be uniquely identified within the device. The appropriate ID varies depending on the protocol type. VRRP ... VRID HSRP ... GroupID FJHS ... GroupID | string | 0..1 |
| | | | protocol | Attribute | String indicating the protocol type "other" "VRRP" "HSRP" "FJHS" | int | 0..1 |
| | | | virtualIPAddress | Attribute | Virtual IP address | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|--|-----------|------|
| | | | | | allocated to the HS group | | |
| | | | interface | Attribute | Reference to the HS interface | IDREF | 0..1 |
| | | | helloInterval | Attribute | Interval for transmitting hello packets (health packets) | int | 0..1 |
| | | | authentication | Attribute | Flag indicating whether to use an authentication function | boolean | 0..1 |
| | | | password | Attribute | Password to use when the authentication information is on | string | 0..1 |
| | | | priority | Attribute | Priority For the VRRP and HSRP protocols, higher values indicate higher priorities, but for the FJHS protocol, lower values indicate higher priorities | int | 0..1 |
| | | | deadTime | Attribute | Time to wait before deciding to switch the active device if a hello packet is not received | int | 0..1 |
| | | | preempt | Attribute | Flag indicating whether to run in preempt mode | boolean | 0..1 |
| | | | delayTime | Attribute | Delay time for switching active devices | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------------|-------------------|---|---------------------------|----------------|---|-----------|------|
| | | | vmacAddress | Attribute | Virtual MAC address | string | 0..1 |
| | | | ripmode | Attribute | Flag indicating whether to perform RIP linking | boolean | 0..1 |
| | | | ripIPAddress | Attribute | IP address for the correspondent router when RIP linking is performed | string | 0..1 |
| | | | status | Attribute | Reference to the HS status information | IDREF | 0..1 |
| | | | TrackNode | Element | Node being tracked for HS switching | - | 0..1 |
| | | | TrackInterface | Element | Interface being tracked for HS switching | - | 0..1 |
| | | | FujitsuHotStandby | Element | Information specific to Fujitsu Hot Standby | - | 0..1 |
| FujitsuHotStandby | HotStandby | Information specific to Fujitsu Hot Standby | FujitsuHotStandbyGroup | Element | Fujitsu Hot Standby group | - | 0..1 |
| | | | FujitsuHotStandbyPeerNode | Element | Correspondent node for Fujitsu Hot Standby | - | 0..* |
| FujitsuHotStandbyGroup | FujitsuHotStandby | Fujitsu Hot Standby group | srcMacAddrCtrl | Attribute | Flag indicating whether to control source MAC addresses | boolean | 0..1 |
| | | | workLimit | Attribute | If the total of the weights for correspondent routers used by the hot standby group that have errors exceeds this limit, the active and | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------------------|-------------------|--|----------------|----------------|---|-----------|------|
| | | | | | standby nodes will switch | | |
| | | | mcuChangeDelay | Attribute | The time required for starting hot standby operations (in seconds) when switchovers occur during MCU redundant operations | int | 0..1 |
| FujitsuHotStandbyPeerNode | FujitsuHotStandby | Fujitsu Hot Standby correspondent node | id | Attribute | Unique identifier | ID | 1 |
| | | | peerid | Attribute | ID of the correspondent router | string | 0..1 |
| | | | weight | Attribute | Weight for the correspondent router | int | 0..1 |
| | | | interface | Attribute | Reference to the interface for communicating with the correspondent router | IDREF | 0..1 |
| | | | alivemode | Attribute | Flag indicating whether to send alive packets | boolean | 0..1 |
| | | | alivepeerlimit | Attribute | Limit for the weights of correspondent routers | int | 0..1 |
| | | | alivepeergroup | Attribute | Hot standby group ID for the correspondent router and corresponding weight Use the following kind of format <GroupID>@<weight> Eg | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------|----------------|---|---------------------|----------------|--|-----------|------|
| | | | | | 1@10 11-20@3 | | |
| | | | aliveresendInterval | Attribute | Resend interval for alive packets | int | 0..1 |
| | | | alivedeadInterval | Attribute | Interval for which alive packets are disabled | int | 0..1 |
| | | | alivertyInterval | Attribute | Interval for checking whether alive packets have recovered | int | 0..1 |
| | | | alivesndInterval | Attribute | Interval for sending alive packets | int | 0..1 |
| | | | alivetriggmode | Attribute | Flag used to enable or disable trigger mode for alive confirmation packets | boolean | 0..1 |
| TrackNode | HotStandby | Node monitored for Hot Standby switching | ipAddress | Attribute | IP address of the monitored node | string | 0..1 |
| | | | resendInterval | Attribute | Packet resend interval | int | 0..1 |
| | | | normalInterval | Attribute | Normal packet transmission interval | int | 0..1 |
| | | | errorInterval | Attribute | Transmission interval when packet errors occur | int | 0..1 |
| | | | timeout | Attribute | Timeout time | int | 0..1 |
| | | | priority | Attribute | Priority subtracted when the monitored node fails | int | 0..1 |
| TrackInterface | HotStandby | Interface monitored for Hot Standby switching | interface | Attribute | Reference to the monitored interface (Configuration) | IDREF | 1 |
| | | | priority | Attribute | Priority subtracted | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------------------------|-----------------|---|--------------------|----------------|---|-----------|------|
| | | | | | when the monitored interface fails | | |
| StaticRoutings | Configuration | Settings information for static routings | StaticRouting | Element | Static routing information | - | 0..* |
| StaticRouting | StaticRoutings | Static routing information | id | Attribute | Unique identifier | ID | 1 |
| | | | destinationAddress | Attribute | Destination address | string | 0..1 |
| | | | subnetmask | Attribute | Destination subnet mask | int | 0..1 |
| | | | gatewayAddress | Attribute | Gateway address | string | 0..1 |
| DynamicRoutings (Configuration) | Configuration | Settings information for dynamic routings | RIP | Element | RIP information | - | 0..1 |
| | | | OSPF | Element | OSPF information | - | 0..1 |
| | | | RoutingNetwork | Element | Network information | - | 0..* |
| | | | AccessList | Element | Access list | - | 0..* |
| | | | RouteMap | Element | Route map | - | 0..* |
| RIP | DynamicRoutings | RIP settings information | id | Attribute | Unique identifier | ID | 1 |
| | | | invalidInterval | Attribute | Time to wait before deciding that a RIP route is disabled after packets stop being received on that route | int | 0..1 |
| | | | updateInterval | Attribute | Transmission interval for route notification packets | int | 0..1 |
| | | | holddownInterval | Attribute | Time to suppress update packet reception for routes that are held down | int | 0..1 |
| | | | flushInterval | Attribute | Time to wait before deleting a | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|--------------------|----------------|---|-----------|------|
| | | | | | route from the RIP database | | |
| | | | neighborIP Address | Attribute | IP address of the adjacent router node | string | 0..1 |
| | | | metric | Attribute | Default metric | int | 0..1 |
| | | | version | Attribute | String indicating the RIP version One of the following: "v1" "v2" "v1&v2" | string | 0..1 |
| | | | autosummary | Attribute | Flag indicating whether to merge subnet routes into network level routes (V2 only) | boolean | 0..1 |
| | | | defaultInformation | Attribute | Flag indicating whether to notify default routes | boolean | 0..1 |
| | | | routingnetwork | Attribute | Reference to the network for which routes are being switched | IDREFS | 0..1 |
| | | | outputdelay | Attribute | Transmission delay time | int | 0..1 |
| | | | RIPInterface | Element | RIP settings for each interface | - | 0..* |
| | | | RIPOffsetList | Element | Metric offset value | - | 0..* |
| | | | RIPDistance | Element | Distance for RIP route information | - | 0..* |
| | | | DistributeList | Element | Settings information for routing distribution | - | 0..* |
| | | | Redistribute | Element | Settings information | - | 0..* |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------------|------------------|----------------|---|-----------|------|
| | | | | | for routing redistribution | | |
| RIPInterface | RIP | RIP interface information | id | Attribute | Unique identifier | ID | 1 |
| | | | inputVersion | Attribute | Version of RIP for receiving One of the following: "off" "v1" "v2" "v1&v2" | string | 0..1 |
| | | | outputVersion | Attribute | Version of RIP for sending One of the following: "off" "v1" "v2" "v1&v2" | string | 0..1 |
| | | | metric | Attribute | Metric value | int | 0..1 |
| | | | interface | Attribute | Reference to the interface that has been set | IDREF | 0..1 |
| | | | passiveInterface | Attribute | Flag indicating whether this interface is a passive interface | boolean | 0..1 |
| | | | splithorizon | Attribute | Flag indicating whether the splithorizon function has been enabled | boolean | 0..1 |
| | | | triggerUpdate | Attribute | Flag indicating whether to perform RIP trigger updates | boolean | 0..1 |
| | | | key | Attribute | Authentication key number | string | 0..1 |
| | | | keychain | Attribute | Authentication key | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------|----------------|---|----------------|----------------|---|-----------|------|
| | | | keystring | Attribute | Authentication string | string | 0..1 |
| RIPOffsetList | RIP | Offset for RIP metrics | id | Attribute | Unique identifier | ID | 1 |
| | | | way | Attribute | String indicating the metric application direction One of the following: "in" # receiving "out" # sending | string | 0..1 |
| | | | interface | Attribute | Reference to the interface to which the offset applies If no instances are given, the offset applies to all interfaces | IDREF | 0..1 |
| | | | accesslist | Attribute | Reference to an access list | IDREF | 0..1 |
| | | | offset | Attribute | Offset value (1... 16) | int | 0..1 |
| RIPDistance | RIP | Distance for RIP route information | id | Attribute | Unique identifier | ID | 1 |
| | | | weight | Attribute | Distance value | int | 0..1 |
| | | | accesslist | Attribute | Reference to an access list | IDREF | 0..1 |
| DistributeList | RIP OSPF | Settings information for routing distribution | type | Attribute | String indicating the type "in" # receiving "out" # sending | string | 0..1 |
| | | | accesslist | Attribute | Reference to an access list | IDREF | 0..1 |
| Redistribute | RIP OSPF | Settings information for routing redistribution | protocol | Attribute | String indicating the protocol type One of the following: "connected" # | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|-----------------|---------------------------|-------------------|----------------|--|-----------|------|
| | | | | | the protocol that is currently connected "static" # static routing "RIP" "OSPF" "BGP" | | |
| | | | metric | Attribute | Metric value | int | 0..1 |
| | | | metricType | Attribute | String indicating the metric type (for OSPF only) One of the following: "Type-1Cost" "Type-2Cost" | string | 0..1 |
| | | | routemap | Attribute | Reference to a route map | IDREF | 0..1 |
| OSPF | DynamicRoutings | OSPF settings information | id | Attribute | Unique identifier | ID | 1 |
| | | | extraAreaDistance | Attribute | Priority (distance) for routes outside the AS | int | 0..1 |
| | | | intraAreaDistance | Attribute | Priority (distance) for routes inside the AS | int | 0..1 |
| | | | interAreaDistance | Attribute | Priority (distance) for routes between ASs | int | 0..1 |
| | | | metric | Attribute | Metric value | int | 0..1 |
| | | | metrictype | Attribute | String indicating the metric type One of the following: "Type-1Cost" "Type-2Cost" | string | 0..1 |
| | | | routerID | Attribute | Router ID | string | 0..1 |
| | | | spfdelay | Attribute | Delay (in seconds) from the time when a topology change is detected until | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------|----------------|--|--------------------|----------------|--|-----------|------|
| | | | | | the SPF calculation starts | | |
| | | | spfholdtime | Attribute | Minimum waiting interval (in seconds) until the next SPF calculation | int | 0..1 |
| | | | defaultInformation | Attribute | Flag indicating whether to notify the default gateway | boolean | 0..1 |
| | | | routingnetwork | Attribute | Reference to the network for which routes are being switched | IDREFS | 0..1 |
| | | | OSPFInterface | Element | OSPF settings information for each interface | - | 0..* |
| | | | OSPFArea | Element | OSPF area information | - | 0..* |
| | | | DistributeList | Element | Settings information for routing distribution | - | 0..* |
| | | | Redistribute | Element | Settings information for routing redistribution | - | 0..* |
| OSPFInterface | OSPF | OSPF settings information for each interface | id | Attribute | Unique identifier | ID | 1 |
| | | | authenticationType | Attribute | String indicating the type of authentication One of the following: "simple" "message-digest" * Required if authentication is performed | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|--------------------|----------------|--|-----------|------|
| | | | interface | Attribute | Reference to the interface | IDREF | 0..1 |
| | | | authenticationKey | Attribute | Authentication keyword for OSPF packets (only required if authentication is performed) | string | 0..1 |
| | | | authenticationID | Attribute | Authentication keyword number (only if the authentication type is "message-digest") | int | 0..1 |
| | | | cost | Attribute | Packet transmission cost | int | 0..1 |
| | | | deadInterval | Attribute | Restriction time until hello packets arrive | int | 0..1 |
| | | | helloInterval | Attribute | Transmission interval for the hello packets sent from the interface | int | 0..1 |
| | | | passive | Attribute | Flag indicating whether the interface is passive | boolean | 0..1 |
| | | | priority | Attribute | Router priority | int | 0..1 |
| | | | retransmitInterval | Attribute | Interval for resending LSAs to the OSPF neighbor under the interface | int | 0..1 |
| | | | transmitDelay | Attribute | Transmission delay time for LSU update packets | int | 0..1 |
| | | | area | Attribute | Reference to OSPF area information | IDREF | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|--|-----------|------|
| | | | routingnetwork | Attribute | Reference to the network being routed | IDREF | 0..1 |
| OSPFArea | OSPF | | id | Attribute | Unique identifier | ID | 1 |
| | | | areaID | Attribute | OSPF area identifier | string | 0..1 |
| | | | areaType | Attribute | String indicating the OSPF area type One of the following: "nssa" # Quasi-stub area "backbone" # Backbone area "stub" # Stub area | string | 0..1 |
| | | | summary | Attribute | The meaning of this element depends on the area type. <stub> Flag indicating whether to notify aggregate link information to the stub area when running as an area border router <nssa> Flag indicating whether to issue Type-3-LSAs corresponding to routes learnt from other areas to NSSA areas | boolean | 0..1 |
| | | | routingnetwork | Attribute | Reference to the address for the network where routes are to be | IDREF | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|--------------------|----------------|--|-----------|------|
| | | | | | aggregated (only if the area type is "backbone") | | |
| | | | advertise | Attribute | Flag indicating whether to notify Type-3-LSAs of aggregated routes (only if the area type is "backbone") | boolean | 0..1 |
| | | | redistribution | Attribute | Flag indicating whether to issue Type-7-LSAs corresponding to ASE-LSAs to NSSA areas (only if the area type is "nssa") | boolean | 0..1 |
| | | | defaultInformation | Attribute | Flag indicating whether to notify Type-7 default route information within NSSA areas when the router is running as an AS border router (only if the area type is "nssa") | boolean | 0..1 |
| | | | metric | Attribute | Metric value for notifying default routes (only if the area type is "nssa") | int | 0..1 |
| | | | metrictype | Attribute | Metric type for notifying default routes Metric type One of the following: "Type-1Cost" "Type-2Cost" | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------|-----------------|-----------------------------|------------------|----------------|---|-----------|------|
| | | | | | (only if the area type is "nssa") | | |
| | | | translate-always | Attribute | Flag indicating whether to set the routers learnt from NSSA areas as area border routers to the backbone area as the routers that distribute routes using Type-5-LSAs (only if the area type is "nssa") | boolean | 0..1 |
| RoutingNetwork | DynamicRoutings | Routing network information | id | Attribute | Unique identifier | ID | 1 |
| | | | networkaddress | Attribute | Network address | string | 0..1 |
| | | | subnetmask | Attribute | Subnet mask | int | 0..1 |
| | | | areaID | Attribute | Area ID (only for OSPF) | int | 0..1 |
| AccessList | DynamicRoutings | Access control list | id | Attribute | Unique identifier | ID | 1 |
| | | | accesslistID | Attribute | Access list ID within the device | string | 0..1 |
| | | | AccessPolicy | Element | Access control policy | - | 0..* |
| AccessPolicy | AccessList | Access control policy | permit | Attribute | Allow (true) or deny (false) | boolean | 0..1 |
| | | | type | Attribute | Type of control target One of the following: "network" # network "host" # host "all" # all | string | 0..1 |
| | | | ipAddress | Attribute | IP address to be allowed or denied | string | 0..1 |
| | | | subnetmask | Attribute | Subnet mask | int | 0..1 |
| RouteMap | DynamicRoutings | Route map information | id | Attribute | Unique identifier | ID | 1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------------|---------------------|---|----------------|----------------|---|-----------|------|
| | | | permit | Attribute | Allow (true) or deny (false) | boolean | 0..1 |
| | | | tagname | Attribute | Route map tag name | string | 0..1 |
| | | | RouteMatch | Element | Route matching information | ID | 0..* |
| | | | RouteSet | Element | Route settings information | ID | 0..* |
| RouteMatch | RouteMap | Route matching information | type | Attribute | String indicating the type of match target One of the following: "interface" "path" "ip" "nexthop" "metric" | string | 0..1 |
| | | | value | Attribute | Value to be compared | string | 0..1 |
| | | | accessList | Attribute | Reference to an access list Only if the type of match target is "path", "ip" or "nexthop" | IDREF | 0..1 |
| RouteSet | RouteMap | Route settings information | type | Attribute | String indicating the type of target to be set One of the following: "interface" "ip" "nexthop" "metric" "metrictype" "weight" | string | 0..1 |
| | | | value | Attribute | Value to be set | string | 0..1 |
| AddressTranslations | Configuration | Settings information for address translations | NAT | Element | NAT information | NAT | 0..* |
| NAT | AddressTranslations | NAT information | id | Attribute | Unique identifier | ID | 1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---|------------------------|----------------|--|-----------|------|
| | | | name | Attribute | NAT policy name | string | 0..1 |
| | | | type | Attribute | String indicating the NAT type One of the following: "SNAT" # source NAT "DNAT" # destination NAT "NAPT" # IP masquerade | string | 0..1 |
| | | | externalAddress | Attribute | External address(es) Use the following format to specify multiple addresses: Eg, 10.24.8. [1-10,20] | string | 0..1 |
| | | | internalAddress | Attribute | Internal address(es) Use the following format to specify multiple addresses: Eg, 10.24.8. [1-10,20] | string | 0..1 |
| | | | externalPort | Attribute | External port number Use "0" to indicate a wildcard | int | 0..1 |
| | | | internalPort | Attribute | Internal port number Use "0" to indicate a wildcard | int | 0..1 |
| ACL | Configuration | Settings information for access control | AccessControlInterface | Element | Access control settings information for each interface | - | 0..* |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------------|----------------|--|-----------------|----------------|--|-----------|------|
| | | | AccessControl | Element | Access control information | - | 0..* |
| | | | FilteringPolicy | Element | Filtering information | - | 0..* |
| AccessControlInterface | ACL | Settings information for access control for each interface | id | Attribute | Unique identifier | ID | 1 |
| | | | interface | Attribute | Reference to settings information (Interface(Configuration)) for logical interfaces where ACL settings have been made | IDREF | 1 |
| | | | accessControl | Attribute | Reference to settings information for access control | IDREFS | 1 |
| AccessControl | ACL | Access control information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Access control name | string | 0..1 |
| | | | way | Attribute | Control direction One of the following: "in" # Reception "out" # Transmission "any" # Both reception and transmission "reverse" # Both reception and transmission (reversing the IP address and port number for the sender and destination when receiving) "in-enciphered" # | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------|----------------|-----------------------|-----------------|----------------|--|-----------|------|
| | | | | | Evaluation using plain text when decrypting encrypted packets sent to the device | | |
| | | | action | Attribute | Control method One of the following: "accept" # Allow "drop" # Discard "reject" # Deny "redirect" # Forward "remove" # Delete content (HTTP) etc "restrict" # Allow when connecting, discard when disconnecting | string | 0..1 |
| | | | priority | Attribute | Priority | int | 0..1 |
| | | | nat | Attribute | Reference to NAT translation information | IDREF | 0..1 |
| | | | filteringPolicy | Attribute | Reference to filtering information | IDREF | 1 |
| FilteringPolicy | ACL | Filtering information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Filtering policy name | string | 0..1 |
| | | | judge | Attribute | Judgment method One of the following: "any" # Matches at least one "all" # Matches all | string | 0..1 |
| | | | MatchAnyFilter | Element | Match any filter | - | 0..* |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------|-----------------|---------------------|------------------|----------------|--|-----------|------|
| | | | MACAddressFilter | Element | MAC address filter | - | 0..* |
| | | | IPAddressFilter | Element | IP address filter | - | 0..* |
| | | | PortFilter | Element | Port filter | - | 0..* |
| | | | ProtocolFilter | Element | Protocol filter | - | 0..* |
| MatchAnyFilter | FilteringPolicy | Match any filter | id | Attribute | Unique identifier | ID | 1 |
| MACAddressFilter | FilteringPolicy | MAC address filter | id | Attribute | Unique identifier | ID | 1 |
| | | | type | Attribute | Type One of the following: "dest" # destination MAC address "source" # source MAC address | string | 0..1 |
| | | | operator | Attribute | Relational operator One of the following: "=" " ="</td <td>string</td> <td>0..1</td> | string | 0..1 |
| | | | macaddress | Attribute | MAC address If there are multiple MAC addresses, separate addresses using commas ",". To specify a range of consecutive MAC addresses, specify the first and last MAC address, separated by a hyphen "-" | string | 0..1 |
| IPAddressFilter | FilteringPolicy | IP address filter | id | Attribute | Unique identifier | ID | 1 |
| | | | type | Attribute | Type One of the following: "dest" # | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|-----------------|---------------------|----------------|----------------|---|-----------|------|
| | | | | | destination IP address=0, "source" # source IP address | | |
| | | | operator | Attribute | Relational operator One of the following: "=" " "!=" | string | 0..1 |
| | | | command | Attribute | Address If there are multiple addresses, separate addresses using commas ",". To specify a range of consecutive addresses, specify the first and last MAC address, separated by a hyphen "-" For subnet addresses, enter the mask length at the end as "/XX" | string | 0..1 |
| PortFilter | FilteringPolicy | Port filter | id | Attribute | Unique identifier | ID | 1 |
| | | | type | Attribute | Type One of the following: "dest" # destination port number "source" # source port number | string | 0..1 |
| | | | operator | Attribute | Relational operator One of the following: "=" " "!=" " "<=" " ">=" " | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------|-----------------|---------------------|----------------|----------------|--|-----------|------|
| | | | | | "<" ">" | | |
| | | | port | Attribute | Port number If there are multiple port numbers, separate port numbers using commas ",". To specify a range of consecutive port numbers, specify the first and last port numbers separated by a hyphen "-". | string | 0..1 |
| | | | protocol | Attribute | Protocol type One of the following: "tcp" "udp" "tcp-udp" | string | 0..1 |
| ProtocolFilter | FilteringPolicy | Protocol filter | id | Attribute | Unique identifier | ID | 1 |
| | | | operator | Attribute | Relational operator One of the following: "=" "!=" "<=" ">=" "<" ">" | string | 0..1 |
| | | | protocol | Attribute | Protocol number If there are multiple protocol numbers, separate port numbers using commas ",". To specify a range of consecutive protocol numbers, specify the first and last | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------|----------------|-----------------------------------|----------------|----------------|---|-----------|------|
| | | | | | protocol numbers separated by a hyphen "-". | | |
| Software | NetworkDevice | Device software (firmware) | name | Attribute | Software name Eg, "IOS (tm) 3600 Software (C3620-I-M)" | string | 0..1 |
| | | | version | Attribute | Software version The notation method depends on the model, so the format is not specified here. Use the device specific notation as is. Eg, Version 12.1(11) | string | 0..1 |
| | | | compileDate | Attribute | Compilation date The notation method depends on the model, so the format is not specified here. Use the device specific notation as is. Eg, "02-Oct-01 21:40" | string | 0..1 |
| Identity | NetworkDevice | Device identification information | vendorID | Attribute | Vendor identifier Eg, "Fujitsu" | string | 0..1 |
| | | | SNMP | Element | Information for identifying the device via SNMP | string | 0..1 |
| SNMP (Identity) | Identity | SNMP identification information | sysDescr | Attribute | The 'sysDescr' string for the device Refer to RFC 1213 for more information | string | 0..1 |
| | | | sysObjectId | Attribute | The 'sysObjectId' string for the | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|--|-----------|------|
| | | | | | device Refer to RFC 1213 for more information | | |

6.7 LogicalUserDefinedUnit

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%LogicalUserDefinedUnit[#expected/rc:LogicalUserDefinedUnit/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------------|----------------|--------------------------------|--------------------------------------|----------------|--|-----------|------|
| LogicalUserDefinedUnit | | Logical user-defined resources | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | nickname | Attribute | Nickname Used for partition display names, etc | string | 0..1 |
| | | | usage | Attribute | Usage | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | startDate | Attribute | Date when operation commenced | date | 0..1 |
| | | | lastUpdate | Attribute | Date of the last update | dateTime | 0..1 |
| | | | updateInfo | Attribute | Update information | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| | | | LogicalUserDefinedUnit Configuration | Element | Configuration information for the logical user-defined resource (Components and links between components) | - | 0..1 |

6.8 ServerDomain

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%ServerDomain[#expected/rc:ServerDomain/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------------|-----------------|----------------|-----------------------|-----------|------|
| ServerDomain | | Server domain information | id * | Attribute | Unique identifier | ID | 1 |
| | | | name * | Attribute | Formal name | string | 1 |
| | | | nickname * | Attribute | Nickname | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | ServerGroup | Element | Server group | - | 0..* |
| | | | ServerPoolGroup | Element | Server pool group | - | 0..1 |
| | | | Defines | Element | Settings information | - | 0..1 |

6.9 DefaultServerDomain

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%DefaultServerDomain[#expected/rc:DefaultServerDomain/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------------|-------------------------------------|--|-----------------|----------------|-----------------------|-----------|------|
| DefaultServerDomain | | Default server domain Manages servers before they are allocated to each server domain. | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | ServerGroup | Element | Server group | - | 0..* |
| | | | ServerPoolGroup | Element | Server pool group | - | 0..1 |
| | | | Defines | Element | Settings information | - | 0..1 |
| ServerGroup | ServerDomain DefaultServerDomain | Server group | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| ServerPoolGroup | ServerDomain DefaultServerDomain | Server group | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |

6.10 StorageDomain

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: /%StorageDomain[#expected/rc:StorageDomain/@id = '...']

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------------|----------------|------------------------|-------------------|----------------|--|-----------|------|
| StorageDomain | | Storage domain | id* | Attribute | Unique identifier | ID | 1 |
| | | | name* | Attribute | Formal name | string | 1 |
| | | | nickname* | Attribute | Nickname | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | redundancy | Attribute | Degree of redundancy between the server domain and physical connections (default: 2) | int | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| | | | ConnectNode | Element | Reference to a StorageNode related to the storage domain | - | 0..* |
| | | | StorageGroup | Element | Storage group | - | 0..* |
| | | | StoragePool Group | Element | Storage pool group | - | 0..1 |
| DefaultStorage Domain | StorageDomains | Storage default domain | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | redundancy | Attribute | Degree of redundancy between the server domain and physical connections (default: 2) | int | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| | | | ConnectNode | Element | Reference to a StorageNode related to the storage domain | - | 0..* |
| | | | StorageGroup | Element | Storage group | - | 0..* |
| | | | StoragePool Group | Element | Storage pool group | - | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------|-------------------------------------|--|----------------------|----------------|---|-----------|------|
| StorageGroup | StorageDomain | Storage group | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | sgType | Attribute | Type of storage group (default: -1) | int | 0..1 |
| | | | connectServer | Attribute | Connection server node | NMTO KENS | 0..1 |
| | | | connectStorage | Attribute | Connection storage node (used when the storage group is not shared) | NMTO KENS | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| | | | StorageSubGroups | Element | Storage sub group | - | 0..1 |
| Volume | Element | Reference to a logical volume | - | 0..* | | | |
| StoragePoolGroup | StorageDomain | Storage pool group | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | status | Attribute | Status unknown | string | 0..1 |
| | | | Volume | Element | Reference to a logical volume | - | 0..* |
| FreeVolume | Element | Reference to a free volume | - | 0..* | | | |
| ConnectNode | StorageDomain, DefaultStorageDomain | Storage node related to the (default) storage domain | - | Text | Reference to a storage node related to the (default) storage domain | IDREF | 1 |
| StorageSubGroups | StorageGroup | Storage sub groups | StorageSubGroup | Element | Storage sub group | - | 0..* |
| | | | StorageGroupTemplate | Element | Template for the StorageGroup (used when the storage group is not shared) | - | 1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------|---|--|----------------|----------------|--|--------------|------|
| | | | | | Holds information about Volume configuration (size, number of items), etc. of StorageGroup that is not shared. | | |
| StorageSubGroup | StorageSubGroups | Storage sub group | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | sgType | Attribute | Type of storage group (default: -1) | int | 0..1 |
| | | | connectServer | Attribute | Connection server node | NMTO KENS | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| Volume | Element | Reference to a logical volume | - | 0..* | | | |
| Volume | StorageGroup, StoragePoolGroup, StorageSubGroup, VolumeInfo | Logical volume | - | Text | Reference to a logical volume | IDREF | 1 |
| FreeVolume | StoragePoolGroup | Free volume | - | Text | Reference to a free volume | IDREF | 1 |
| StorageGroupTemplate | StorageSubGroups | Volume configuration for storage sub group | VolumeInfo | Element | Configuration information for the LogicalVolume | - | 0..* |
| VolumeInfo | StorageGroupTemplate | Volume configuration information | order | Attribute | Index for the Volume (ordered) | int | 1 |
| | | | size | Attribute | Volume size (units: MB) | long | 1 |
| | | | Volume | Element | Reference to a logical volume | - | 0..* |

6.11 NetworkDomain

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: /%NetworkDomain[./#expected/rc:NetworkDomain/@id = '...']

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------|----------------|------------------------------|-----------------|----------------|---|-----------|------|
| NetworkDomain | | Network domain | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Domain name | string | 1 |
| | | | nickname | Attribute | Nickname for the domain | string | 0..1 |
| | | | networknodes | Attribute | Reference to a network node that belongs to the domain | IDREF S | 1 |
| | | | SubnetObject | Element | Subnet object | - | 0..* |
| | | | RoutingObject | Element | Routing object | - | 0..* |
| | | | SwitchDomain | Element | Switch domain | - | 0..* |
| | | | NetworkServices | Element | List of network services | - | 0..1 |
| | | | DomainServer | Element | Domain management server | - | 1 |
| | | | LogicalLinks | Element | Holds information about the connections between logical objects | - | 1 |
| LogicalLinks | NetworkDomain | Logical links | LogicalLink | Element | Logical link object | - | 0..* |
| LogicalLink | LogicalLinks | Logical link information | id | Attribute | Unique identifier | ID | 1 |
| | | | link | Attribute | Reference to link information (Link) | IDREF | 1 |
| | | | physicallinks | Attribute | Reference to a physical link | IDREF S | 1 |
| | | | BusinessNetwork | Element | Business network information | - | 0..1 |
| BusinessNetwork | LogicalLink | Business network information | StaticRoutings | Element | Static routing information | - | 0..* |
| | | | MonitoringIP | Element | Monitoring IP address used | - | 0..2 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------------------|-----------------|---|------------------|----------------|--|-----------|------|
| | | | | | by NIC switching | | |
| | | | IPRange | Element | Range of business IP addresses | - | 1..3 |
| IPRange | BusinessNetwork | Range of business IP addresses | startIP | Attribute | Starting business address | string | 1 |
| | | | endIP | Attribute | Finishing business address | string | 1 |
| MonitoringIP | BusinessNetwork | Monitoring IP addresses used by NIC switching | ipaddress | Attribute | Monitoring IP address | string | 1 |
| NetworkServices | NetworkDomain | Network services | SLBService | Element | SLB service | - | 0..* |
| SLBService (NetworkServices) | NetworkServices | SLB service | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Service name | string | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | routingObject | Attribute | Reference to a routing object | IDREF | 1 |
| | | | serverGroups | Attribute | Reference to a server group | IDREFS | 1 |
| | | | slbConfiguration | Attribute | Reference to SLB allocation settings (SLBPolicy) | IDREF | 0..1 |
| DomainServer | NetworkDomain | Domain management server | name | Attribute | Server name | string | 1 |
| | | | ipAddress | Attribute | Server management address | string | 1 |
| SubnetObject | NetworkDomain | Subnet Object | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | vlanID | Attribute | VLAN ID for the subnet | int | 1 |
| | | | networkAddress | Attribute | Network address for the subnet | string | 1 |
| | | | subnetmask | Attribute | Subnet mask | int | 1 |
| | | | secondVLANID | Attribute | Second VLANID used | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------|----------------|---------------------|-------------------|----------------|--|-----------|------|
| | | | | | during high speed switching | | |
| | | | redundantType | Attribute | Redundancy type "NIC": NIC switching "RAPID": High speed switching | string | 0..1 |
| | | | ServernamePool | Element | Server name pool | - | 0..* |
| ServernamePool | SubnetGroup | Server name pool | serverDeviceID | Attribute | String that allows servers to be uniquely identified for each separate device Eg, Serial number, etc | string | 0..1 |
| | | | idType | Attribute | String indicating the type of serverDeviceID Serial number cannot necessarily be identified from servers automatically, so define the method for identifying servers. Specify the following: "serialnumber" | string | 0..1 |
| | | | hostname | Attribute | Host name for the server being pooled | string | 0..1 |
| | | | takeoverIPAddress | Attribute | Inherited IP address (only required if the server node is clustered) | string | 0..1 |
| | | | InterfacePool | Element | Interface pool for the server | - | 0..* |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------|----------------|-----------------------|-------------------|----------------|--|-----------|------|
| InterfacePool | ServernamePool | Server interface pool | interfaceDeviceID | Attribute | String that allows the server interface to be identified Eg, MAC address Port address | string | 0..1 |
| | | | idType | Attribute | Type of interfaceDeviceID Interfaces can almost always be identified uniquely using MAC addresses, but for network devices sometimes the same MAC address is allocated to multiple interfaces. "macaddress" "portaddress" | string | 0..1 |
| | | | ipAddress | Attribute | IP address pool for the server interface | string | 0..1 |
| | | | virtualIPAddress | Attribute | Virtual IP address pool for the server (only required if GLS or something similar has been set up) | string | 0..1 |
| RoutingObject | NetworkDomain | Routing object | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Domain name | string | 1 |
| | | | nickname | Attribute | Nickname for the domain | string | 0..1 |
| | | | type | Attribute | Type of routing object One of the following: "Cloud" "Router" "SLB" "Firewall" | string | 1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------|----------------|---------------------|------------------|----------------|---|-----------|------|
| | | | networknodes | Attribute | Reference to a network node belonging to the routing object | IDREFS | 1 |
| SwitchDomain | NetworkDomain | Switch domain | name | Attribute | Switch domain name | string | 1 |
| | | | nickname | Attribute | Nickname for the switch domain | string | 0..1 |
| | | | networknodes | Attribute | Reference to a network node belonging to the switch domain | IDREFS | 1 |
| | | | ServerDomainLink | Element | Server domain link Holds information about how the server domain and network domain are connected (redundancy) | - | 0..* |
| ServerDomainLink | NetworkDomain | Server domain link | serverDomain | Attribute | Reference to a server domain | IDREF | 1 |
| | | | redundantType | Attribute | Redundancy type "NIC": NIC switching "RAPID": High speed switching | string | 0..1 |

6.12 Server

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%Server[./#expected/rc:Server/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|------------------------|----------------|-----------------------|-----------|------|
| Server | | Physical server | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | productID (Deprecated) | Attribute | Product name Eg, | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|---------------------------|----------------|---|-----------|------|
| | | | | | "PRIMEPOW ER2500" | | |
| | | | modelName (Deprecated) | Attribute | Model name Eg, "PW2500", "PW0LBS111" | string | 0..1 |
| | | | modelCode | Attribute | Model code Eg, "450TP_P" | string | 0..1 |
| | | | serialNumber | Attribute | Serial number Eg, "343456" | string | 0..1 |
| | | | systemClock | Attribute | System clock speed Eg, "270MHz" | string | 0..1 |
| | | | busRatio | Attribute | Bus division factor (ratio) | double | 0..1 |
| | | | machineID | Attribute | Device ID Eg, "00PRIMEPW R##PWOLB S111###KJ00 0012#####" | string | 0..1 |
| | | | rciAddress | Attribute | RCI (Remote Cabinet Interface) address Eg, "000102ff" | string | 0..1 |
| | | | vendorID | Attribute | Vendor name Eg, "Fujitsu" | string | 0..1 |
| | | | platform | Attribute | Platform name Eg, "PW", "PL" | string | 0..1 |
| | | | mode | Attribute | Various modes Eg, "mode1 mode2 mode3" | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | setupDate | Attribute | Setup date | dateTime | 0..1 |
| | | | usage | Attribute | Usage | string | 0..1 |
| | | | width | Attribute | Width (mm) | int | 0..1 |
| | | | depth | Attribute | Depth (mm) | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------|----------------|---|----------------|----------------|---|-----------|------|
| | | | height | Attribute | Height (mm) | int | 0..1 |
| | | | unitSize | Attribute | Number of rack units (U) | int | 0..1 |
| | | | weight | Attribute | Weight (kg) | double | 0..1 |
| | | | lastUpdate | Attribute | The date when data was last updated | dateTime | 0..1 |
| | | | updateInfo | Attribute | Update information | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| | | | Configuration | Element | Configuration information | - | 1 |
| Configuration | Server | Configuration information for the physical server (components and links between components) | Cabinet | Element | Cabinet | - | 0..* |
| | | | CPUBlade | Element | Server blade | - | 0..* |
| | | | SystemBoard | Element | System board | - | 0..* |
| | | | CPUModule | Element | CPU module | - | 0..* |
| | | | CPU | Element | CPU (chip) | - | 0..* |
| | | | CPUCore | Element | CPU core | - | 0..* |
| | | | CPUThread | Element | CPU thread | - | 0..* |
| | | | MemoryBoard | Element | Memory board | - | 0..* |
| | | | Memory | Element | Memory module (DIMM, SIMM, etc) | - | 0..* |
| | | | DDC | Element | DC-DC converter DC-DC converter for the system board and CPU | - | 0..* |
| | | | PCICard | Element | PCI card | - | 0..* |
| | | | MountKit | Element | Rack mount kit | - | 0..* |
| | | | OperationPanel | Element | Operation Panel | - | 0..* |
| | | | Fan | Element | Fan | - | 0..* |
| | | | FanTray | Element | Fan tray | - | 0..* |
| | | | PSUCabinet | Element | Dual power supply mechanism | 0 | 0..* |
| PSU | Element | Power Supply Unit | - | 0..* | | | |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|--------------------|----------------|--|-----------|------|
| | | | | | Power source (PSU, FEP) | | |
| | | | Panel | Element | Panel (eg, front panel, back panel) | - | 0..* |
| | | | FCPort | Element | Fibre Channel (FC) port information | - | 0..* |
| | | | EthernetPort | Element | Ethernet port information | - | 0..* |
| | | | PCIBox | Element | PCI box (unit for extending PCI slots) | - | 0..* |
| | | | PCIBoxExtent | Element | PCI box extension board | - | 0..* |
| | | | Firmware | Element | Firmware | - | 0..* |
| | | | RCINode | Element | RCI (Remote Cabinet Interface) node | - | 0..* |
| | | | OnBoardIO | Element | Onboard I/O | - | 0..* |
| | | | DTU | Element | Data Transfer Unit | - | 0..* |
| | | | Rack | Element | I/O rack | - | 0..* |
| | | | PCIDiskBox | Element | PCI/Disk box | - | 0..* |
| | | | Temperature | Element | Temperature sensor | - | 0..* |
| | | | Voltage | Element | Voltage sensor | - | 0..* |
| | | | DevicePhysicalPath | Element | Physical path to devices connected to PCI cards, etc | - | 0..* |
| | | | HardDisk | Element | Hard disk | - | 0..* |
| | | | Removable Disk | Element | Removable Disk | - | 0..* |
| | | | IOU | Element | I/O unit | - | 0..* |
| | | | NetworkBoard | Element | Network blade | - | 0..* |
| | | | ManagementBoard | Element | Management board | - | 0..* |
| | | | Battery | Element | Battery | - | 0..* |
| | | | Slot | Element | Slot | - | 0..* |
| | | | NetworkModule | Element | Network module | - | 0..* |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|---|-----------|------|
| | | | RAIDDevice | Element | RAID device | - | 0..* |
| | | | RAIDCache | Element | RAID cache | - | 0..* |
| | | | FileUnit | Element | File unit | - | 0..* |
| | | | MiscUnit | Element | Generic component | - | 0..* |
| | | | Other | Element | Other component | - | 0..* |
| | | | Link | Element | Links between components | - | 0..* |
| Cabinet | Configuration | Cabinet | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Format: "CABINET#" + value of the 'index' attribute (for PW) "Chassis" (for PL) | string | 0..1 |
| | | | index | Attribute | Cabinet number (cabinet identifier within the server) | string | 0..1 |
| | | | serialNumber | Attribute | Serial number | string | 0..1 |
| | | | rciAddress | Attribute | RCI address | string | 0..1 |
| | | | form | Attribute | Cabinet type Eg, RackMount, Pedestal | string | 0..1 |
| | | | slotType | Attribute | Type of slot | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| CPUBlade | Configuration | Server blade | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | slotType | Attribute | Type of slot | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|--|-----------|------|
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| SystemBoard | Configuration | System board | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Format: "SB#" + value of the 'index' attribute | string | 0..1 |
| | | | index | Attribute | System board number (system board identifier within the cabinet) | string | 0..1 |
| | | | sbType | Attribute | SB type | string | 0..1 |
| | | | cpuSlot | Attribute | CPU slot | int | 0..1 |
| | | | ddcMount | Attribute | DDC mount | int | 0..1 |
| | | | watt | Attribute | Power consumption | string | 0..1 |
| | | | pciSlot | Attribute | PCI slot | int | 0..1 |
| | | | version | Attribute | Board version, revision version | string | 0..1 |
| | | | serialNumber | Attribute | Serial number | string | 0..1 |
| | | | isDivided | Attribute | Division flag: Indicates whether the system board is divided using XSB or LSB true: divided false: not divided | boolean | 0..1 |
| | | | sbStatusCode | Attribute | SB status (CE information) | int | 0..1 |
| | | | slotType | Attribute | Type of slot | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|-----------------|----------------|---|-----------|------|
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| CPUModule | Configuration | CPU module | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | slotType | Attribute | Type of slot | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| CPU | Configuration | CPU (chip) | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Format: "CPU#" + value of the 'index' attribute | string | 0..1 |
| | | | index | Attribute | CPU number (CPU identifier within the system board). Socket number | string | 0..1 |
| | | | productID | Attribute | Manufacturer name | string | 0..1 |
| | | | clockFrequency | Attribute | Clock frequency Eg, "1100MHz" | string | 0..1 |
| | | | cacheSize | Attribute | Cache size Eg, "1.0MB" | string | 0..1 |
| | | | version | Attribute | Version Eg, "4.3.5" | string | 0..1 |
| | | | type | Attribute | CPU type Format: (hexadecimal code) | hexBinary | 0..1 |
| | | | versionRegister | Attribute | Version register | hexBinary | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|--|-----------|------|
| | | | upaRegister | Attribute | UPA register | hexBinary | 0..1 |
| | | | cpuType | Attribute | CPU type Eg, "SPARC64-III", "Itanium2" | string | 0..1 |
| | | | slotType | Attribute | Type of slot | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| CPUCore | Configuration | CPU core | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | index | Attribute | CPU identification number within the CPU chip | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| CPUThread | Configuration | CPU thread | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | index | Attribute | CPU thread identification number within the CPU core | string | 0..1 |
| | | | processorID | Attribute | CPU number visible from the operating system | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| MemoryBoard | Configuration | Memory board | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | slotType | Attribute | Type of slot | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|-------------------|---------------------|----------------|----------------|--|---------------|------|
| | | | status | Attribute | Generic status | string | 0..1 |
| Memory | Configurat ion | Memory module | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Format: value of the 'moduleType' attribute + "#" + value of the 'index' attribute | string | 0..1 |
| | | | index | Attribute | Memory number (memory identifier within the system board). Socket number | string | 0..1 |
| | | | moduleType | Attribute | Module specification (DIMM, SIMM, RIMM, etc) Eg, "RIMM" | string | 0..1 |
| | | | size | Attribute | Size Eg, "512MB" | string | 0..1 |
| | | | used | Attribute | Amount of memory used Eg, "256MB" | string | 0..1 |
| | | | unused | Attribute | Amount of memory not used Eg, "128 MB" | string | 0..1 |
| | | | type | Attribute | Type Format: (hexadecimal code) | hexBin ary | 0..1 |
| | | | rasType | Attribute | RAS function type Format: "Standard" "Mirror" "Raid" "Hotspare" | string | 0..1 |
| | | | designation | Attribute | Usage specification Eg, "DIMM-1 A" | string | 0..1 |
| | | | slotType | Attribute | Type of slot | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|--|-----------|------|
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| DDC | Configuration | DC-DC converter | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Format: "DDC#" + value of 'index' attribute, "DDC-A#" + value of 'index' attribute, "CPUDDC#" + value of 'index' attribute, "XBDDC#" + value of 'index' attribute | string | 0..1 |
| | | | index | Attribute | DDC number (DDC identifier within the system board or CPU) | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| PCICard | Configuration | PCI card | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Format: "PCI#" + value of 'index' attribute | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | index | Attribute | PCI number (PCI identifier within the | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------|----------------|---------------------|----------------|----------------|---|-----------|------|
| | | | | | cabinet or PCIBox/PCIDiskBox) | | |
| | | | description | Attribute | Card name information | string | 0..1 |
| | | | vendorID | Attribute | Vendor name Eg, "Fujitsu" | string | 0..1 |
| | | | multiPath | Attribute | PCI number for multi-path states | string | 0..1 |
| | | | cardID | Attribute | Card identification number as set up by DIP switches, etc | int | 0..1 |
| | | | irq | Attribute | IRQ value | int | 0..1 |
| | | | isOption | Attribute | Flag indicating whether this is an optional product | boolean | 0..1 |
| | | | slofType | Attribute | Type of slot | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| MountKit | Configuration | Rack mount kit | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Format: "PCI#" + value of 'index' attribute | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| OperationPanel | Configuration | Operation panel | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Format: | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|--------------------------------------|----------------|----------------|---|-----------|------|
| | | | | | "PANEL#" + value of 'index' attribute or "Op-Panel" | | |
| | | | index | Attribute | Panel number (panel identifier within the cabinet) | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| Fan | Configuration | Fan | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Format: "FAN#" + 'index' identifier | string | 0..1 |
| | | | index | Attribute | Fan number (fan identifier within the cabinet or PCIBox/PCIDiskBox) | string | 0..1 |
| | | | designation | Attribute | Usage specification Eg, "FAN SYS1" | string | 0..1 |
| | | | slotType | Attribute | Type of slot | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| FanTray | Configuration | Fan tray (the container for the fan) | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Format: "FANTRAY#" + value of | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|-----------------------------|----------------|----------------|--|-----------|------|
| | | | | | 'index' attribute, "FAN_TRAY #" + value of 'index' attribute | | |
| | | | index | Attribute | Fan tray number (fan tray identifier within the cabinet) | string | 0..1 |
| | | | slotType | Attribute | Type of slot | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| PSUCabinet | Configuration | Dual power supply mechanism | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | slotType | Attribute | Type of slot | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| PSU | Configuration | Power supply unit (PSU) | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Format: "PSU#" + value of 'index' attribute, "FEP#" + value of 'index' attribute | string | 0..1 |
| | | | index | Attribute | PSU number (PSU or FEP identifier within the cabinet or PCIBox/PCIDiskBox) | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|-------------------------------------|---------------------------|----------------|--|-----------|------|
| | | | | | Number for the power supply unit | | |
| | | | powStatus | Attribute | Power status | string | 0..1 |
| | | | option | Attribute | Power control option | string | 0..1 |
| | | | slotType | Attribute | Type of slot | string | 0..1 |
| | | | electricalOutletType | Attribute | Shape of the electrical outlet | string | 0..1 |
| | | | voltage | Attribute | Voltage Eg, "100 VAC" | string | 0..1 |
| | | | maxElectricityConsumption | Attribute | Maximum power consumption (W: watts) | int | 0..1 |
| | | | electricalOutletCount | Attribute | Number of power cords | int | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| Panel | Configuration | Panel (eg, front panel, back panel) | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | slotType | Attribute | Type of slot | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| PCIBox | Configuration | PCI box | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Format: "PCIBOX#" + value of 'index' attribute, "PCI_Box#" + | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|---|-------------------------|----------------|----------------|---|-----------|------|
| | | | | | value of 'index' attribute | | |
| | | | index | Attribute | PCI box number (PCIBox identifier within the chassis or rack) | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| PCIBoxExtent | Configuration | PCI box extension board | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | slotType | Attribute | Type of slot | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| Firmware | Configuration, LogicalServerConfiguration | Firmware | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Eg: "HCP", "POST" | string | 0..1 |
| | | | index | Attribute | Firmware identifier | string | 0..1 |
| | | | name | Attribute | Firmware name Eg, "HCP", "POST" | string | 0..1 |
| | | | version | Attribute | Version Eg, "25.03.0000" | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------------------------|----------------|----------------|--|-----------|------|
| | | | status | Attribute | Generic status | string | 0..1 |
| RCINode | Configuration | Remote Cabinet Interface (RCI) device | id | Attribute | Unique identifier | ID | 1 |
| | | | type | Attribute | Node type Eg, "host", "disk" | string | 0..1 |
| | | | rciAddress | Attribute | RCI address Eg, "000102ff" | string | 0..1 |
| | | | class | Attribute | RCI device class/subclass Eg, "0001", "0001-0a" | string | 0..1 |
| | | | machineName | Attribute | Name of the machine | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | rciStatus | Attribute | RCI status Format: "PON" "POFF" "alarm" | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| OnBoardIO | Configuration | Onboard I/O | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Format: "PCIOB#" + value of 'index' attribute | string | 0..1 |
| | | | index | Attribute | Identifier for the onboard I/O | string | 0..1 |
| | | | type | Attribute | I/O type Eg, "SCSI", "Ether", "USB", "VGA", "Serial", "Parallel" | string | 0..1 |
| | | | isOption | Attribute | Flag indicating whether this is an optional product | boolean | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|--------------------|----------------|---|-----------|------|
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| DTU | Configuration | Data Transfer Unit | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Format: "DTU#" + value of 'index' attribute | string | 0..1 |
| | | | index | Attribute | DTU number (DTU identifier within the DTB) | string | 0..1 |
| | | | currentPartitionID | Attribute | ID for the partition that the DTU currently belongs to | string | 0..1 |
| | | | nextPartitionID | Attribute | ID for the partition that the DTU will belong to the next time the power is turned on | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| Rack | Configuration | I/O Rack | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Format: "RACK#" + value of 'index' attribute | string | 0..1 |
| | | | index | Attribute | Rack number (rack identifier) | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|--|-----------|------|
| | | | | | within the server) | | |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| PCIDiskBox | Configuration | PCI disk box | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Format: "PCI_DISKBOX#" + value of 'index' attribute | string | 0..1 |
| | | | index | Attribute | Component number (PCIBox identifier within the rack) | string | 0..1 |
| | | | connectSB | Attribute | Number of the SB to which the PCI disk box is connected Eg, "00-1" | string | 0..1 |
| | | | slotType | Attribute | Type of slot | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| Temperature | Configuration | Temperature sensor | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 1 |
| | | | index | Attribute | Sensor number | int | 1 |
| | | | warn | Attribute | Maximum temperature after which a warning will be issued Maximum | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------------|----------------|------------------------------------|----------------|----------------|--|-----------|------|
| | | | | | threshold value | | |
| | | | critical | Attribute | Maximum temperature after which the temperature is critical. Minimum threshold value | int | 0..1 |
| | | | current | Attribute | Current temperature | int | 1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 1 |
| Voltage | Configuration | Voltage sensor | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 1 |
| | | | index | Attribute | Sensor number | int | 1 |
| | | | upperLimit | Attribute | Maximum voltage Maximum threshold value | int | 0..1 |
| | | | lowerLimit | Attribute | Minimum voltage Minimum threshold value | int | 0..1 |
| | | | current | Attribute | Current voltage | int | 1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 1 |
| DevicePhysicalPath | Configuration | Physical path to devices connected | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name (same as the | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------|----------------|--|-----------------|----------------|--|-----------|------|
| | | to PCI slots, etc. | | | physical path name) | | |
| | | | physicalPath | Attribute | Physical path name Eg, "/pci@80,2000/fibre-channel@1" | string | 0..1 |
| | | | driverVersion | Attribute | Device version Eg, "FC SCSI Host Bus Adapter" | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| HardDisk | Configuration | Hard disk | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | index | Attribute | Hard disk number | string | 0..1 |
| | | | vendorID | Attribute | Vendor name Eg, "Fujitsu" | string | 0..1 |
| | | | productID | Attribute | Product name Eg, "MAP3735NC" | string | 0..1 |
| | | | firmwareVersion | Attribute | Firmware version | string | 0..1 |
| | | | size | Attribute | Size (basic units: MiB) | string | 0..1 |
| | | | interfaceType | Attribute | Interface type Format: "SCSI" "IDE" "SAS" "SATA" "USB" | string | 0..1 |
| interfaceSetting | Attribute | Setting specific to the interface specified in the 'interfaceType' element "SCSI" -> SCSI-ID "IDE" -> IDE connection destination name "SAS" -> SAS value "SATA" -> | string | 0..1 | | | |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------|---|----------------------------|------------------|----------------|---|-----------|------|
| | | | | | SATA port name "USB" -> USB connection destination name | | |
| | | | slotType | Attribute | Type of slot | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| RemovableDisk | Configuration, LogicalServerConfiguration | Removable disk (DVD, etc.) | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Eg, "DVD", "DAT" | string | 0..1 |
| | | | index | Attribute | Removable disk number | string | 0..1 |
| | | | size | Attribute | Size (basic units: MiB) | string | 0..1 |
| | | | type | Attribute | Type Eg, "DVD", "DAT", "CDROM" | string | 0..1 |
| | | | interfaceType | Attribute | Interface type Format: "SCSI" "IDE" "SAS" "SATA" "USB" | string | 0..1 |
| | | | interfaceSetting | Attribute | Setting specific to the interface specified in the 'interfaceType' element "SCSI" -> SCSI-ID "IDE" -> IDE connection destination name "SAS" -> SAS value "SATA"-> SATA port | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|--|-----------|------|
| | | | | | name "USB" -> USB connection destination name | | |
| | | | slotType | Attribute | Type of slot | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| IOU | Configuration | I/O unit | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | index | Attribute | IOU number | string | 0..1 |
| | | | isDivided | Attribute | Division flag: Indicates whether the system board is divided using XSB or LSB true: divided false: not divided | boolean | 0..1 |
| | | | slotType | Attribute | Type of slot | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| status | Attribute | Generic status | string | 0..1 | | | |
| NetworkBoard | Configuration | Network blade | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | type | Attribute | Network type | string | 0..1 |
| | | | slotType | Attribute | Type of slot | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------|----------------|--|----------------|----------------|--|-----------|------|
| | | | status | Attribute | Generic status | string | 0..1 |
| ManagementBoard | Configuration | Management board (such as an SCF board or MMB) | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | index | Attribute | Identifier for the management board (SCF board/MMB) | string | 0..1 |
| | | | version | Attribute | Version Eg, "9" | string | 0..1 |
| | | | macAddress | Attribute | MAC address Eg, "00:E0:00:C4:84:F0" | string | 0..1 |
| | | | ipAddress | Attribute | IP address Eg, "192.0.2.0" | string | 0..1 |
| | | | netmask | Attribute | Network mask Eg, "255.255.255.0" | string | 0..1 |
| | | | slotType | Attribute | Type of slot | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| Battery | Configuration | Battery | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name Format: "UPS-B#" + value of 'index' attribute, "DARY-B#" + value of 'index' attribute | string | 0..1 |
| | | | index | Attribute | Battery number (battery information identifier within the partition) | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|-----------------------------------|---------------------|------------------|----------------|--|-----------|------|
| | | | lifeTime | Attribute | Lifetime (expiry date) Format: "ccyy/mm" | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| Slot | Configuration, ArrayConfiguration | Slot | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | type | Attribute | Slot type ("CPU", "Memory", "CA", etc) | string | 1 |
| | | | number | Attribute | Number | string | 0..1 |
| | | | occupied | Attribute | Occupied by another slot ID reference to the occupied slot. | IDREF | 0..1 |
| | | | interfaceType | Attribute | Interface type Format: "SCSI" "IDE" "SAS" "SATA" "USB" | string | 0..1 |
| | | | interfaceSetting | Attribute | Setting specific to the interface specified in the 'interfaceType' element "SCSI" -> SCSI-ID "IDE" -> IDE connection destination name "SAS" -> SAS value "SATA"-> SATA port name "USB" -> USB | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------|----------------|--|-------------------|----------------|--|-----------|------|
| | | | | | connection destination name | | |
| | | | operationalStatus | Attribute | Operation status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| | | | healthState | Attribute | Health status | string | 0..1 |
| NetworkModule | Configuration | Network module (eg, XFP, SFP or X2 module) | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | slotType | Attribute | Type of slot | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| RAIDDevice | Configuration | RAID disk information | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name (logical device name) | string | 0..1 |
| | | | index | Attribute | RAID device number Eg, "(0, 0, 0, 0)" | string | 0..1 |
| | | | raidLevel | Attribute | RAID level Eg, "raid-5" | string | 0..1 |
| | | | writePolicy | Attribute | Write policy Eg, "writeThrough" | string | 0..1 |
| | | | size | Attribute | Size (basic units: MiB) | string | 0..1 |
| | | | pciLocation | Attribute | PCI location | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| RAIDCache | Configuration | RAID cache | id | Attribute | Unique identifier | ID | 1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|--|----------------|----------------|---|-----------|------|
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | size | Attribute | Size (including units) | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| FileUnit | Configuration | File unit | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | slotType | Attribute | Type of slot | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| MiscUnit | Configuration | Miscellaneous component (General attributes have already been set up. Additional information can only be expressed using the "additions" attribute.) | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | index | Attribute | Component number | string | 0..1 |
| | | | type | Attribute | Type of component Eg, "PCIBoard", "GSWB" | string | 0..1 |
| | | | serialNumber | Attribute | Serial number | string | 0..1 |
| | | | additions | Attribute | Additional attributes Format: 'Attribute1=Value1 Attribute2=Value2 ...' Eg, "currentPID=1 nextPID=2" | string | 0..1 |
| | | | slotType | Attribute | Type of slot | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|-----------------------|-----------|------|
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| Other | Configuration | Other components | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| | | | - | Text | Arbitrary content | string | 0..1 |

6.13 Array

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%Array[./#expected/rc:Array/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|-------------------|----------------|-----------------------|-----------|------|
| Array | | RAID Array | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | modelName | Attribute | Model name | string | 0..1 |
| | | | boxID | Attribute | Box ID | string | 0..1 |
| | | | productID | Attribute | Product ID | string | 0..1 |
| | | | form | Attribute | Form | string | 0..1 |
| | | | manufacturer | Attribute | Manufacturer | string | 0..1 |
| | | | serialNumber | Attribute | Serial number | string | 0..1 |
| | | | version | Attribute | Version | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------------|----------------|--------------------------------------|---------------------------------|----------------|--------------------------------------|-----------|------|
| | | | status | Attribute | Status | string | 0..1 |
| | | | healthState | Attribute | Health status | string | 0..1 |
| | | | ArrayConfiguration | Element | RAID array configuration information | - | 0..1 |
| ArrayConfiguration | Array | RAID array configuration information | ControllerConfigurationServices | Element | Access control information | - | 0..1 |
| | | | ProtocolController | Element | Access restriction information | - | 0..* |
| | | | SoftwareIdentity | Element | Software license information | - | 0..* |
| | | | Chassis | Element | Chassis information | - | 0..* |
| | | | ExpansionDriveOption | Element | Drive option (LT) | - | 0..* |
| | | | DriveExpansionClusterOption | Element | Drive expansion cluster option (LT) | - | 0..* |
| | | | Slot | Element | Slot information | - | 0..* |
| | | | ControllerModule | Element | Module information (CM) | - | 0..* |
| | | | Card | Element | Module information (CA, RA) | - | 0..* |
| | | | PhysicalMemory | Element | Module information (memory) | - | 0..* |
| | | | FCPort | Element | FC port information | - | 0..* |
| | | | SCSIProtocolEndPoint | Element | SCSI connection information | - | 0..* |
| | | | EthernetPort | Element | Ethernet port information | - | 0..* |
| | | | iSCSIProtocolEndPoint | Element | iSCSI connection information | - | 0..* |
| FCLINKPort | Element | FCLINK port information | - | 0..* | | | |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|------------------------------------|----------------|--|-----------|------|
| | | | FCLINKProtocolEndPoint | Element | FCLINK connection information | - | 0..* |
| | | | OCLINKPort | Element | OCLINK port information | - | 0..* |
| | | | OCLINKProtocolEndPoint | Element | OCLINK connection information | - | 0..* |
| | | | DiskDrive | Element | Disk drive information | - | 0..* |
| | | | StorageExtent | Element | SLU information | - | 0..* |
| | | | StorageSystemDiskSet | Element | System disk group information | - | 0..* |
| | | | StorageRedundancySet | Element | Hot spare group information | - | 0..* |
| | | | StorageVolume | Element | LUN/volume information | - | 0..* |
| | | | StoragePool | Element | Storage pool information | - | 0..* |
| | | | CompositeExtent | Element | RAID group information | - | 0..* |
| | | | CompositeExtentBasedOn | Element | Disk drive allocation information | - | 0..* |
| | | | StorageHardwareIDManagementService | Element | HBA management information | - | 0..* |
| | | | StorageHardwareID | Element | HBA address information | - | 0..* |
| | | | AuthorizedPrivilege | Element | HBA access control information | - | 0..* |
| | | | ProtocolControllerForUnit | Element | Affinity group (LUN mapping) information | - | 0..* |
| | | | MiscUnit | Element | Other general components | - | 0..* |
| | | | Other | Element | Other components (generic) | - | 0..* |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------------------------|--------------------|--------------------------------|-------------------|----------------|--|-----------|------|
| | | | Link | Element | Links between two components | - | 0..* |
| | | | Mapping | Element | Mapping information (link information with allocation restrictions) (Deprecated) | - | 0..* |
| ControllerConfigurationServices | ArrayConfiguration | Access control information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| | | | healthState | Attribute | Health status | string | 0..1 |
| ProtocolController | ArrayConfiguration | Access restriction information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | number | Attribute | Number | long | 0..1 |
| | | | type | Attribute | Type of access restriction | string | 0..1 |
| | | | volumeType | Attribute | Type of restricted volume | string | 0..1 |
| | | | subSystemID | Attribute | Subsystem ID | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| | | | healthState | Attribute | Health status | string | 0..1 |
| SoftwareIdentity | ArrayConfiguration | Software license information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | serialNumber | Attribute | License (serial) number | string | 0..1 |
| | | | targetType | Attribute | Target type | string | 0..1 |
| | | | releaseDate | Attribute | Release date | dateTime | 0..1 |
| | | | installDate | Attribute | Installation date | dateTime | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------------|--------------------|-----------------------|--------------------|----------------|---|-----------|------|
| | | | status | Attribute | Status | string | 0..1 |
| | | | healthState | Attribute | Health status | string | 0..1 |
| Chassis | ArrayConfiguration | Enclosure information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | throughFlag | Attribute | Through flag (true if not B.T.O.(Build To Order) checked) | boolean | 0..1 |
| | | | type | Attribute | Type CE/DE | string | 1 |
| | | | numberOfPowerCords | Attribute | Number of power cords | string | 0..1 |
| | | | inputVoltage | Attribute | Power voltage | string | 0..1 |
| | | | height | Attribute | Height | string | 0..1 |
| | | | depth | Attribute | Depth | string | 0..1 |
| | | | width | Attribute | Width | string | 0..1 |
| | | | weight | Attribute | Weight | string | 0..1 |
| | | | manufacturer | Attribute | Manufacturer | string | 0..1 |
| | | | model | Attribute | Model name | string | 0..1 |
| | | | serialNumber | Attribute | Serial number | string | 0..1 |
| | | | version | Attribute | Version | string | 0..1 |
| | | | partNumber | Attribute | Part number (CE number or DE number) | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| healthState | Attribute | Health status | string | 0..1 | | | |
| ExpansionDrive Option | ArrayConfiguration | Drive option (LT) | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------------------|--------------------|-------------------------------------|-------------------|----------------|-----------------------|-----------|------|
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| | | | healthState | Attribute | Health status | string | 0..1 |
| DriveExpansionClusterOption | ArrayConfiguration | Drive expansion cluster option (LT) | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| | | | healthState | Attribute | Health status | string | 0..1 |
| ControllerModule | ArrayConfiguration | Module information (CM) | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | manufacturer | Attribute | Manufacturer | string | 0..1 |
| | | | model | Attribute | Model name | string | 0..1 |
| | | | serialNumber | Attribute | Serial number | string | 0..1 |
| | | | version | Attribute | Version | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| | | | healthState | Attribute | Health status | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------|--------------------|-------------------------------------|-------------------|----------------|-----------------------|-----------|------|
| Card | ArrayConfiguration | Module information (CA, RA) | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | type | Attribute | Type CM/CA | string | 0..1 |
| | | | portAmount | Attribute | Number of ports | string | 0..1 |
| | | | manufacturer | Attribute | Manufacturer | string | 0..1 |
| | | | model | Attribute | Model name | string | 0..1 |
| | | | serialNumber | Attribute | Serial number | string | 0..1 |
| | | | version | Attribute | Version | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| healthState | Attribute | Health status | string | 0..1 | | | |
| PhysicalMemory | ArrayConfiguration | Module information (memory) | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | capacity | Attribute | Memory size | string | 0..1 |
| | | | partNumber | Attribute | Part number | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| | | | healthState | Attribute | Health status | string | 0..1 |
| FCPort | ArrayConfiguration | Fibre Channel (FC) port information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | resetGroupID | Attribute | Reset group ID | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------|--------------------|-----------------------------|-------------------|----------------|--|-----------|------|
| | | | loopID | Attribute | Loop ID | string | 0..1 |
| | | | security | Attribute | Security | string | 0..1 |
| | | | portType | Attribute | Port type | string | 0..1 |
| | | | portNumber | Attribute | Port number | string | 0..1 |
| | | | maxSpeed | Attribute | Maximum connection speed | string | 0..1 |
| | | | speed | Attribute | Connection speed ("0" means "not connected") | string | 0..1 |
| | | | permanentAddress | Attribute | WWN (World Wide Name) for the FC port | string | 0..1 |
| | | | networkAddress | Attribute | FC ID | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| healthState | Attribute | Health status | string | 0..1 | | | |
| SCSIProtocolEndpoint | ArrayConfiguration | SCSI connection information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | connectionType | Attribute | Connection type | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| healthState | Attribute | Health status | string | 0..1 | | | |
| EthernetPort | ArrayConfiguration | Ethernet port information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | maxSpeed | Attribute | Maximum connection speed | string | 0..1 |
| | | | speed | Attribute | Connection speed ("0" means "not connected") | string | 0..1 |
| | | | security | Attribute | Security | string | 0..1 |
| | | | portType | Attribute | Port type Format: "10BaseT" "10-100BaseT" | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------------|--------------------|------------------------------|-------------------|----------------|---------------------------------|-----------|------|
| | | | | | " "100BaseT" "1000BaseT" | | |
| | | | portNumber | Attribute | Port number | string | 0..1 |
| | | | macAddress | Attribute | MAC address | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| | | | healthState | Attribute | Health status | string | 0..1 |
| ISCSIProtocolEndPoint | ArrayConfiguration | iSCSI connection information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | connectionType | Attribute | Connection type | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| | | | healthState | Attribute | Health status | string | 0..1 |
| FCLINKPort | ArrayConfiguration | FCLINK port information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | portType | Attribute | Port type | string | 0..1 |
| | | | portNumber | Attribute | Port number | string | 0..1 |
| | | | maxSpeed | Attribute | Maximum connection speed | string | 0..1 |
| | | | speed | Attribute | Connection speed | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| | | | healthState | Attribute | Health status | string | 0..1 |
| FCLINKProtocolEndPoint | ArrayConfiguration | FCLINK port information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | connectionType | Attribute | Connection type | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| | | | healthState | Attribute | Health status | string | 0..1 |
| OCLINKPort | ArrayConfiguration | OCLINK port | id | Attribute | Unique identifier | ID | 1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------------|--------------------|-------------------------------|-------------------|----------------|--|-----------|------|
| | | information | name | Attribute | Formal name | string | 0..1 |
| | | | portType | Attribute | Port type | string | 0..1 |
| | | | portNumber | Attribute | Port number | string | 0..1 |
| | | | maxSpeed | Attribute | Maximum connection speed | string | 0..1 |
| | | | speed | Attribute | Connection speed | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| | | | healthState | Attribute | Health status | string | 0..1 |
| OCLINKProtocolEndPoint | ArrayConfiguration | OCLINK connection information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | connectionType | Attribute | Connection type | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| | | | healthState | Attribute | Health status | string | 0..1 |
| DiskDrive | ArrayConfiguration | Disk drive information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | physicalSize | Attribute | Physical disk size | string | 0..1 |
| | | | rpm | Attribute | RPM (revolutions per minute) | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | manufacturer | Attribute | Manufacturer | string | 0..1 |
| | | | model | Attribute | Model name | string | 0..1 |
| | | | serialNumber | Attribute | Serial number | string | 0..1 |
| | | | version | Attribute | Version | string | 0..1 |
| | | | partNumber | Attribute | Disk ID number | string | 0..1 |
| | | | maxMediaSize | Attribute | Disk size (for system disks, this is the size of the area that can be used by users, | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------------|--------------------|-------------------------------|-------------------|----------------|----------------------------|-----------|------|
| | | | | | excluding the system area) | | |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| | | | healthState | Attribute | Health status | string | 0..1 |
| StorageExtent | ArrayConfiguration | SLU information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | number | Attribute | Number | string | 0..1 |
| | | | volumeType | Attribute | Volume type | string | 0..1 |
| | | | mluType | Attribute | MLU type | string | 0..1 |
| | | | mluMode | Attribute | MLU mode | string | 0..1 |
| | | | mluNumber | Attribute | Mainframe LUN number | string | 0..1 |
| | | | oluNumber | Attribute | OpenSystem LUN number | string | 0..1 |
| | | | startLBA | Attribute | Start LBA number | string | 0..1 |
| | | | lbaCount | Attribute | LBA count | string | 0..1 |
| | | | blockSize | Attribute | Block size | string | 0..1 |
| | | | numberOfBlocks | Attribute | Number of blocks | string | 0..1 |
| | | | capacity | Attribute | Capacity | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| | | | healthState | Attribute | Health status | string | 0..1 |
| StorageSystem DiskSet | ArrayConfiguration | System disk group information | id | Attribute | Unique identifier | string | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| StorageRedundancySet | ArrayConfiguration | Hot spare group information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------|--------------------|-------------------------------|-------------------|----------------|--|-----------|------|
| | | | redundancy Status | Attribute | Status | string | 0..1 |
| StorageVolume | ArrayConfiguration | LUN/ volume information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | number | Attribute | Number | string | 0..1 |
| | | | volumeType | Attribute | Volume type | string | 0..1 |
| | | | mluType | Attribute | MLU type | string | 0..1 |
| | | | mluMode | Attribute | MLU mode | string | 0..1 |
| | | | mluNumber | Attribute | Mainframe LUN number | string | 0..1 |
| | | | oluNumber | Attribute | OpenSystem LUN number | string | 0..1 |
| | | | startLBA | Attribute | Start LBA number | string | 0..1 |
| | | | lbaCount | Attribute | LBA count | string | 0..1 |
| | | | errorMethodology | Attribute | RAID type | string | 0..1 |
| | | | blockSize | Attribute | Block size | string | 0..1 |
| | | | numberOfBlocks | Attribute | Number of blocks | string | 0..1 |
| | | | consumableBlocks | Attribute | Number of blocks that can be used | string | 0..1 |
| | | | access | Attribute | Access type | string | 0..1 |
| | | | capacity | Attribute | Capacity | string | 0..1 |
| | | | dvcf | Attribute | Duplicated volume (Dual Volume Control Facility) | string | 0..1 |
| | | | encryption | Attribute | Encrypted volume | string | 0..1 |
| | | | snapDataVolume | Attribute | Copy destination volume for Snap OPC | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| status | Attribute | Status | string | 0..1 | | | |
| healthState | Attribute | Health status | string | 0..1 | | | |
| StoragePool | ArrayConfiguration | Storage pool | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------------|--------------------|-----------------------------------|-----------------------|----------------|---|-----------|------|
| | | information | totalManagedSpace | Attribute | Total capacity | string | 0..1 |
| | | | remainingManagedSpace | Attribute | Available capacity | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| | | | healthState | Attribute | Health status | string | 0..1 |
| CompositeExtent | ArrayConfiguration | RAID group information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | cmReference | Attribute | Responsible CM number | string | 0..1 |
| | | | ldeMode | Attribute | LDE mode | string | 0..1 |
| | | | number | Attribute | Number | string | 0..1 |
| | | | cvmMode | Attribute | CVM mode | string | 0..1 |
| | | | numberOfBlocks | Attribute | Number of blocks | string | 0..1 |
| | | | extentStripeLength | Attribute | Number of disks in the RAID configuration | string | 0..1 |
| | | | access | Attribute | Access type | string | 0..1 |
| | | | errorMethodology | Attribute | RAID type | string | 0..1 |
| | | | blockSize | Attribute | Block size | string | 0..1 |
| | | | consumableBlocks | Attribute | Number of blocks that can be used | string | 0..1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| healthState | Attribute | Health status | string | 0..1 | | | |
| CompositeExtentBasedOn | ArrayConfiguration | Disk drive allocation information | id | Attribute | Unique identifier | ID | 1 |
| | | | orderIndex | Attribute | Order index | string | 0..1 |
| | | | userDataStripeDepth | Attribute | Striping block size | string | 0..1 |
| | | | startingAddress | Attribute | Starting address | string | 0..1 |
| | | | endingAddress | Attribute | Ending address | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------------------------|--------------------|--|------------------------|----------------|---|-----------|------|
| StorageHardwareIDManagementService | ArrayConfiguration | HBA management information | id | Attribute | Unique identifier | ID | 1 |
| | | | operationalStatus | Attribute | Operational status | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| | | | healthState | Attribute | Health status | string | 0..1 |
| StorageHardwareID | ArrayConfiguration | HBA address information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | storageID | Attribute | Host WWPN | string | 0..1 |
| | | | os | Attribute | Operating system used | string | 0..1 |
| | | | logicalChannelAddress | Attribute | Logical channel address | string | 0..1 |
| | | | physicalChannelAddress | Attribute | Physical channel address | string | 0..1 |
| | | | linkStationUnitNumber | Attribute | Unit identification number for the OCLS(Optical Channel Link Station) or FCLS(FCLINK Station) | string | 0..1 |
| | | | linkStationPortNumber | Attribute | Low-order port address for the OCLS or FCLS | string | 0..1 |
| | | | caType | Attribute | Type of channel adapter | string | 0..1 |
| | | | linkPort | Attribute | Port name on the storage side | string | 0..1 |
| AuthorizedPrivilege | ArrayConfiguration | HBA access control information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | activities | Attribute | READ/ WRITE permissions | string | 0..1 |
| ProtocolControllerForUnit | ArrayConfiguration | Affinity group (LUN mapping) information | id | Attribute | Unique identifier | ID | 1 |
| | | | deviceNumber | Attribute | Mapping LUN number | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|-------------------|----------------|-----------------------|-----------|------|
| | | | storageVolumeName | Attribute | Volume name | string | 0..1 |

6.14 StorageVirtualizer

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%StorageVirtualizer[./#expected/rc:StorageVirtualizer/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------------|----------------|---------------------|---------------------------------|----------------|---------------------------|-----------|------|
| StorageVirtualizer | | Storage virtualizer | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | modelName | Attribute | Model name | string | 0..1 |
| | | | StorageVirtualizerConfiguration | Element | Configuration information | - | 0..1 |

6.15 NASHead

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%NASHead[./#expected/rc:NASHead/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------------|----------------|---------------------------|-----------|------|
| NASHead | | NAS head | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | modelName | Attribute | Model name | string | 0..1 |
| | | | NASHeadConfiguration | Element | Configuration information | - | 0..1 |

6.16 Self-containedNASSystem

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%Self-containedNASSystem[./#expected/rc:Self-containedNASSystem/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-------------------------|----------------|---------------------|----------------|----------------|-----------------------|-----------|------|
| Self-containedNASSystem | | NAS | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|--------------------------------------|----------------|---------------------------|-----------|------|
| | | | modelName | Attribute | Model name | string | 0..1 |
| | | | Self-containedNASSystemConfiguration | Element | Configuration information | - | 0..1 |

6.17 TapeLibrary

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%TapeLibrary[#expected/rc:TapeLibrary/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|--------------------------|----------------|---------------------------|-----------|------|
| TapeLibrary | | Tape library | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | modelName | Attribute | Model name | string | 0..1 |
| | | | TapeLibraryConfiguration | Element | Configuration information | - | 0..1 |

6.18 Switch

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%Switch[#expected/rc:Switch/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|----------------------------------|------------------------|----------------|---------------------------|-----------|------|
| Switch | | Fibre Channel or Ethernet switch | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | modelName (Deprecated) | Attribute | Model name | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | Configuration | Element | Configuration information | - | 0..1 |

6.19 NetworkDevice

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: /%NetworkDevice[./#expected/rc:NetworkDevice/@id = '...']

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------|----------------|-------------------------|----------------|----------------|--|-----------|------|
| NetworkDevice | | Physical network device | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | type | Attribute | String indicating the device type "Edge" # Edge node "L2SW" # Layer 2 switch "L3SW" # Layer 3 switch "Router" # Router "FW" # Firewall "SLB" # Server load balancer "FWLB" # Firewall load balancer "Repeater" # Repeater hub * For composite devices such as IPCOM, add all attributes using "+" Eg, "Router+FW+SLB+FWLB" | string | 0..1 |
| | | | use | Attribute | Usage One of the following: "management" # Used only by the admin LAN "service" # Used only by the public LAN "both" # Used by both the admin LAN and the public LAN | string | 0..1 |
| | | | version | Attribute | Hardware version The notation method is hardware dependent, so the format is not specified here. Use the | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|--------------------------------|------------------------|----------------|--|-----------|------|
| | | | | | hardware-specific format as below. Eg, "RevA1 (SH1816)" | | |
| | | | modelName (Deprecated) | Attribute | Model name | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | Connector | Element | Physical connector information The point connecting links and nodes on the physical network | - | 0..* |
| Connector | NetworkDevice | Physical connector information | id | Attribute | Unique identifier | ID | 1 |
| | | | portAddress | Attribute | This string corresponds uniquely with a physical connector, and makes it possible to recognize where in the device configuration it is located. Normally, this is the value of the 'ifDescr' attribute for the device. However, in situations such as when it is not possible to work out the configuration based only on this string, this string can be modified so that the location in the configuration can be identified. Eg, | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|---|-----------|------|
| | | | | | "FastEther0/1" "Slot:1, Port:1" | | |
| | | | macAddress | Attribute | MAC address allocated to the physical connector | string | 0..1 |
| | | | type | Attribute | String indicating the type of connector for the physical port This is physical information, and so is classified here according to shape. One of the following: "Unknown" # Unknown "Other" # Undefined "Ethernet" # Ethernet "GBIC" # GBIC "ATM" # ATM "FDDI" # FDDI | string | 0..1 |

6.20 PatchPanel

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: /%PatchPanel[./#expected/rc:PatchPanel/@id = '...']

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|-----------------------|-----------|------|
| PatchPanel | | Patch panel | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |

6.21 MediaConverter

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%MediaConverter[./#expected/rc:MediaConverter/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------|----------------|---------------------|----------------|----------------|-----------------------|-----------|------|
| MediaConverter | | Media converter | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |

6.22 EIARack

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%EIARack[./#expected/rc:EIARack/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|-------------------------|------------------------|----------------|-----------------------------------|-----------|------|
| EIARack | | Information about racks | id | Attribute | Unique identifier (rack ID) | ID | 1 |
| | | | nickname | Attribute | Nickname (rack name) | string | 0..1 |
| | | | modelName | Attribute | Model name | string | 0..1 |
| | | | size | Attribute | Unit size | int | 1 |
| | | | electricPowerCapacity | Attribute | Power capacity | int | 0..1 |
| | | | watt | Attribute | Rack power consumption | int | 0..1 |
| | | | electricalOutletNumber | Attribute | Number of electrical outlets | int | 0..1 |
| | | | description | Attribute | Supplementary information | string | 0..1 |
| | | | MountUnit | Element | Information about mounted devices | - | 0..* |
| MountUnit | EIARack | Information about | id | Attribute | Unique identifier | ID | 1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|---|-----------|------|
| | | mounted devices | idref | Attribute | Reference to information about the device | IDREF | 1 |
| | | | position | Attribute | Mount position (unit number) | int | 0..1 |
| | | | orientation | Attribute | Vertical/horizontal specification Format: "portrait" (vertical) or "landscape" (horizontal) | string | 0..1 |
| | | | description | Attribute | Memo | string | 0..1 |

6.23 Monitor

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%Monitor[./#expected/rc:Monitor/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|-----------------|----------------|---|-----------|------|
| Monitor | | Monitor | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | nickname | Attribute | Display name (logical device name) | string | 0..1 |
| | | | lowPowerStandby | Attribute | Flag indicating whether the device is in lower power standby mode | boolean | 0..1 |
| | | | powerOff | Attribute | Flag indicating whether the power is turned off | boolean | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Drawing number | string | 0..1 |

6.24 Printer

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%Printer[./#expected/rc:Printer/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|-----------------------|-----------|------|
| Printer | | Printer | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |

6.25 KVMSwitch

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%KVMSwitch[./#expected/rc:KVMSwitch/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|-----------------------|-----------|------|
| KVMSwitch | | KVM switch | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |

6.26 PowerStrip

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%PowerStrip[./#expected/rc:PowerStrip/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------------|----------------|----------------|-----------------------|-----------|------|
| PowerStrip | | Power strip (power board) | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |

6.27 RCCU

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%RCCU[./#expected/rc:RCCU/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------------------------|----------------|----------------|-----------------------|-----------|------|
| RCCU | | RCCU (Remote Console Connection Unit) | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |

6.28 UserDefinedUnit

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%UserDefinedUnit[./#expected/rc:UserDefinedUnit/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------|----------------|--|----------------|----------------|-----------------------|-----------|------|
| UserDefinedUnit | | Information about user-defined devices | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | modelName | Attribute | Model name | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-------------------------------|-----------------|--|------------------------------|----------------|---|-----------|------|
| | | | width | Attribute | Width (including units) | string | 0..1 |
| | | | depth | Attribute | Depth (including units) | string | 0..1 |
| | | | height | Attribute | Height (including units) | string | 0..1 |
| | | | unitSize | Attribute | Number of units (including units) | string | 0..1 |
| | | | isHalfSize | Attribute | Flag indicating whether the device is half size | boolean | 0..1 |
| | | | weight | Attribute | Weight (including units) | string | 0..1 |
| | | | usage | Attribute | Usage | string | 0..1 |
| | | | form | Attribute | Cabinet type (eg, rack mounted, pedestal) | string | 0..1 |
| | | | setupDate | Attribute | Setup date | dateTime | 0..1 |
| | | | registrationName | Attribute | Management registered name for the device | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | drawingNumber | Attribute | Drawing number | string | 0..1 |
| | | | lastUpdate | Attribute | The date when the data was last updated | dateTime | 0..1 |
| | | | updateInfo | Attribute | Update information | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| | | | UserDefinedUnitConfiguration | Element | Configuration information | - | 0..1 |
| | | | Performance | Element | Performance information | - | 0..1 |
| UserDefinedUnit Configuration | UserDefinedUnit | Configuration information for user-defined devices | PSU | Element | Power supply unit Power supply (PSU or FEP) | - | 0..* |
| | | | FCPort | Element | Fibre Channel (FC) port information | - | 0..* |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|---------------------------|-----------|------|
| | | | EthernetPort | Element | Ethernet port information | - | 0..* |

6.29 Block

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: /%Block[./#expected/rc:Block/@id = '...']

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------|----------------|-------------------------|-----------------------|----------------|---|-----------|------|
| Block | | Division information | id | Attribute | Unique identifier | ID | 1 |
| | | | address | Attribute | Supplementary address information (site name, floor, etc) | string | 0..1 |
| | | | type | Attribute | Type Format: "site" "buildings" "building" "floors" "floor" "rooms" "room" "partition" "racks" | string | 0..1 |
| | | | width | Attribute | Width (including units) | string | 0..1 |
| | | | depth | Attribute | Depth (including units) | string | 0..1 |
| | | | height | Attribute | Height (including units) | string | 0..1 |
| | | | description | Attribute | Supplementary information | string | 0..1 |
| | | | name | Attribute | Name | string | 0..1 |
| | | | numberOfFloors | Attribute | Number of floors | int | 0..1 |
| | | | spaceCapacity | Attribute | Total floor area (square meters) | int | 0..1 |
| | | | electricPowerCapacity | Attribute | Power capacity (KVA) | int | 0..1 |
| | | | networkBandwidth | Attribute | Available communication bandwidth (kbps) | int | 0..1 |
| ipManagementCapacity | Attribute | Number of management IP | int | 0..1 | | | |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|---|-----------|------|
| | | | | | addresses allowed | | |
| | | | totalOperators | Attribute | Total number of operators | int | 0..1 |
| | | | phoneNumber | Attribute | Main telephone number | string | 0..1 |
| | | | emailAddresses | Attribute | Email address for inquiries | string | 0..1 |
| | | | lastUpdate | Attribute | Date of the last update | dateTime | 0..1 |
| | | | updateInfo | Attribute | Update information | string | 0..1 |
| | | | Block | Element | Sub-division information | - | 0..* |
| | | | Component | Element | Information about the position of the device within the configuration | - | 0..* |

6.30 Component

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: /%Component[./#expected/rc:Component/@id = '...']

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---|----------------|----------------|---|-----------|------|
| Component | | Information about the position of the device in the configuration (independent device, rack-mounted, etc) | id | Attribute | Unique identifier | ID | 1 |
| | | | idref | Attribute | Reference to information about configured devices | IDREF | 1 |
| | | | xDimension | Attribute | x dimension | string | 0..1 |
| | | | yDimension | Attribute | y dimension | string | 0..1 |
| | | | zDimension | Attribute | z dimension (height direction) | string | 0..1 |
| | | | setupDate | Attribute | Setup date | dateTime | 0..1 |
| | | | direction | Attribute | Direction | string | 0..1 |
| | | | description | Attribute | Supplementary information | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|-------------------------|-----------|------|
| | | | lastUpdate | Attribute | Date of the last update | dateTime | 0..1 |
| | | | updateInfo | Attribute | Update information | string | 0..1 |

6.31 OS

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%OS[./#expected/rc:OS/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---|----------------|----------------|--|-----------|------|
| OS | | Information about each operating system | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Operating system name | string | 1 |
| | | | url | Attribute | File storage location | anyURI | 0..1 |
| | | | vendor | Attribute | Vendor name | string | 0..1 |
| | | | family | Attribute | Operating system family specification Either "Solaris", "Windows" or "Linux" | string | 0..1 |
| | | | productName | Attribute | Formal product name | string | 0..1 |
| | | | version | Attribute | Version | string | 0..1 |
| | | | deployMethod | Attribute | Deployment method install: normal installation clone: copying a disk image | string | 0..1 |
| | | | comment | Attribute | Comment (supplementary explanation) | string | 0..1 |
| | | | Scripts | Element | Available scripts | - | 0..1 |
| Packages | Element | Package configuration information | - | 0..1 | | | |

6.32 Program

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: /%Program[#expected/rc:Program/@id = '...']

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|-----------------------------------|----------------|----------------|--|-----------|------|
| Program | | Information about each program | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Program name | string | 1 |
| | | | url | Attribute | Image storage location | anyURI | 1 |
| | | | vendor | Attribute | Vendor name | string | 0..1 |
| | | | family | Attribute | Executable operating system family specification Either "Solaris", "Windows" or "Linux" | string | 0..1 |
| | | | productName | Attribute | Formal product name | string | 0..1 |
| | | | version | Attribute | Version | string | 0..1 |
| | | | deployMethod | Attribute | Deployment method install: normal installation clone: copying a disk image | string | 0..1 |
| | | | uninstallable | Attribute | Uninstallation specification (possible/not possible) true: can be uninstalled false: cannot be uninstalled (default) | boolean | 0..1 |
| | | | comment | Attribute | Comment (supplementary explanation) | string | 0..1 |
| | | | Scripts | Element | Available scripts | - | 0..1 |
| Packages | Element | Package configuration information | - | 0..1 | | | |

6.33 Patch

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: /%Patch[#expected/rc:Patch/@id = '...']

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|-----------------------------------|----------------|----------------|--|-----------|------|
| Patch | | Information about each patch | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Patch name | string | 1 |
| | | | url | Attribute | File storage location | anyURI | 0..1 |
| | | | vendor | Attribute | Vendor name | string | 0..1 |
| | | | family | Attribute | Executable operating system family specification Either "Solaris", "Windows" or "Linux" | string | 0..1 |
| | | | productName | Attribute | Formal product name | string | 0..1 |
| | | | version | Attribute | Version | string | 0..1 |
| | | | deployMethod | Attribute | Deployment method install: normal installation clone: copying a disk image | string | 0..1 |
| | | | uninstallable | Attribute | Uninstallation specification (possible/not possible) true: can be uninstalled false: cannot be uninstalled (default) | boolean | 0..1 |
| | | | documentID | Attribute | ID for a document containing information about the patch | string | 0..1 |
| | | | comment | Attribute | Comment (supplementary explanation) | string | 0..1 |
| Scripts | Element | Available scripts | - | 0..1 | | | |
| Packages | Element | Package configuration information | - | 0..1 | | | |

6.34 SoftwarePack

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: /%SoftwarePack[#expected/rc:SoftwarePack/@id = '...']

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-------------------|----------------|--------------------------------------|----------------|----------------|--|-----------|------|
| SoftwarePack | SoftwarePacks | Information about each software pack | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Software pack name | string | 1 |
| | | | url | Attribute | File storage location | anyURI | 0..1 |
| | | | vendor | Attribute | Vendor name | string | 0..1 |
| | | | family | Attribute | Executable operating system family specification Either "Solaris", "Windows" or "Linux" | string | 0..1 |
| | | | productName | Attribute | Formal product name | string | 0..1 |
| | | | version | Attribute | Version | string | 0..1 |
| | | | deployMethod | Attribute | Deployment method install: normal installation clone: copying a disk image | string | 0..1 |
| | | | uninstallable | Attribute | Uninstallation specification (possible/not possible) true: can be uninstalled false: cannot be uninstalled (default) | boolean | 0..1 |
| | | | comment | Attribute | Comment (supplementary explanation) | string | 0..1 |
| | | | user | Attribute | User name from when the software pack was deployed | string | 0..1 |
| | | | password | Attribute | Password for the user name from when the software pack was deployed | string | 0..1 |
| IncludedSoftwares | Element | Information about the software | - | 0..1 | | | |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-------------------|-------------------|--|------------------|----------------|--|-----------|------|
| | | | | | included in the software pack | | |
| | | | Scripts | Element | Available scripts | - | 0..1 |
| IncludedSoftwares | SoftwarePack | Information about the software included in each pack | IncludedSoftware | Element | Information about the software included in the package | - | 0..* |
| IncludedSoftware | IncludedSoftwares | Software included in each pack | ref | Attribute | A reference to a unique ID for the software | IDREF | 1 |

6.35 Script

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%Script[./#expected/rc:Script/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|-------------------------------|----------------|----------------|---|-----------|------|
| Script | | Information about each script | id | Attribute | Unique identifier | ID | 1 |
| | | | type | Attribute | Type Either Bshell, Cshell, Perl, Ruby, Python, Binary or etc | string | 1 |
| | | | when | Attribute | Time when the script can be used install: when the software is installed uninstall: when the software is uninstalled reinstall: when the software is reinstalled start: when the software is started stop: when the software is stopped restart: when the | string | 1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|-----------------------|-----------|------|
| | | | | | software is restarted | | |
| | | | url | Attribute | Storage location | anyURI | 0..1 |

6.36 Package

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%Package[#expected/rc:Package/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|--|----------------|----------------|-----------------------|-----------|------|
| Package | | Information about each package included in the target software | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Package name | string | 1 |
| | | | version | Attribute | Version | string | 1 |
| | | | url | Attribute | File storage location | anyURI | 0..1 |

6.37 ShippingOrder

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%ShippingOrder[#expected/rc:ShippingOrder/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------|----------------|---|----------------------|----------------|--|-----------|------|
| ShippingOrder | | Product shipping, grouped by either order or device | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | count | Attribute | Number of sets with the same configuration. Regarded as "1" if omitted. | int | 0..1 |
| | | | orderNumber | Attribute | Order number | string | 0..1 |
| | | | ShippingProductGroup | Element | Shipping product group (Use in situations such as when there are different combinations of the same components within devices) | - | 0..* |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------------|-------------------------------------|--|-----------------|----------------|---|-----------|------|
| | | | ShippingProduct | Element | Shipping product | - | 0..* |
| ShippingProduct Group | ShippingOrder | Shipping product group (Use in situations such as when there are different combinations of the same components within devices) | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | count | Attribute | Number of sets with the same configuration. Regarded as "1" if omitted. | int | 0..1 |
| | | | groupCode | Attribute | Group number | string | 0..1 |
| | | | ShippingProduct | Element | Each individual product to be shipped | - | 0..* |
| ShippingProduct | ShippingOrder, ShippingProductGroup | Shipping product | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | productNumber | Attribute | Shipping model name | string | 1 |
| | | | contractType | Attribute | Contract type. Distinctions such as "purchase", "rental", etc | string | 0..1 |
| | | | unitPrice | Attribute | Unit price (including units) | string | 0..1 |
| | | | count | Attribute | Quantity. Regarded as "1" if omitted. | int | 0..1 |
| | | | maintenanceFee | Attribute | Maintenance fee (including units) | string | 0..1 |

6.38 ProductMapping

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%ProductMapping[./#expected/rc:ProductMapping/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------|----------------|---|----------------|----------------|--|-----------|------|
| ProductMapping | | Product shipping, grouped by either order or device | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 0..1 |
| | | | rank | Attribute | Unit of correspondence Format: "order", | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|------------------|----------------|---|-----------|------|
| | | | | | "group" or "product" | | |
| | | | orderSetNumber | Attribute | Order set number. Regarded as "1" if omitted. | int | 0..1 |
| | | | groupSetNumber | Attribute | Product group set number. Regarded as "1" if omitted. Not valid if rank="order" | int | 0..1 |
| | | | productSetNumber | Attribute | Product set number. Regarded as "1" if omitted. Not valid if rank="order" | int | 0..1 |
| | | | order | Attribute | ID references to each shipping product (the ID for an element under / Blueprints/ ShippingOrders) | IDREF | 1 |
| | | | component | Attribute | ID references to shipping product configurations (the ID for an element under / Blueprints/ Components) | IDREF | 1 |

6.39 SupportService

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: /%SupportService[#expected/rc:SupportService/@id = '...']

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------|----------------|--|----------------|---|-----------------------|-----------|------|
| SupportService | | Information about each support service | id | Attribute | Unique identifier | ID | 1 |
| | name | | Attribute | Formal name | string | 0..1 | |
| | type | | Attribute | Type ("Support Desk", "Install Service", etc) | string | 1 | |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------|----------------|---------------------|----------------|----------------|---|-----------|------|
| | | | targetType | Attribute | Target type Format: "order", "component", "ServiceGroup" or "Service" | string | 1 |
| | | | order | Attribute | ID reference to an order indicating the support service | IDREF | 0..1 |
| | | | serviceNumber | Attribute | Service number | string | 0..1 |
| | | | contractType | Attribute | Contract type. Distinctions such as "purchase", "rental", etc | string | 0..1 |
| | | | price | Attribute | Unit price (including units) | string | 0..1 |
| | | | SupportTarget | Element | Support target | - | 0..* |
| SupportTarget | SupportService | Support target | ref | Attribute | ID reference for the support target | IDREF | 1 |

6.40 ServiceTemplate

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%ServiceTemplate[./#expected/rc:ServiceTemplate/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------|-----------------|--|-----------------|----------------|--|-----------|------|
| ServiceTemplate | | Information about each service template | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Service template name | string | 1 |
| | | | HardwareElement | Element | Information about the hardware used by the service | - | 0..* |
| HardwareElement | ServiceTemplate | Information about the hardware used by the target service | id | Attribute | Unique identifier | ID | 1 |
| | | | ref | Attribute | ID reference to the hardware | IDREF | 1 |
| | | | SoftwareElement | Element | Information about the software running on this hardware | - | 0..* |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------------|-----------------------|---|----------------------|----------------|---|-----------|------|
| SoftwareElement | HardwareElement | Information about the software running on the target hardware | id | Attribute | Unique identifier | ID | 1 |
| | | | ref | Attribute | ID reference to the software | IDREF | 1 |
| | | | hostedOn | Attribute | ID reference to the parent software | IDREF | 0..1 |
| | | | patchFor | Attribute | ID reference to the target software to which patches will be applied | IDREF | 0..1 |
| ServiceGroupTemplates | Blueprints | Information about service group templates | ServiceGroupTemplate | Element | Each service group template | - | 0..* |
| ServiceGroupTemplate | ServiceGroupTemplates | Information about each service group template | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Service group template name | string | 1 |
| | | | Link | Element | Link information indicating the arrangement of (links between) service layers | - | 1..* |

6.41 Service

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%Service[./#expected/rc:Service/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|--|-----------|------|
| Service | | Service | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | type | Attribute | Type | string | 1 |
| | | | code | Attribute | Service code Input example: "100001" | string | 0..1 |
| | | | description | Attribute | Service/system summary | string | 0..1 |
| | | | lastUpdate | Attribute | Date of the last update | dateTime | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------|-----------------|--|-------------------|----------------|---|-----------|------|
| | | | updateInfo | Attribute | Update information | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| | | | Phone | Element | Telephone information | - | 0..* |
| | | | Email | Element | Email information | - | 0..* |
| | | | UserSummary | Element | User summary | - | 0..* |
| | | | NetworkSummary | Element | Network summary | - | 0..1 |
| | | | SystemSummary | Element | Service/system summary | - | 0..1 |
| | | | SupportServiceRef | Element | Reference to the service used (reserved) | - | 0..* |
| | | | ServiceInstance | Element | Service instance | - | 0..* |
| ServiceInstance | Service | Service instance | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | type | Attribute | Type | string | 1 |
| | | | ServerNode | Element | Related ServerNode | - | 0..1 |
| ServerNode | ServiceInstance | Server node assigned to the service instance | - | Text | Reference to the server node that has been assigned to the service instance | IDREF | 1 |
| ServiceGroup | ServiceGroups | Service group | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Formal name | string | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | service | Attribute | Services making up the group | IDREFS | 0..1 |
| | | | description | Attribute | Service/system summary | string | 0..1 |
| | | | lastUpdate | Attribute | Date of the last update | dateTime | 0..1 |
| | | | updateInfo | Attribute | Update information | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-------------------|-----------------------|--|--------------------|----------------|--|-----------|------|
| | | | status | Attribute | Generic status | string | 0..1 |
| | | | Phone | Element | Telephone information | - | 0..* |
| | | | Email | Element | Email information | - | 0..* |
| | | | UserSummary | Element | User summary | - | 0..* |
| | | | NetworkSummary | Element | Network summary | - | 0..1 |
| | | | SystemSummary | Element | Service/system summary | - | 0..1 |
| | | | SupportServiceRef | Element | Reference to the service used (reserved) | - | 0..* |
| UserSummary | Service, ServiceGroup | User summary | type | Attribute | User type | string | 0..1 |
| | | | idref | Attribute | ID reference to the User | IDREF | 0..1 |
| NetworkSummary | Service, ServiceGroup | Network summary | equipmentType | Attribute | Device type | string | 0..1 |
| | | | internetConnection | Attribute | Internet connection | string | 0..1 |
| SystemSummary | Service, ServiceGroup | Service/system summary | - | Text | ID reference to the service/system summary | IDREF | 1 |
| SupportServiceRef | Service, ServiceGroup | Reference to the service used (reserved) | - | Text | ID reference to the service used | IDREF | 1 |

6.42 Role

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%Role[./#expected/rc:Role/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|---|-----------|------|
| Role | | Role information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Role name | string | 1 |
| | | | authority | Attribute | Execution permission Either "all", "read" or "write" | string | 1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------|----------------|--|-----------------|----------------|--|-----------|------|
| | | | scope | Attribute | Range of validity Either "limited" (limited range) or "all" (the full range) | string | 1 |
| | | | field | Attribute | Target field Either "Domain", "ServiceGroup" or "Service" | string | 1 |
| | | | DomainRef | Element | Information about the target domain This element can only be specified if field="Domain" and scope="limited" | - | 0..* |
| | | | ServiceGroupRef | Element | Information about the target service group This element can only be specified if field="ServiceGroup" and scope="limited" | - | 0..* |
| | | | ServiceRef | Element | Information about the target service group This element can only be specified if field="Service" and scope="limited" | - | 0..* |
| DomainRef | Role | Information about the target domain | - | Text | Specification for the target domain | - | 1 |
| ServiceGroupRef | Role | Information about the target service group | - | Text | Specification for the target service group | - | 1 |
| ServiceRef | Role | Information about the target service | - | Text | Specification for the target service | - | 1 |

6.43 User

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%User[#expected/rc:User/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|-------------------|----------------|------------------------------|-----------|------|
| User | | User information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | User name | string | 1 |
| | | | password | Attribute | Encrypted password | string | 1 |
| | | | management VLANID | Attribute | VLANID used by the admin LAN | string | 0..1 |
| | | | post | Attribute | Name of the user's post | string | 0..1 |
| | | | lastUpdate | Attribute | Date of the last update | dateTime | 0..1 |
| | | | updateInfo | Attribute | Update information | string | 0..1 |
| | | | Phone | Element | Telephone information | - | 0..* |
| | | | Email | Element | Email information | - | 0..* |
| | | | RoleRef | Element | Reference to a role | - | 0..* |
| | | | OrganizationRef | Element | Reference to an organization | - | 0..* |

6.44 Organization

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%Organization[#expected/rc:Organization/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|-------------------------|-----------|------|
| Organization | | Organization | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Organization name | string | 1 |
| | | | code | Attribute | Post control code | string | 0..1 |
| | | | description | Attribute | Summary | string | 0..1 |
| | | | lastUpdate | Attribute | Date of the last update | dateTime | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------|--------------------|------------------------|-----------------|----------------|--|-----------|------|
| | | | updateInfo | Attribute | Update information | string | 0..1 |
| | | | Phone | Element | Telephone information | - | 0..* |
| | | | Email | Element | Email information | - | 0..* |
| | | | RoleRef | Element | Reference to a role | - | 0..* |
| | | | OrganizationRef | Element | Reference to an organization | - | 0..* |
| RoleRef | User, Organization | Role reference | - | Text | ID reference to a role | IDREF | 1 |
| OrganizationRef | Organization | Organization reference | - | Text | Specification for the organization to which the organization belongs | IDREF | 1 |
| Email | | Email information | id | Attribute | Unique identifier | ID | 0..1 |
| | | | name | Attribute | Name | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | address | Attribute | Email address | string | 1 |
| Phone | | Telephone information | id | Attribute | Unique identifier | ID | 0..1 |
| | | | name | Attribute | Name | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | number | Attribute | Telephone number | string | 1 |

6.45 Sales

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%Sales[./#expected/rc:Sales/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|----------------------|----------------|----------------|------------------------|-----------|------|
| Sales | | Proposal information | id | Attribute | Identification number | ID | 1 |
| | | | businessCode | Attribute | Sales negotiation code | string | 1 |
| | | | name | Attribute | Proposal name | string | 0..1 |
| | | | serviceType | Attribute | Service type | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|---------------------|----------------|---|-----------|------|
| | | | serviceSubType | Attribute | Service sub type | string | 0..1 |
| | | | serviceResourceType | Attribute | Service resource type | string | 0..1 |
| | | | customerClass | Attribute | Customer class | string | 0..1 |
| | | | status | Attribute | Proposal status | string | 0..1 |
| | | | projectName | Attribute | Project name | string | 0..1 |
| | | | counterParty | Attribute | Counter party to the contract | string | 0..1 |
| | | | classification | Attribute | Classification for the sales negotiations | string | 0..1 |
| | | | prospect | Attribute | Degree of certainty for the sales negotiations | string | 0..1 |
| | | | extensionProspect | Attribute | Likelihood of sales negotiations being extended | string | 0..1 |
| | | | WinReason | Element | Reason for being able to win the sales negotiations | - | 0..1 |
| | | | LostReason | Element | Reason for losing the sales negotiations | - | 0..1 |
| | | | AuditRecordRef | Element | Reference to audit records | - | 0..* |
| | | | ServiceRef | Element | Reference to the service | - | 0..* |
| | | | CustomerRef | Element | Reference to the customer | - | 1..* |
| | | | ProjectRef | Element | Reference to the project (reserved) | - | 0..* |
| | | | Requirements | Element | Customer requirements | - | 0..1 |
| | | | Competitors | Element | Competitors | - | 0..1 |
| | | | Circumstances | Element | Situation, issues and problems | - | 0..1 |
| | | | SpecialAffairs | Element | Special affairs | - | 0..1 |
| | | | Tactics | Element | Tactics | - | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------|----------------|--|----------------|----------------|--|-----------|------|
| | | | Remarks | Element | Remarks | - | 0..1 |
| | | | Members | Element | Information about the members of the sales team | - | 0..1 |
| | | | SalesDates | Element | Date sales negotiations commenced | - | 0..1 |
| | | | SLA | Element | SLA information | - | 0..1 |
| | | | CenterFacility | Element | Center facility information | - | 0..1 |
| WinReason | Sales | Reason for being able to win the business negotiations | winReasonCode | Attribute | Code for the reason for being able to win the sales negotiations | string | 1 |
| | | | - | Text | Reason for being able to win the sales negotiations | string | 1 |
| LostReason | Sales | Reason for losing the business negotiations | lostReasonCode | Attribute | Code for the reason for losing the sales negotiations | string | 1 |
| | | | - | Text | Reason for losing the sales negotiations | string | 1 |
| AuditRecordRef | Sales | Audit reference | - | Text | ID reference to audit records | IDREF | 1 |
| ServiceRef | Sales | Service reference | - | Text | ID reference to the service | IDREF | 1 |
| CustomerRef | Sales | Customer reference | - | Text | ID reference to customer information | IDREF | 1 |
| ProjectRef | Sales | Reference to the project (reserved) | - | Text | ID reference to the project | IDREF | 1 |
| Requirements | Sales | Customer requirement | - | Text | Customer requirements | string | 0..1 |
| Competitors | Sales | Competitors | - | Text | Information about competitors | string | 0..1 |
| Circumstances | Sales | Situation, issues and problems | - | Text | Situation, issues and problems | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------|----------------|---|----------------|----------------|--|-----------|------|
| SpecialAffairs | Sales | Special affair | - | Text | Special affairs | string | 0..1 |
| Tactics | Sales | Tactics | - | Text | Tactics | string | 0..1 |
| Remarks | Sales | Remarks | - | Text | Remarks | string | 0..1 |
| Members | Sales | Information about the members in the sales team | UserRef | Element | User reference | - | 0..* |
| UserRef | Members | User referenc | - | Text | ID reference to a user | IDREF | 1 |
| SalesDates | Sales | Date sales negotiations commenced | startDate | Attribute | Date when sales negotiations commenced | date | 0..1 |
| | | | lostDate | Attribute | Date when sales negotiations failed | date | 0..1 |
| | | | orderDate | Attribute | Date when sales negotiations succeeded | date | 0..1 |
| | | | serviceDate | Attribute | Service date | date | 0..1 |
| SLA | Sales | SLA information | requirements | Attribute | SLA requirements | string | 0..1 |
| | | | proposedType | Attribute | SLA proposal type | string | 0..1 |
| | | | contractType | Attribute | SLA contract type | string | 0..1 |
| | | | contractLink | Attribute | Type of SLA contract link | string | 0..1 |
| | | | Remarks | Element | Remarks | - | 0..1 |
| CenterFacility | Sales | Center facility information | rackRent | Attribute | Number of racks to be rented out | string | 0..1 |
| | | | area | Attribute | Area of the space rented out | string | 0..1 |
| | | | offerDate | Attribute | Date when the center will be installed | date | 0..1 |
| | | | Remarks | Element | Remarks | - | 0..1 |
| | | | BlockRef | Element | Reference to location information (center name and installation floor) | - | 0..* |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------------|------------------|--|--------------------|----------------|--|-----------|------|
| | | | EIRackRef | Element | Rack reference | - | 0..* |
| BlockRef | CenterFacility | Reference to location information (center name and installation floor) | - | Text | Reference to location information (center name and installation floor) | IDREF | 1 |
| EIRackRef | CenterFacility | Rack reference | - | Text | ID reference to a rack | IDREF | 1 |
| ChargeManagement | Business | Cost management | Charge | Element | Fee information | - | 0..* |
| Charge | ChargeManagement | Fee information | InitialSetupCharge | Element | Fee information | - | 0..* |
| | | | PeriodicCharge | Element | Period fees (monthly and yearly) | - | 0..* |
| | | | Remarks | Element | Remarks | - | 0..1 |
| InitialSetupCharge | Charge | Initial setup fee | type | Attribute | Type | string | 0..1 |
| | | | - | Text | Fee (including units) | string | 1 |
| PeriodicCharge | Charge | Periodic fees (monthly or yearly fees) | term | Attribute | Term (monthly or yearly) | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | - | Text | Fee (including units) | string | 1 |
| ContractManagement | Business | Contract management | Contract | Element | Contract information | - | 0..* |

6.46 Contract

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%Contract[./#expected/rc:Contract/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|----------------------|----------------|----------------|-----------------------|-----------|------|
| Contract | | Contract information | id | Attribute | Identification number | ID | 1 |
| | | | status | Attribute | Contract status | string | 0..1 |
| | | | contractTerm | Attribute | Contract term | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------|----------------|---------------------|----------------|----------------|---|-----------|------|
| | | | contractType | Attribute | Contract type | string | 0..1 |
| | | | ContractDates | Element | Contract dates | - | 0..1 |
| | | | Remarks | Element | Remarks | - | 0..1 |
| ContractDates | Contract | Contract dates | startDate | Attribute | Starting date for the contract | date | 0..1 |
| | | | endDate | Attribute | End date for the contract | date | 0..1 |
| | | | expireDate | Attribute | Date when the contract will expire after it has been signed | date | 0..1 |
| | | | cancelDate | Attribute | Cancellation date | date | 0..1 |

6.47 Customer

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%Customer[./#expected/rc:Customer/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|----------------------|------------------|----------------|--|-----------|------|
| Customer | | Customer information | id | Attribute | Identification number | ID | 1 |
| | | | customerCode | Attribute | Customer code | string | 1 |
| | | | name | Attribute | Customer name | string | 0..1 |
| | | | otherName | Attribute | Other name that the customer is known by (old name, etc) | string | 0..1 |
| | | | category | Attribute | Industry type | string | 0..1 |
| | | | customerBusiness | Attribute | Customer business | string | 0..1 |
| | | | Remarks | Element | Remarks | - | 0..1 |

6.48 IncidentRecord

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%IncidentRecord[./#expected/rc:IncidentRecord/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------------|----------------|---------------------------------------|----------------|----------------|--|-----------|------|
| IncidentRecord | | Incident record | id | Attribute | Identification number | ID | 1 |
| | | | name | Attribute | Operation process name | string | 1 |
| | | | openTime | Attribute | Time when the operation process started | dateTime | 1 |
| | | | closeTime | Attribute | Time when the operation process closed | dateTime | 1 |
| | | | number | Attribute | Record number | string | 0..1 |
| | | | summary | Attribute | Summary | string | 0..1 |
| | | | processStatus | Attribute | Status of the operation process Format: "opened", "suspended" or "closed" | string | 1 |
| | | | status | Attribute | Request status (arbitrary) | string | 1 |
| ManagementRecordProperties | Element | Various properties for target records | - | 0..1 | | | |

6.49 ProblemRecord

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%ProblemRecord[#expected/rc:ProblemRecord/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------|----------------|---------------------|----------------|----------------|---|-----------|------|
| ProblemRecord | | Problem record | id | Attribute | Identification number | ID | 1 |
| | | | name | Attribute | Operation process name | string | 1 |
| | | | openTime | Attribute | Time when the operation process started | dateTime | 1 |
| | | | closeTime | Attribute | Time when the operation process closed | dateTime | 1 |
| | | | number | Attribute | Record number | string | 0..1 |
| | | | summary | Attribute | Summary | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------------------|----------------|--|-----------|------|
| | | | processStatus | Attribute | Status of the operation process Format: "opened", "suspended" or "closed" | string | 1 |
| | | | status | Attribute | Request status (arbitrary) | string | 1 |
| | | | ManagementRecordProperties | Element | Various properties for target records | - | 0..1 |

6.50 ChangeRecord

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: /%ChangeRecord[./#expected/rc:ChangeRecord/@id = '...']

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|--|-----------|------|
| ChangeRecord | | Change record | id | Attribute | Identification number | ID | 1 |
| | | | name | Attribute | Operation process name | string | 1 |
| | | | openTime | Attribute | Time when the operation process started | dateTime | 1 |
| | | | closeTime | Attribute | Time when the operation process closed | dateTime | 1 |
| | | | number | Attribute | Record number | string | 0..1 |
| | | | summary | Attribute | Summary | string | 0..1 |
| | | | type | Attribute | Change type (new, change, deletion) | string | 0..1 |
| | | | influenceRange | Attribute | Range affected | string | 0..1 |
| | | | urgency | Attribute | Degree of urgency | string | 0..1 |
| | | | processStatus | Attribute | Status of the operation process Format: "opened", "suspended" or "closed" | string | 1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------------------|----------------|---------------------------------------|-----------|------|
| | | | status | Attribute | Request status (arbitrary) | string | 1 |
| | | | Requester | Element | Person making the request | - | 0..1 |
| | | | AcceptStaff | Element | Person receiving the request | - | 0..1 |
| | | | ReplyStaff | Element | Person responding to the request | - | 0..* |
| | | | Recognition Staff | Element | Person approving the request | - | 0..1 |
| | | | ManagementRecordProperties | Element | Various properties for target records | - | 0..1 |

6.51 ReleaseRecord

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%ReleaseRecord[#expected/rc:ReleaseRecord/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------|----------------|---------------------|----------------|----------------|---|-----------|------|
| ReleaseRecord | | Release record | id | Attribute | Identification number | ID | 1 |
| | | | name | Attribute | Operation process name | string | 1 |
| | | | openTime | Attribute | Time when the operation process started | dateTime | 1 |
| | | | closeTime | Attribute | Time when the operation process closed | dateTime | 1 |
| | | | number | Attribute | Record number | string | 0..1 |
| | | | summary | Attribute | Summary | string | 0..1 |
| | | | type | Attribute | Change type (new, change, deletion) | string | 0..1 |
| | | | influenceRange | Attribute | Range affected | string | 0..1 |
| | | | urgency | Attribute | Degree of urgency | string | 0..1 |
| | | | processStatus | Attribute | Status of the operation process | string | 1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------|-----------------------------|----------------------------------|----------------------------|----------------|--|-----------|------|
| | | | | | Format: "opened", "suspended" or "closed" | | |
| | | | status | Attribute | Request status (arbitrary) | string | 1 |
| | | | Requester | Element | Person making the request | - | 0..1 |
| | | | AcceptStaff | Element | Person receiving the request | - | 0..1 |
| | | | ReplyStaff | Element | Person responding to the request | - | 0..* |
| | | | RecognitionStaff | Element | Person approving the request | - | 0..1 |
| | | | ManagementRecordProperties | Element | Various properties for target records | - | 0..1 |
| Requester | ChangeRecord, ReleaseRecord | Person making the request | id | Attribute | ID for the person making the request | IDREF | 1 |
| | | | date | Attribute | Time when the request was made | dateTime | 1 |
| AcceptStaff | ChangeRecord, ReleaseRecord | Person receiving the request | id | Attribute | ID for the person receiving the request | IDREF | 1 |
| | | | date | Attribute | Time when the request was received | dateTime | 1 |
| ReplyStaff | ChangeRecord, ReleaseRecord | Person responding to the request | id | Attribute | ID for the person responding to the request | IDREF | 1 |
| | | | date | Attribute | Time when the request was responded to | dateTime | 1 |
| | | | type | Attribute | Type of response (answer, checking installed devices, release task, etc) | string | 1 |
| | | | Note | Element | Response content | - | 1 |
| RecognitionStaff | ChangeRecord, ReleaseRecord | Person approving the request | id | Attribute | ID for the person approving the request | IDREF | 1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|-------------------------------|---------------------|----------------|----------------|--|-----------|------|
| | | | date | Attribute | Time when approval was given | dateTime | 1 |
| | | | type | Attribute | Type of approval (answer, checking installed devices, release task, etc) | string | 1 |
| | | | Note | Element | Approval content | - | 1 |
| Note | ReplyStaff, Recognition Staff | Processing content | - | Text | Processing content | string | 1 |

6.52 AuditRecord

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%AuditRecord[./#expected/rc:AuditRecord/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|-----------------|----------------|-----------------------|-----------|------|
| AuditRecord | | Audit record | id | Attribute | Identification number | ID | 1 |
| | | | type | Attribute | Audit type | string | 0..1 |
| | | | applicationDate | Attribute | Application date | date | 0..1 |
| | | | auditDate | Attribute | Audit date | date | 0..1 |
| | | | approvalDate | Attribute | Approval date | date | 0..1 |
| | | | Remarks | Element | Remarks | - | 0..1 |

6.53 Statistics

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%Statistics[./#expected/rc:Statistics/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|-------------------------|----------------|----------------|---|-----------|------|
| Statistics | | Statistical information | id | Attribute | Identification number for statistical information | ID | 1 |
| | | | snapshotDate | Attribute | Date and time when statistics were taken | dateTime | 1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-------------------------|--------------------------------------|--|----------------------------|----------------|--|-----------|------|
| | | | targetName | Attribute | Target name | string | 0..1 |
| | | | targetID | Attribute | Target ID | IDREF | 0..1 |
| | | | lastUpdate | Attribute | Date of the last update | dateTime | 0..1 |
| | | | updateInfo | Attribute | Update information | string | 0..1 |
| | | | Statistics | Element | Sub statistical information | - | 0..* |
| | | | ResultStatistics | Element | Statistical information (actual results) | - | 0..1 |
| | | | ExpectedStatistics | Element | Statistical information (expected) | - | 0..1 |
| ResultStatistics | Statistics | Statistical information (actual results) | ServerHousingStatistics | Element | Server housing status | - | 0..1 |
| | | | ServiceApplyStatistics | Element | Service application status | - | 0..* |
| | | | CostStatistics | Element | Billing status | - | 0..1 |
| ExpectedStatistics | Statistics | Statistical information (expected)) | ServerHousingStatistics | Element | Server housing status | - | 0..1 |
| | | | ServiceApplyStatistics | Element | Service application status | - | 0..* |
| | | | CostStatistics | Element | Billing status | - | 0..1 |
| ServerHousingStatistics | ResultStatistics, ExpectedStatistics | Server housing status | locateSpaceSize | Attribute | Total area of the installation space (square meters) | int | 0..1 |
| | | | electricityConsumptionSize | Attribute | Total power capacity (Watts) | int | 0..1 |
| | | | locateSpaceRate | Attribute | Space usage rate (%) | double | 0..1 |
| | | | electricityPowerRate | Attribute | Power usage rate (%) | double | 0..1 |
| | | | ServerHousingGroup | Element | Installation status of each server type | - | 0..* |
| ServerHousingGroup | ServerHousingStatistics | Server housing group | name | Attribute | Group name | string | 1 |
| | | | count | Attribute | Number of servers | int | 1 |
| ServiceApplyStatistics | ResultStatistics, ExpectedStatistics | Service application status | id | Attribute | Identification number | ID | 1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------|--------------------------------------|---------------------|----------------------|----------------|---|-----------|------|
| | | | serviceApplyRef | Attribute | Reference to the service for which statistics are being collected | IDREF | 1 |
| | | | name | Attribute | Target service name | string | 0..1 |
| | | | totalNumber | Attribute | Total number of services that can be applied | int | 0..1 |
| | | | targetNumber | Attribute | Number of service contracts | int | 0..1 |
| | | | applyRate | Attribute | Service application rate (%) | double | 0..1 |
| CostStatistics | ResultStatistics, ExpectedStatistics | Billing status | initialSetupCost | Attribute | Initial installation cost (yen) | int | 0..1 |
| | | | runningCost | Attribute | Administration cost (yen) | int | 0..1 |
| | | | commonFacilitiesCost | Attribute | Common facilities cost (yen) | int | 0..1 |

6.54 DevelopmentRecord

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%DevelopmentRecord[./#expected/rc:DevelopmentRecord/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-------------------|----------------|---------------------|----------------|----------------|---|-----------|------|
| DevelopmentRecord | | Development record | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Operations process name | string | 1 |
| | | | openTime | Attribute | Time at which the operations process was started | dateTime | 1 |
| | | | closeTime | Attribute | Time at which the operations process was finished | dateTime | 1 |
| | | | number | Attribute | Record number | string | 0..1 |
| | | | summary | Attribute | Overview | string | 0..1 |
| | | | processStatus | Attribute | Operations process status | IDREF | 1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------------|----------------------------|---------------------------------------|----------------------------|----------------|--|-----------|------|
| | | | | | Format: "opened" "suspended" "closed" | | |
| | | | status | Attribute | Request status (optional) | string | 1 |
| | | | nickname | Attribute | Display name | dateTime | 0..1 |
| | | | memo | Attribute | Memo | string | 0..1 |
| | | | maxRecord | Attribute | Maximum number of records | string | 0..1 |
| | | | ExtensionField | Element | Additional field | - | 0..* |
| | | | ManagementRecordProperties | Element | Properties group of the target record | - | 0..1 |
| ExtensionField | DevelopmentRecord | Additional field information | id | Attribute | Unique identifier | ID | 1 |
| | | | - | Text | Field content | string | 1 |
| ManagementRecordProperties | DevelopmentRecord | Properties group of the target record | ManagementRecordProperty | Element | Properties of the target record | - | 0..* |
| ManagementRecordProperty | ManagementRecordProperties | Properties of the target record | name | Attribute | Property name | string | 1 |
| | | | - | Text | Property value | string | 1 |

6.55 TaskRecord

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%TaskRecord[./#expected/rc:TaskRecord/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|--|-----------|------|
| TaskRecord | | Task record | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Operations process name | string | 1 |
| | | | openTime | Attribute | Time at which the operations process was started | dateTime | 1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------------|----------------------------|---------------------------------------|----------------------------|----------------|---|-----------|------|
| | | | closeTime | Attribute | Time at which the operations process was finished | dateTime | 1 |
| | | | number | Attribute | Record number | string | 0..1 |
| | | | summary | Attribute | Overview | string | 0..1 |
| | | | processStatus | Attribute | Operations process status Format: "opened" "suspended" "closed" | IDREF | 1 |
| | | | status | Attribute | Request status (optional) | string | 1 |
| | | | nickname | Attribute | Display name | dateTime | 0..1 |
| | | | memo | Attribute | Memo | string | 0..1 |
| | | | type | Attribute | Task record type (optional) | string | 0..1 |
| | | | maxRecord | Attribute | Maximum number of records | string | 0..1 |
| | | | ExtensionField | Element | Additional field | - | 0..* |
| | | | ManagementRecordProperties | Element | Properties group of the target record | - | 0..1 |
| ExtensionField | DevelopmentRecord | Additional field information | id | Attribute | Unique identifier | ID | 1 |
| | | | - | Text | Field content | string | 1 |
| ManagementRecordProperties | DevelopmentRecord | Properties group of the target record | ManagementRecordProperty | Element | Properties of the target record | - | 0..* |
| ManagementRecordProperty | ManagementRecordProperties | Properties of the target record | name | Attribute | Property name | string | 1 |
| | | | - | Text | Property value | string | 1 |

6.56 LegacyApplication

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%LegacyApplication[./#expected/rc:LegacyApplication/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-------------------|----------------|---------------------|-----------------|----------------|------------------------|-----------|------|
| LegacyApplication | | Legacy application | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Official name | string | 0..1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| | | | installedServer | Attribute | Installation node | string | 0..1 |
| | | | installedPath | Attribute | Installation directory | string | 0..1 |

6.57 NETFramework

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: /%NETFramework[./#expected/rc:NETFramework/@id = '...']

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|----------------------------|------------------|----------------|------------------------|-----------|-------|
| NETFramework | | .NET Framework information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Official name | string | 0..1 |
| | | | nickname | Attribute | Nickname | string | 0..11 |
| | | | status | Attribute | Generic status | string | 0..1 |
| | | | installedServer | Attribute | Installation node | string | 0..1 |
| | | | installedPath | Attribute | Installation directory | string | 0..1 |
| | | | version | Attribute | Version | string | 0..1 |
| | | | servicePackLevel | Attribute | Service pack level | string | 0..1 |

6.58 NETFrameworkApplication

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: /%NETFrameworkApplication[./#expected/rc:NETFrameworkApplication/@id = '...']

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-------------------------|----------------|----------------------------|----------------|----------------|-----------------------|-----------|------|
| NETFrameworkApplication | | .NET Framework application | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Official name | string | 0..1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|-----------------|----------------|------------------------|-----------|------|
| | | | installedServer | Attribute | Installation node | string | 0..1 |
| | | | installedPath | Attribute | Installation directory | string | 0..1 |
| | | | requiredVersion | Attribute | .NET Framework version | string | 1 |

6.59 FileConfiguration

When specifying an element in the Element Name cell using an XPath expression, assign "rc" as the namespace prefix.

- Example: `/%FileConfiguration[./#expected/rc:FileConfiguration/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------------|--------------------|--|--------------------|----------------|---|-----------|------|
| FileConfiguration | | File configuration information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Official name | string | 0..1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| | | | installedServer | Attribute | Installation node | string | 0..1 |
| | | | path | Attribute | Base path | string | 0..1 |
| | | | ConfigurationFiles | Element | Configuration file information group | - | 0..1 |
| ConfigurationFiles | FileConfiguration | Configuration file information group | ConfigurationFile | Element | Configuration file information | - | 0..* |
| ConfigurationFile | ConfigurationFiles | Configuration file information | relativePath | Attribute | Relative path | string | 0..1 |
| | | | name | Attribute | File name | string | 0..1 |
| | | | size | Attribute | File size (bytes) | string | 0..1 |
| | | | date | Attribute | Date and time when the configuration file was updated | dateTime | 0..1 |
| | | | permission | Attribute | Permissions | string | 0..1 |
| | | | username | Attribute | User name | string | 0..1 |
| | | | groupName | Attribute | Group name | string | 0..1 |
| fingerprint | Attribute | Fingerprint value (hash value such as MD5) | string | 0..1 | | | |

6.60 SystemwalkerCentricManager

When specifying an element in the Element Name cell using an XPath expression, assign "mw" as the namespace prefix.

- Example: `/%SystemwalkerCentricManager[./#expected/mw:SystemwalkerCentricManager/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------------|----------------|---|----------------|----------------|-----------------------|-----------|------|
| SystemwalkerCentricManager | | SystemwalkerCentricManager middleware information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Official name | string | 0..1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | version | Attribute | Version information | string | 0..1 |
| | | | kind | Attribute | Server type | string | 0..1 |

6.61 OMSubSystem

When specifying an element in the Element Name cell using an XPath expression, assign "mw" as the namespace prefix.

- Example: `/%OMSubSystem[./#expected/mw:OMSubsystem/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|-----------------------|----------------|----------------|-----------------------|-----------|------|
| OMSubSystem | | Subsystem information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Official name | string | 0..1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | ipAddress | Attribute | IP address | string | 0..1 |
| | | | number | Attribute | Subsystem number | int | 1 |

6.62 OMProject

When specifying an element in the Element Name cell using an XPath expression, assign "mw" as the namespace prefix.

- Example: `/%OMProject[./#expected/mw:OMProject/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|-----------------|----------------|-----------------------|-----------|------|
| OMProject | | Project information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Official name | string | 0..1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | ipAddress | Attribute | IP address | string | 0..1 |
| | | | subSystemNumber | Attribute | Subsystem number | int | 1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|-----------------------|-----------|------|
| | | | access | Attribute | Access permissions | string | 0..1 |
| | | | ownerName | Attribute | Project owner | string | 1 |

6.63 InterstageApplicationServer

When specifying an element in the Element Name cell using an XPath expression, assign "mw" as the namespace prefix.

- Example: `/%InterstageApplicationServer[./#expected/mw:InterstageApplication/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------------------|-----------------------------|--|-----------------------------|----------------|--|-----------|------|
| InterstageApplicationServer | | Interstage Application Server middleware information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Product name | string | 0..1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | ipAddress | Attribute | IP address | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| | | | edition | Attribute | Edition | string | 0..1 |
| | | | version | Attribute | Version | string | 0..1 |
| | | | ISSystemSettings | Element | Environment settings | - | 0..1 |
| | | | ISConfigurationSettings | Element | Configuration management | - | 0..1 |
| | | | ISService | Element | Service information | - | 0..1 |
| | | | ISResource | Element | Resource information | - | 0..1 |
| ISSecurity | Element | Security information | - | 0..1 | | | |
| ISSystemSettings | InterstageApplicationServer | Environment settings | J2EESettings | Element | J2EE properties | - | 0..1 |
| | | | SynchronizedServices | Element | Synchronization with Interstage | - | 0..1 |
| | | | SystemSettings | Element | Detailed settings for the system | - | 0..1 |
| | | | CORBAServiceSettings | Element | Detailed settings for the CORBA Service | - | 0..1 |
| | | | NamingServiceSettings | Element | Detailed settings for the naming service | - | 0..1 |
| | | | InterfaceRepositorySettings | Element | Detailed settings for the interface repository | - | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------|------------------|---|--|----------------|--|-----------|------|
| | | | EventServiceSettings | Element | Detailed settings for the event service | - | 0..1 |
| | | | TransactionServiceSettings | Element | Detailed settings for the Transaction Service | - | 0..1 |
| | | | ServletServiceSettings | Element | Detailed settings for the Servlet Service | - | 0..1 |
| | | | EJBServiceSettings | Element | Detailed settings for the EJB Service | - | 0..1 |
| J2EESettings | ISSystemSettings | J2EE properties | classpath | Attribute | Classpath | string | 0..1 |
| | | | path | Attribute | Path | string | 0..1 |
| | | | libraryPath | Attribute | Path to the library | string | 0..1 |
| | | | javaVMOption | Attribute | JavaVM options | string | 0..1 |
| | | | j2eeFolder | Attribute | J2EE common directory | string | 0..1 |
| SynchronizedServices | ISSystemSettings | Synchronization with Interstage | isWebServerSynchronizedWithSystemEnabled | Attribute | Synchronizes Web server start and stop operations with the system (Interstage) start and stop operations | boolean | 0..1 |
| SystemSettings | ISSystemSettings | Detailed settings for the system | stateMonitoredMode | Attribute | Operational status monitoring mode | string | 0..1 |
| | | | isAutoExtensionEnabled | Attribute | Indicates whether auto extensions are enabled | boolean | 0..1 |
| CORBAServiceSettings | ISSystemSettings | Detailed settings for the CORBA Service | portNumber | Attribute | Port number | int | 0..1 |
| | | | maxResponseConnection | Attribute | Maximum number of connections from clients | int | 0..1 |
| | | | maxResponseRequests | Attribute | Maximum number of requests from clients | int | 0..1 |
| | | | receiveTimeout | Attribute | Client timeout time | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------------------|------------------|--|-----------------------------------|----------------|--|-----------|------|
| | | | ipVersion | Attribute | IP version | string | 0..1 |
| | | | idleConnectionTimeout | Attribute | Non-communications monitoring time on the server side | int | 0..1 |
| | | | isHttpProxyEnabled | Attribute | Communications via an HTTP proxy server | boolean | 0..1 |
| | | | httpProxyHostName | Attribute | Host name of the HTTP proxy server | string | 0..1 |
| | | | httpProxyPortNumber | Attribute | Port number of the HTTP proxy server | int | 0..1 |
| | | | isSSEnabled | Attribute | Uses SSL | boolean | 0..1 |
| | | | sslPortNumber | Attribute | SSL listen port number | int | 0..1 |
| | | | sslName | Attribute | SSL definition | string | 0..1 |
| NamingServiceSettings | ISSystemSettings | Detailed settings for the naming service | isLocalNamingServiceEnabled | Attribute | Uses the local host's naming service | boolean | 0..1 |
| | | | hostName | Attribute | Server host name | string | 0..1 |
| | | | portNumber | Attribute | Port number | int | 0..1 |
| InterfaceRepositorySettings | ISSystemSettings | Detailed settings for the interface repository | isLocalInterfaceRepositoryEnabled | Attribute | Uses the local host's interface repository | boolean | 0..1 |
| | | | hostName | Attribute | Server host name | string | 0..1 |
| | | | portNumber | Attribute | Port number | int | 0..1 |
| EventServiceSettings | ISSystemSettings | Detailed settings for the event service | isEnabled | Attribute | Uses the event service | boolean | 0..1 |
| | | | maxConnection | Attribute | Maximum number of connections for dynamically generated event channels | int | 0..1 |
| | | | maxProcess | Attribute | Maximum number of processes for dynamically generated event channels | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------------|------------------|--|--------------------------|----------------|---|-----------|------|
| | | | isSSLEnabled | Attribute | SSL communications using dynamically generated event channels | boolean | 0..1 |
| | | | isAutoDisconnectEnabled | Attribute | Function for automatically releasing connections for dynamically generated event channels | boolean | 0..1 |
| | | | isEnabled | Attribute | Uses the Transaction Service (OTS) | boolean | 0..1 |
| TransactionServiceSettings | ISSystemSettings | Detailed settings for transactions (OTS) | mode | Attribute | System mode | string | 0..1 |
| | | | logFile | Attribute | Path to the transaction log | string | 0..1 |
| | | | maxNumber | Attribute | Maximum number of transactions | int | 0..1 |
| | | | otsSystemConcurrency | Attribute | OTS system concurrency | int | 0..1 |
| | | | jtsRmpProcessConcurrency | Attribute | JTS RMP process concurrency | int | 0..1 |
| | | | jtsRmpThreadConcurrency | Attribute | JTS RMP thread concurrency | int | 0..1 |
| | | | participate | Attribute | Number of participating resources | int | 0..1 |
| | | | hostName | Attribute | Host name for the naming service used by the OTS system | string | 0..1 |
| | | | portNumber | Attribute | Port number for the naming service used by the OTS system | int | 0..1 |
| | | | isNodeTypeActive | Attribute | Node type | boolean | 0..1 |
| | | | timeout | Attribute | Transaction timeout time | int | 0..1 |
| | | | twoPcTimeout | Attribute | 2-phase commitment timeout | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------------------|-----------------------------|---|------------------------------------|----------------|---|-----------|------|
| | | | resourceTransactionMax | Attribute | Maximum number of resource transactions | int | 0..1 |
| | | | javaVersion | Attribute | JDK/JRE version for JTS RMP | int | 0..1 |
| | | | path | Attribute | Path to the JDK/JRE for JTS RMP | string | 0..1 |
| | | | traceMode | Attribute | Trace mode | int | 0..1 |
| | | | traceLevel | Attribute | Trace level | int | 0..1 |
| | | | editMode | Attribute | Operates the Web server and WorkUnits on the same machine | string | 0..1 |
| ServletServiceSettings | ISSystemSettings | Detailed settings for the Servlet Service | isEJBQLExtensionEnabled | Attribute | EJB QL extension for CMP 2.0 | boolean | 0..1 |
| EJBServiceSettings | ISSystemSettings | Detailed settings for the EJB Service | updateCmp11ByteArrayOpinion | Attribute | Method to determine whether byte arrays for CMP 1.1 have been updated | string | 0..1 |
| | | | speedUpCmp2MultipleConditionSearch | Attribute | High-speed multiple-item searches for CMP 2.0 | string | 0..1 |
| | | | repositoryPath | Attribute | Path to the storage directory for the repository | string | 0..1 |
| ISConfiguration Settings | InterstageApplicationServer | Configuration management | repositorySize | Attribute | Maximum size of the repository | int | 0..1 |
| | | | EventService | Element | Event service information | - | 0..1 |
| ISService | InterstageApplicationServer | Service information | WebServer | Element | Web server information | - | 0..* |
| | | | dynamicEventChannelMax | Attribute | Maximum number of dynamically generated event channels that can start | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------------|-------------------------|----------------|--|-----------|------|
| EventService | ISService | Event service information | staticEventChannelMax | Attribute | Maximum number of statically generated event channels that can start | int | 0..1 |
| | | | logSize | Attribute | Size of the log file where error information is output (KB) | int | 0..1 |
| | | | isAutoStartEnabled | Attribute | Indicates whether the event channel starts automatically when the event service starts | boolean | 0..1 |
| | | | globalTransactionMax | Attribute | Number of global transactions that can be executed simultaneously | int | 0..1 |
| | | | observeCommitTimeout | Attribute | 2-phase commit transaction timeout (seconds) | int | 0..1 |
| | | | retryTime | Attribute | Retry interval during recovery (seconds) | int | 0..1 |
| | | | retryMax | Attribute | Number of retries during recovery | int | 0..1 |
| | | | waitingTime | Attribute | Time to wait for event data for Mixed model (seconds) | int | 0..1 |
| | | | livingTime | Attribute | Lifetime for event data accumulated in event channels (seconds) | int | 0..1 |
| | | | localTransactionTimeout | Attribute | Timeout time for local transactions (seconds) | int | 0..1 |
| | | | isCheckConsumerEnabled | Attribute | Error return mode for when a consumer is not connected | boolean | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|---------------------------------------|----------------|--|-----------|------|
| | | | isDisconnectEnabled | Attribute | Whether to call the disconnect method on suppliers or consumers when event channels terminate | boolean | 0..1 |
| | | | channelBlockadeLevel | Attribute | Blockade mode for each channel | string | 0..1 |
| | | | surveillanceEventDataQueueRate | Attribute | Ratio of the monitoring value to the maximum number of event data records that can accumulate in an event channel | int | 0..1 |
| | | | surveillanceRestartEventDataQueueRate | Attribute | Ratio of the safety value to the maximum number of event data records that can accumulate in an event channel | int | 0..1 |
| | | | blockadeReleaseEventDataRate | Attribute | Ratio of the auto blockade release value to the maximum number of event data records that can accumulate in an event channel | int | 0..1 |
| | | | eventDataMax | Attribute | Maximum number of event data records that can accumulate in an event channel | int | 0..1 |
| | | | nonvolatileLivingTime | Attribute | Lifetime (seconds) for the event data accumulated in event channels during nonvolatile operations for event data and | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|--|-------------------|----------------|--|-----------|-----------|
| | | | | | connection information | | |
| | | | EventUnit | Element | Unit information | - | 0..* |
| | | | EventChannel | Element | Event channel information | - | 0..* |
| | | | unitID | Attribute | Unit name | string | 0..1 |
| EventUnit | EventService | Unit information | unitMode | Attribute | Unit mode | string | 0..1 |
| | | | userDirectory | Attribute | Name of the directory for storing files for event data | string | 0..1 |
| | | | systemDirectory | Attribute | Name of the directory for storing files for the system | string | 0..1 |
| | | | qmDirectory | Attribute | Name of the directory for storing files for transactions | string | 0..1 |
| | | | transactionMax | Attribute | Maximum number of concurrent transactions | int | 0..1 |
| | | | systemSize | Attribute | Size of the files for the system | int | 0..1 |
| | | | systemQueueNumber | Attribute | Number of areas for storing data for the system | int | 0..1 |
| | | | userSize | Attribute | Size of the files for event data | int | 0..1 |
| | | | userQueueNumber | Attribute | Number of areas for storing event data | int | 0..1 |
| | | | shareMemoryMax | Attribute | Size of the shared memory used by units | int | 0..1 |
| | | | groupName | Attribute | Group name for the event channel | string | 0..1 |
| | | | EventChannel | EventService | Event channel information | name | Attribute |
| model | Attribute | Communications model for the event channel | | | | string | 0..1 |
| unitID | Attribute | Unit where an event channel is | | | | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|--------------------------------|----------------|--|-----------|------|
| | | | | | created to perform nonvolatile operations | | |
| | | | status | Attribute | Event channel status | string | 0..1 |
| | | | consumerCount | Attribute | Number of consumers connected to the event channel | int | 0..1 |
| | | | supplierCount | Attribute | Number of suppliers connected to the event channel | int | 0..1 |
| | | | isNotificationModeEnabled | Attribute | Notification service | boolean | 0..1 |
| | | | persistMode | Attribute | Nonvolatile operations | string | 0..1 |
| | | | isGlobalTransactionModeEnabled | Attribute | Global transaction operations | boolean | 0..1 |
| | | | isLocalTransactionModeEnabled | Attribute | Local transaction operations | boolean | 0..1 |
| | | | maxNumber | Attribute | Maximum number of connections for the producers and consumers connected to event channels included in the group | int | 0..1 |
| | | | isSSLEnabled | Attribute | SSL communications | boolean | 0..1 |
| | | | isAutoDisconnectEnabled | Attribute | Automatically collects the connection information that remains in the event channel if the consumer or supplier terminates without issuing the disconnect method | boolean | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------------|----------------|----------------------|---------------------------------------|----------------|---|-----------|------|
| | | | isAutoStartEnabled | Attribute | Automatically starts the event channel when the event service starts | boolean | 0..1 |
| | | | EventChannelSystemSettings | Element | Environment settings | - | 0..1 |
| | | | waitingTime | Attribute | Time to wait for event data for Mixed model (seconds) | int | 0..1 |
| | | | livingTime | Attribute | Lifetime for event data accumulated in event channels (seconds) | int | 0..1 |
| EventChannelSystemSettings | EventChannel | Environment settings | localTransactionTimeout | Attribute | Timeout time for local transactions (seconds) | int | 0..1 |
| | | | isCheckConsumerEnabled | Attribute | Error return mode for when a consumer is not connected | boolean | 0..1 |
| | | | isDisconnectEnabled | Attribute | Whether to call the disconnect method on suppliers or consumers when event channels terminate | boolean | 0..1 |
| | | | channelBlockadeLevel | Attribute | Blockade mode for each channel | string | 0..1 |
| | | | surveillanceEventDataQueueRate | Attribute | Ratio of the monitoring value to the maximum number of event data records that can accumulate in an event channel | int | 0..1 |
| | | | surveillanceRestartEventDataQueueRate | Attribute | Ratio of the safety value to the maximum number of event data records that can accumulate | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|------------------------|------------------------------|----------------|---|-----------|------|
| | | | | | in an event channel | | |
| | | | blockadeReleaseEventDataRate | Attribute | Ratio of the auto blockade release value to the maximum number of event data records that can accumulate in an event channel | int | 0..1 |
| | | | eventDataMax | Attribute | Maximum number of event data records that can accumulate in an event channel | int | 0..1 |
| | | | nonvolatileLivingTime | Attribute | Lifetime (seconds) for the event data accumulated in event channels during nonvolatile operations for event data and connection information | int | 0..1 |
| | | | id | Attribute | Unique identifier | ID | 1 |
| | | | wwwName | Attribute | Web server name | string | 0..1 |
| WebServer | ISService | Web server information | status | Attribute | Status | string | 0..1 |
| | | | documentRoot | Attribute | Top directory for the server resources that are published to clients | string | 0..1 |
| | | | portNumber | Attribute | Port number | string | 0..1 |
| | | | hostName | Attribute | Host name or IP address of the server | string | 0..1 |
| | | | timeout | Attribute | Timeout (seconds) | int | 0..1 |
| | | | isKeepAliveEnabled | Attribute | Uses the HTTP Keep-Alive function | boolean | 0..1 |
| | | | keepAliveTimeout | Attribute | Timeout value until the next | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|--------------------|----------------|--|-----------|------|
| | | | | | request for Keep-Alive connections (seconds) | | |
| | | | maxClients | Attribute | Maximum number of requests that can be handled simultaneously | int | 0..1 |
| | | | limitRequestBody | Attribute | Limit to the size of the body of the request message | int | 0..1 |
| | | | errorLogFile | Attribute | File name of the error log | string | 0..1 |
| | | | errorLogType | Attribute | Rotation type for the error log | string | 0..1 |
| | | | errorLogSizeOrDay | Attribute | Maximum file size of the error log (MB) / Rotation interval (days) | int | 0..1 |
| | | | errorLogNumber | Attribute | Number of error log files | int | 0..1 |
| | | | accessLogFile | Attribute | File path to the access log | string | 0..1 |
| | | | accessLogFormat | Attribute | Format of the access log | string | 0..1 |
| | | | accessLogType | Attribute | Rotation type for the access log | string | 0..1 |
| | | | accessLogSizeOrDay | Attribute | Maximum file size of the access log (MB)/ Rotation interval (days) | int | 0..1 |
| | | | accessLogNumber | Attribute | Number of access log files | int | 0..1 |
| | | | isSSLEnabled | Attribute | Uses SSL | boolean | 0..1 |
| | | | sslName | Attribute | SSL definition name | string | 0..1 |
| | | | VirtualHost | Element | Virtual host information | - | 0..* |
| | | | WebServerConnector | Element | Web server connector information | - | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|--------------------------|-------------------------|----------------|--|-----------|------|
| | | | id | Attribute | Unique identifier | ID | 1 |
| | | | ipAddress | Attribute | IP address | string | 0..1 |
| VirtualHost | WebServer | Virtual host information | portNumber | Attribute | Port number | int | 0..1 |
| | | | serverName | Attribute | Server host name | string | 0..1 |
| | | | documentRoot | Attribute | Top directory for the server resources that are published to clients | string | 0..1 |
| | | | errorLogFile | Attribute | File name of the error log | string | 0..1 |
| | | | errorLogType | Attribute | Rotation type for the error log | string | 0..1 |
| | | | errorLogSizeOrDay | Attribute | Maximum file size of the error log (MB)/ Rotation interval (days) | int | 0..1 |
| | | | errorLogNumber | Attribute | Number of error log files | int | 0..1 |
| | | | accessLogFile | Attribute | File path to the access log | string | 0..1 |
| | | | accessLogFormat | Attribute | Format of the access log | string | 0..1 |
| | | | accessLogType | Attribute | Rotation type for the access log | string | 0..1 |
| | | | accessLogSizeOrDay | Attribute | Maximum file size of the access log (MB)/ Rotation interval (days) | int | 0..1 |
| | | | accessLogNumber | Attribute | Number of access log files | int | 0..1 |
| | | | isSSEnabled | Attribute | Uses SSL | boolean | 0..1 |
| | | | sslName | Attribute | SSL definition name | string | 0..1 |
| | | | logDirectory | Attribute | Log output directory | string | 0..1 |
| | | | isRolloverBySizeEnabled | Attribute | Indicates whether to back up logs according to the log size | boolean | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------------|-----------------------------|----------------------------------|-------------------------|----------------|---|-----------|------|
| WebServerConnector | WebServer | Web server connector information | logSize | Attribute | Log size | string | 0..1 |
| | | | isRolloverByTimeEnabled | Attribute | Indicates whether to back up logs at log collection times | boolean | 0..1 |
| | | | startTime | Attribute | Start time | string | 0..1 |
| | | | interval | Attribute | Repetition interval | string | 0..1 |
| | | | historyNumber | Attribute | Number of generations | string | 0..1 |
| | | | isDebugEnabled | Attribute | Debug information | boolean | 0..1 |
| | | | JDBC | Element | JDBC information | - | 0..* |
| | | | JMS | Element | JMS information | - | 0..1 |
| ISResource | InterstageApplicationServer | Resource information | JavaMail | Element | JavaMail information | - | 0..* |
| | | | dataSourceName | Attribute | Data source name | string | 0..1 |
| | | | databaseKind | Attribute | Database type | string | 0..1 |
| JDBC | ISResource | JDBC information | userID | Attribute | User ID for connecting to the database | string | 0..1 |
| | | | password | Attribute | Password for the user ID for connecting to the database | string | 0..1 |
| | | | hostName | Attribute | Host name or IP address of the server | string | 0..1 |
| | | | portNumber | Attribute | Port number of the server | int | 0..1 |
| | | | databaseName | Attribute | Name of the PostgreSQL, SQL Server or Symfoware database | string | 0..1 |
| | | | symfoDataSource | Attribute | Symfoware data source type | string | 0..1 |
| | | | symfoNetworkProtocol | Attribute | Symfoware connection protocol information | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|--------------------|----------------|--|-----------|------|
| | | | symfoAccessLog | Attribute | Indicates whether Symfoware outputs Web server connection information to audit logs | string | 0..1 |
| | | | symfoSchemaName | Attribute | Default schema name for Symfoware | string | 0..1 |
| | | | symfoSYMParameter | Attribute | Other Symfoware parameters | string | 0..1 |
| | | | oraDataSource | Attribute | Data source type for the Oracle JDBC driver | string | 0..1 |
| | | | isOraRacEnabled | Attribute | Indicates whether to use the Oracle RAC function | boolean | 0..1 |
| | | | oraDriverType | Attribute | Driver type that allows the JNDI service provider (for the Oracle JDBC driver) to access the naming service | string | 0..1 |
| | | | oraNetworkProtocol | Attribute | Network protocol that allows the JNDI service provider (for the Oracle JDBC driver) to access the naming service | string | 0..1 |
| | | | sid | Attribute | Server sid that allows the JNDI service provider (for the Oracle JDBC driver) to access the naming service | string | 0..1 |
| | | | oraUrl | Attribute | Server URL that allows the JNDI service provider (for the Oracle JDBC driver) to access the naming service | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|------------------------------------|----------------|---|-----------|------|
| | | | isFileSystemServiceProviderEnabled | Attribute | Indicates whether to use File System Service Provider to register the data source | boolean | 0..1 |
| | | | initialContextFactory | Attribute | Class name that allows the JNDI service provider (for the JDBC driver) to access the naming service | string | 0..1 |
| | | | providerUrl | Attribute | URL that allows the JNDI service provider (for the JDBC driver) to access the naming service | string | 0..1 |
| | | | jdbcDataSourceName | Attribute | Displays, in "jdbc/data source name" format, the name of the data source that has been registered with the naming service for the JDBC driver | string | 0..1 |
| | | | oraMakeBindings | Attribute | Indicates whether a ".bindings" file (which specifies access definitions for the Oracle JDBC driver) can be created | string | 0..1 |
| | | | sqlserverDataSource | Attribute | SQL Server data source type | string | 0..1 |
| | | | msMakeBindings | Attribute | Indicates whether a ".bindings" file (which specifies access definitions for the Microsoft SQL Server JDBC driver) can be created | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------------------|----------------|--|--------------------------|----------------|---|-----------|------|
| | | | jdbcVersion | Attribute | Version of the JDBC driver being used | string | 0..1 |
| | | | postgreDataSource | Attribute | Data source type for the PostgreSQL JDBC driver | string | 0..1 |
| | | | postgreMakeBindings | Attribute | Indicates whether a ".bindings" file (which specifies access definitions for the PostgreSQL JDBC driver) can be created | string | 0..1 |
| | | | dataSourceClassName | Attribute | Data source class name for generic definitions | string | 0..1 |
| | | | logWriter | Attribute | Path to the log writer for generic definitions | string | 0..1 |
| | | | OracleConnectionProperty | Element | Information for connection properties for Oracle | - | 0..* |
| | | | OtherDatabaseProperty | Element | Other database property information | - | 0..* |
| | | | name | Attribute | Property name | string | 0..1 |
| | | | value | Attribute | Property value | string | 0..1 |
| OracleConnectionProperty | JDBC | Information for connection properties for Oracle | name | Attribute | Property name | string | 0..1 |
| | | | type | Attribute | Data type | string | 0..1 |
| OtherDatabaseProperty | JDBC | Other database property information | value | Attribute | Property value | string | 0..1 |
| | | | dynamicEventChannelMax | Attribute | Maximum number of dynamically generated event channels that can start | int | 0..1 |
| | | | staticEventChannelMax | Attribute | Maximum number of statically | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|--------------------------------|----------------|---|-------------------------|-----------|
| | | | | | generated event channels that can start | | |
| JMS | ISResource | JMS information | logSize | Attribute | Size of the log file where error information is output (KB) | int | 0..1 |
| | | | isAutoStartEnabled | Attribute | Indicates whether the event channel starts automatically when the event service starts | boolean | 0..1 |
| | | | globalTransactionMax | Attribute | Number of global transactions that can be executed simultaneously | int | 0..1 |
| | | | observeCommitTimeout | Attribute | 2-phase commit transaction timeout (seconds) | int | 0..1 |
| | | | retryTime | Attribute | Retry interval during recovery (seconds) | int | 0..1 |
| | | | retryMax | Attribute | Number of retries during recovery | int | 0..1 |
| | | | waitingTime | Attribute | Time to wait for event data (seconds) | int | 0..1 |
| | | | | | | localTransactionTimeout | Attribute |
| | | | isCheckConsumerEnabled | Attribute | Error return mode when a consumer is not connected | boolean | 0..1 |
| | | | channelBlockadeLevel | Attribute | Blockade mode for each channel | string | 0..1 |
| | | | surveillanceEventdataQueueRate | Attribute | Ratio of the monitoring value to the maximum number of event data records that can accumulate | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------|----------------|--------------------------|---------------------------------------|----------------|--|-----------|------|
| | | | | | in an event channel | | |
| | | | surveillanceRestartEventDataQueueRate | Attribute | Ratio of the safety value to the maximum number of event data records that can accumulate in an event channel | int | 0..1 |
| | | | blockadeReleaseEventDataRate | Attribute | Ratio of the auto blockade release value to the maximum number of event data records that can accumulate in an event channel | int | 0..1 |
| | | | eventDataMax | Attribute | Maximum number of event data records that can accumulate in an event channel | int | 0..1 |
| | | | EventUnit | Element | Unit information | - | 0..* |
| | | | JMSEventChannel | Element | Event channel information | - | 0..* |
| | | | ConnectionFactory | Element | ConnectionFactory information | - | 0..1 |
| | | | Destination | Element | Destination information | - | 0..* |
| | | | groupName | Attribute | Group name for the event channel | string | 0..1 |
| | | | name | Attribute | Event channel name | string | 0..1 |
| JMSEventChannel | JMS | EventChannel information | destinationType | Attribute | JNDI type | string | 0..1 |
| | | | destinationName | Attribute | JNDI name | string | 0..1 |
| | | | status | Attribute | Event channel status | string | 0..1 |
| | | | consumerCount | Attribute | Number of consumers connected to the event channel | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|--------------------------------|----------------|---|-----------|------|
| | | | supplierCount | Attribute | Number of producers connected to the event channel | int | 0..1 |
| | | | persistMode | Attribute | Nonvolatile operations | string | 0..1 |
| | | | unitID | Attribute | Unit where an event channel is created to perform nonvolatile operations | string | 0..1 |
| | | | isGlobalTransactionModeEnabled | Attribute | Global transaction operations | boolean | 0..1 |
| | | | maxNumber | Attribute | Maximum number of connections for the producers and consumers connected to event channels included in the group | int | 0..1 |
| | | | isSSLEnabled | Attribute | Indicates whether to perform SSL communications | boolean | 0..1 |
| | | | isAutoStartEnabled | Attribute | Indicates whether the event channel starts automatically when the event service starts | boolean | 0..1 |
| | | | JMSEventChannelSystemSettings | Element | Environment settings | - | 0..1 |
| | | | waitingTime | Attribute | Time to wait for event data | int | 0..1 |
| | | | localTransactionTimeout | Attribute | Timeout time for local transactions (seconds) | int | 0..1 |
| | | | isCheckConsumerEnabled | Attribute | Error return mode when a consumer is not connected | boolean | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-------------------------------|-------------------|------------------------------------|---------------------------------------|----------------|--|-----------|-----------|
| JMSEventChannelSystemSettings | JMSEventChannel | Environment settings | channelBlockadeLevel | Attribute | Blockade mode for each channel | string | 0..1 |
| | | | surveillanceEventDataQueueRate | Attribute | Ratio of the monitoring value to the maximum number of event data records that can accumulate in an event channel | int | 0..1 |
| | | | surveillanceRestartEventDataQueueRate | Attribute | Ratio of the safety value to the maximum number of event data records that can accumulate in an event channel | int | 0..1 |
| | | | blockadeReleaseEventDataRate | Attribute | Ratio of the auto blockade release value to the maximum number of event data records that can accumulate in an event channel | int | 0..1 |
| | | | eventDataMax | Attribute | Maximum number of event data records that can accumulate in an event channel | int | 0..1 |
| | | | QueueConnectionFactory | Element | QueueConnectionFactory information | - | 0..* |
| | | | TopicConnectionFactory | Element | TopicConnectionFactory information | - | 0..* |
| | | | jndiName | Attribute | JNDI name | string | 0..1 |
| | | | ConnectionFactory | JMS | ConnectionFactory information | type | Attribute |
| | | | clientID | Attribute | Client ID | string | 0..1 |
| QueueConnectionFactory | ConnectionFactory | QueueConnectionFactory information | globalTransactionMode | Attribute | Global transaction operations | boolean | 0..1 |
| | | | jndiName | Attribute | JNDI name | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------------|-----------------------------|------------------------------------|-------------------------|----------------|---|-----------|------|
| | | | type | Attribute | Type | string | 0..1 |
| | | | clientID | Attribute | Client ID | string | 0..1 |
| TopicConnectionFactory | ConnectionFactory | TopicConnectionFactory information | globalTransactionMode | Attribute | Global transaction operations | boolean | 0..1 |
| | | | jndiName | Attribute | JNDI name | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | groupName | Attribute | Group name | string | 0..1 |
| Destination | JMS | Destination information | channelName | Attribute | Event channel name | string | 0..1 |
| | | | ipAddress | Attribute | Host name or IP address | string | 0..1 |
| | | | portNumber | Attribute | Port number | int | 0..1 |
| | | | name | Attribute | Definition name | string | 0..1 |
| | | | sender | Attribute | Mail sender | string | 0..1 |
| | | | userID | Attribute | Login ID | string | 0..1 |
| JavaMail | ISResource | JavaMail information | pop3HostName | Attribute | Name of the mail server that receives mail via POP3 | string | 0..1 |
| | | | pop3PortNumber | Attribute | POP3 port number | int | 0..1 |
| | | | imapHostName | Attribute | Name of the mail server that receives mail via IMAP | string | 0..1 |
| | | | imapPortNumber | Attribute | IMAP port number | int | 0..1 |
| | | | smtpHostName | Attribute | SMTP server name | string | 0..1 |
| | | | smtpPortNumber | Attribute | Port number of the SMTP server | int | 0..1 |
| | | | Certificate | Element | Certificate information | - | 0..* |
| | | | SSL | Element | SSL information | - | 0..* |
| | | | LoginUserAuthentication | Element | Operation security information | - | 0..* |
| ISSecurity | InterstageApplicationServer | Security information | SiteCertificate | Element | Site certificate | - | 0..* |
| | | | CaCertificate | Element | CA certificate | - | 0..* |
| | | | nickname | Attribute | Certificate nickname | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------|----------------|-------------------------|-------------------------|----------------|--|-----------|------|
| Certificate | ISSecurity | Certificate information | serialNumber | Attribute | Certificate serial number | string | 0..1 |
| | | | enableStart | Attribute | Starting date/time for the validity period for the certificate | dateTime | 0..1 |
| SiteCertificate | Certificate | Site certificate | enableEnd | Attribute | Ending date/time for the validity period for the certificate | dateTime | 0..1 |
| | | | publisherInformation | Attribute | Identification information for the certificate issuer | string | 0..1 |
| | | | ownerInformation | Attribute | Identification information for the certificate owner | string | 0..1 |
| | | | nickname | Attribute | Certificate nickname | string | 0..1 |
| | | | serialNumber | Attribute | Certificate serial number | string | 0..1 |
| | | | enableStart | Attribute | Starting date/time for the validity period for the certificate | dateTime | 0..1 |
| CaCertificate | Certificate | CA certificate | enableEnd | Attribute | Ending date/time for the validity period for the certificate | dateTime | 0..1 |
| | | | publisherInformation | Attribute | Identification information for the certificate issuer | string | 0..1 |
| | | | ownerInformation | Attribute | Identification information for the certificate owner | string | 0..1 |
| | | | name | Attribute | Definition name | string | 0..1 |
| | | | siteCertificateNickname | Attribute | Site certificate nickname | string | 0..1 |
| | | | protocolVersion | Attribute | SSL protocol version | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-------------------------|----------------|--------------------------------|------------------------------|----------------|---|-----------|------|
| SSL | ISSecurity | SSL information | certificateVerifyLevel | Attribute | Certificate authentication level | string | 0..1 |
| | | | cipherSSL2 | Attribute | Encryption method used by SSL v2 | string | 0..1 |
| | | | cipherSSL3 | Attribute | Encryption method used by SSL v3 | string | 0..1 |
| | | | caCertificateNickname | Attribute | CA certificate nickname | string | 0..1 |
| | | | userRepository | Attribute | Authentication method to be used | string | 0..1 |
| | | | hostname | Attribute | Host name | string | 0..1 |
| | | | portNumber | Attribute | Port number | int | 0..1 |
| LoginUserAuthentication | ISSecurity | Operation security information | baseDN | Attribute | Search base distinguished name | string | 0..1 |
| | | | administratorDN | Attribute | Administrator DN | string | 0..1 |
| | | | isSSLEnabled | Attribute | Uses SSL | boolean | 0..1 |
| | | | sslPortNumber | Attribute | Port number used for SSL communications | int | 0..1 |
| | | | sslEnvironmentDefinitionFile | Attribute | SSL definition information | string | 0..1 |
| | | | | | | | |
| | | | | | | | |

6.64 ISWorkUnit

When specifying an element in the Element Name cell using an XPath expression, assign "mw" as the namespace prefix.

- Example: `/%ISWorkUnit[#expected/mw:ISWorkUnit/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|----------------------|----------------|----------------|-----------------------|-----------|------|
| ISWorkUnit | | WorkUnit information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | WorkUnit name | string | 0..1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | ipAddress | Attribute | IP address | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------------|------------------------|----------------------|-------------------------------------|----------------|---|-----------|------|
| | | | type | Attribute | IJServer operation type | string | 0..1 |
| | | | userName | Attribute | Startup user | string | 0..1 |
| | | | WorkUnitSystemSettings | Element | Environment settings | - | 0..1 |
| | | | LogDefinition | Element | Log definition | - | 0..1 |
| | | | ExecClass | Element | Execution class | - | 0..* |
| WorkUnitSystemSettings | ISWorkUnit | Environment settings | WorkUnitSettings | Element | WorkUnit settings | - | 0..1 |
| | | | CommonApplicationSettings | Element | Common definitions | - | 0..1 |
| | | | WebServerConnectorSettings | Element | Web server connector settings | - | 0..1 |
| | | | ServletContainerSettings | Element | Servlet settings | - | 0..1 |
| | | | EJBContainerSettings | Element | EJB container settings | - | 0..1 |
| | | | DBConnectionSettings | Element | DB connection settings | - | 0..1 |
| | | | SessionRecoverySettings | Element | Session recovery settings | - | 0..1 |
| WorkUnitSettings | WorkUnitSystemSettings | WorkUnit settings | isWorkUnitAutomaticStartModeEnabled | Attribute | Auto startup for the WorkUnit | boolean | 0..1 |
| | | | startupMonitorTime | Attribute | The time to wait for the WorkUnit to start | int | 0..1 |
| | | | shutdownMonitorTime | Attribute | The time to wait for a process to be forcibly shut down | int | 0..1 |
| | | | abnormalTerminationCounts | Attribute | Retry count | int | 0..1 |
| | | | isDebugModeEnabled | Attribute | WorkUnit startup in debug mode | boolean | 0..1 |
| | | | currentDirectory | Attribute | Current directory | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------------|------------------|-------------------------------|--|----------------|---|-----------|------|
| | | | isUniqueCurrentDirectoryEnabled | Attribute | Indicates whether to make the current directory unique within IJServer | boolean | 0..1 |
| | | | numberOfRevisionsDirectories | Attribute | Number of generations of the current directory to back up | int | 0..1 |
| | | | logDirectory | Attribute | Log output directory | string | 0..1 |
| | | | isControlApplicationAutoRestartFailedEnabled | Attribute | Control used when application auto restart fails | boolean | 0..1 |
| | | | WebWorkUnitSettings | Element | WorkUnit settings for the Web | - | 0..1 |
| | | | EJBWorkUnitSettings | Element | WorkUnit settings for EJB | - | 0..1 |
| WebWorkUnitSettings | WorkUnitSettings | WorkUnit settings for the Web | processConcurrency | Attribute | Process concurrency | int | 0..1 |
| | | | javaVersion | Attribute | Java version | string | 0..1 |
| | | | javaCommandOptions | Attribute | JavaVM options | string | 0..1 |
| | | | isReactivationOutOfProcessAtOutOfMemoryEnabled | Attribute | Control used when the Java heap or the Java Permanent area runs out of memory | boolean | 0..1 |
| | | | maximumProcessingTime | Attribute | Maximum processing time for the application | int | 0..1 |
| | | | isTerminateProcessModeForTimeoutEnabled | Attribute | Control used when the maximum processing time for the application is exceeded | boolean | 0..1 |
| | | | retryCountResetTime | Attribute | Retry count reset time | int | 0..1 |
| | | | ClassPath | Element | Classpath | - | 0..* |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------------|---------------------|---|---|----------------|---|-----------|------|
| | | | LibraryForApplication | Element | Path to the application's own libraries | - | 0..* |
| | | | PathForApplication | Element | Path used by the application | - | 0..* |
| | | | EnvironmentVariable | Element | Environment variable | - | 0..* |
| ClassPath | WebWorkUnitSettings | Classpath | path | Attribute | Path | string | 0..1 |
| LibraryForApplication | WebWorkUnitSettings | Path to the library used by the application | path | Attribute | Path | string | 0..1 |
| PathForApplication | WebWorkUnitSettings | Path used by the application | path | Attribute | Path | string | 0..1 |
| EnvironmentVariable | WebWorkUnitSettings | Environment variable | - | Text | Environment variable | string | 1 |
| EJBWorkUnitSettings | WorkUnitSettings | WorkUnit settings for EJB | processConcurrency | Attribute | EJB application process concurrency | int | 0..1 |
| | | | javaVersion | Attribute | Java version | string | 0..1 |
| | | | javaCommandOptions | Attribute | JavaVM options | string | 0..1 |
| | | | isReactivationOfProcessAtOutOfMemoryEnabled | Attribute | Control used when the Java heap or the Java Permanent area runs out of memory | boolean | 0..1 |
| | | | maximumProcessingTime | Attribute | Maximum processing time for the application | int | 0..1 |
| | | | isTerminateProcessModeForTimeoutEnabled | Attribute | Control used when the maximum processing time for the application is exceeded | boolean | 0..1 |
| | | | retryCountResetTime | Attribute | Retry count reset time | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------------------|------------------------|---|-----------------------|----------------|---|-----------|------|
| | | | maxQueueCounts | Attribute | Maximum number of queues | int | 0..1 |
| | | | alarmQueueCounts | Attribute | Number of queues being monitored | int | 0..1 |
| | | | resetAlarmQueueCounts | Attribute | Number of queues for which monitoring restarts | int | 0..1 |
| | | | bufferNumber | Attribute | Number of communication buffers | int | 0..1 |
| | | | bufferSize | Attribute | Communication buffer length | int | 0..1 |
| | | | ClassPath | Element | Classpath | - | 0..* |
| | | | LibraryForApplication | Element | Path to the application's own libraries | - | 0..* |
| | | | PathForApplication | Element | Path used by the application | - | 0..* |
| | | | EnvironmentVariable | Element | Environment variable | - | 0..* |
| ClassPath | EJBWorkUnitSettings | Classpath | path | Attribute | Path | string | 0..1 |
| LibraryForApplication | EJBWorkUnitSettings | Path to the library used by the application | path | Attribute | Path | string | 0..1 |
| PathForApplication | EJBWorkUnitSettings | Path used by the application | path | Attribute | Path | string | 0..1 |
| EnvironmentVariable | EJBWorkUnitSettings | Environment variable | - | Text | Environment variable | string | 1 |
| CommonApplicationSettings | WorkUnitSystemSettings | Common definitions | isHotDeployEnabled | Attribute | HotDeploy function | boolean | 0..1 |
| | | | xmlParser | Attribute | Type of XML parser being used | string | 0..1 |
| | | | xmlParserDirectory | Attribute | Directory to use when an XML parser other than Xerces2 or | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------------|------------------------|-------------------------------|---------------------------------|----------------|---|-----------|------|
| | | | | | Fujitsu XML Processor is used | | |
| | | | isWebServiceContainerEnabled | Attribute | Web service function for the container | boolean | 0..1 |
| | | | classLoaderSeparationKind | Attribute | Class loader separation | string | 0..1 |
| | | | classLoaderSearchOrder | Attribute | Search order for the class loader | string | 0..1 |
| | | | autoReload | Attribute | Auto reload when the class file for the application has been changed | string | 0..1 |
| | | | autoReloadInterval | Attribute | Interval for checking whether the class file for the application has been changed | int | 0..1 |
| | | | isDistributedTransactionEnabled | Attribute | Transaction breakdown analysis | boolean | 0..1 |
| | | | distributedTransactionInterval | Attribute | Measurement intervals for transaction breakdown analysis | int | 0..1 |
| WebServerConnectorSettings | WorkUnitSystemSettings | Web server connector settings | connectorSendReceiveTimeout | Attribute | Transmission/reception timeout | string | 0..1 |
| | | | connectorAllowedMaxConnections | Attribute | Maximum number of connections to the Servlet container | string | 0..1 |
| | | | isSSLEnabled | Attribute | Uses SSL communications between the connector and the Servlet container | boolean | 0..1 |
| | | | sslName | Attribute | Definitions for SSL communications between the connector and | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------------------|----------------------------|---------------------|--------------------------|----------------|---|-----------|------|
| | | | | | the Servlet container | | |
| | | | isKeepAliveEnabled | Attribute | KeepAlive communications between the connector and the Servlet container | boolean | 0..1 |
| | | | WebServerRef | Attribute | Web server | - | 0..* |
| WebServerRef | WebServerConnectorSettings | Web server | idref | Attribute | ID reference for the Web server | IDREF | 1 |
| | | | VirtualHostRef | Element | Virtual host | - | 0..* |
| VirtualHostRef | WebServerRef | Virtual host | idref | Attribute | ID reference for the virtual host | IDREF | 1 |
| ServletContainerSettings | WorkUnitSystemSettings | Servlet settings | ipAddress | Attribute | IP address of the Servlet container | string | 0..1 |
| | | | timeout | Attribute | Timeout | int | 0..1 |
| | | | portNumber | Attribute | Port number | int | 0..1 |
| | | | connectorMaxRequests | Attribute | Maximum number of connections | int | 0..1 |
| | | | processorMinSpareThreads | Attribute | Initial and incremental values for processing threads for the Servlet container | int | 0..1 |
| | | | processorMaxThreads | Attribute | Maximum number of processing threads for the Servlet container | int | 0..1 |
| | | | processorMaxSpareThreads | Attribute | Maximum number of processing threads for the Servlet container while in a standby state | int | 0..1 |
| | | | isFileListEnabled | Attribute | Displays a list of files | boolean | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------|------------------------|------------------------|--------------------------------|----------------|--|-----------|------|
| | | | isInvokerServletMappingEnabled | Attribute | Runs the Servlet even if there are no mappings | boolean | 0..1 |
| | | | isCustomTagPoolingEnabled | Attribute | Uses custom tag pooling | boolean | 0..1 |
| | | | uriEncoding | Attribute | Encoding for the request URI | string | 0..1 |
| | | | bodyEncodingForUri | Attribute | Uses the encoding for request body processing in the query parameter | string | 0..1 |
| | | | fileEncoding | Attribute | Encoding for dispatching to static resources | string | 0..1 |
| | | | jspReloadMode | Attribute | JSP reload mode | string | 0..1 |
| | | | jspReloadCheckInterval | Attribute | Reload interval | int | 0..1 |
| | | | controlPortNumber | Attribute | Control port | string | 0..1 |
| | | | accessAuthorizationIpAddress | Attribute | IP address for which access is allowed | string | 0..1 |
| EJBContainerSettings | WorkUnitSystemSettings | EJB container settings | isEJBSSLEnabled | Attribute | Uses SSL for IIOP communications | boolean | 0..1 |
| | | | ejbMinProcessors | Attribute | Minimum number of IIOP calls that can be processed simultaneously | int | 0..1 |
| | | | ejbMaxProcessors | Attribute | Maximum number of IIOP calls that can be processed simultaneously | int | 0..1 |
| | | | mdbMinThreads | Attribute | Minimum number of messages that can be processed simultaneously by a message-driven bean in an EJB container process | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------|------------------------|------------------------|------------------------------------|----------------|--|-----------|------|
| | | | mdbMaxThreads | Attribute | Maximum number of messages that can be processed simultaneously by a message-driven bean in an EJB container process | int | 0..1 |
| | | | mdbPooledThreadIdleTimeout | Attribute | Idle timeout value | int | 0..1 |
| | | | isDistributedTransactionEnabled | Attribute | Uses distributed transactions | boolean | 0..1 |
| | | | trafficDirectorLoadDistribution | Attribute | Traffic Director method load distribution | string | 0..1 |
| | | | trafficDirectorHostName | Attribute | Virtual host name for the virtual IP address specified in the site load distribution policy for Traffic Director | string | 0..1 |
| | | | trafficDirectorRepresentationPort | Attribute | Main port specified for the CORBA Service for Traffic Director | int | 0..1 |
| | | | isTrafficDirectorMonitoringEnabled | Attribute | Operational status monitoring for the WorkUnit via Traffic Director | boolean | 0..1 |
| DBConnectionSettings | WorkUnitSystemSettings | DB connection settings | name | Attribute | Data source name | string | 0..1 |
| | | | isolationLevel | Attribute | Transaction isolation level | string | 0..1 |
| | | | connectionCount | Attribute | Number of pre-connections | int | 0..1 |
| | | | maxConnectionCount | Attribute | Maximum number of connections | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-------------------------|------------------------|---------------------------|---------------------------------|----------------|---|-----------|------|
| | | | connectionTimeout | Attribute | Connection timeout (seconds) | int | 0..1 |
| | | | idleTimeout | Attribute | Idle timeout (seconds) | int | 0..1 |
| | | | connectionUseTimeoutTime | Attribute | Monitoring time for the connection in use (minutes) | int | 0..1 |
| | | | isCloseTimeoutConnectionEnabled | Attribute | Closes connections that have timed out | boolean | 0..1 |
| | | | statementCacheSize | Attribute | Statement cache size | int | 0..1 |
| | | | isAutoCloseStatementEnabled | Attribute | Statement auto close | boolean | 0..1 |
| | | | sqlWaitTimeoutTime | Attribute | Communications waiting time (seconds) | int | 0..1 |
| | | | isOutputSQLToLogEnabled | Attribute | Outputs SQL statements to logs | boolean | 0..1 |
| | | | isAbnormalReconnectionEnabled | Attribute | Reconnects when errors occur | boolean | 0..1 |
| | | | intervalTime | Attribute | Interval time (seconds) | int | 0..1 |
| | | | retryCount | Attribute | Retry count | int | 0..1 |
| SessionRecoverySettings | WorkUnitSystemSettings | Session recovery settings | isEnabled | Attribute | Uses session recovery | boolean | 0..1 |
| | | | srsAddress | Attribute | Address of the Session Registry Server where sessions are backed up | int | 0..1 |
| | | | srsPortNumber | Attribute | Port of the Session Registry Server where sessions are backed up | int | 0..1 |
| | | | backupMode | Attribute | Backup timing | string | 0..1 |
| | | | backupInterval | Attribute | Interval to use when backups are performed at regular intervals | int | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|--------------------|----------------|--|-----------|------|
| | | | responseWaitTime | Attribute | Time to wait for a response from the Session Registry Server | int | 0..1 |
| | | | excludeExt | Attribute | URL ending which is not used by sessions | string | 0..1 |
| | | | isAccessLogEnabled | Attribute | Outputs access logs | boolean | 0..1 |

6.65 ISModule

When specifying an element in the Element Name cell using an XPath expression, assign "mw" as the namespace prefix.

- Example: `/%ISModule[./#expected/mw:ISModule/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------|----------------|-----------------------------|------------------------------|----------------|---|-----------|------|
| ISModule | | Module information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Module name | string | 0..1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | ipAddress | Attribute | IP address | string | 0..1 |
| | | | workUnitName | Attribute | WorkUnit name | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | WebApplication | Element | Web application | - | 0..* |
| EJBApplication | Element | EJB application | - | 0..* | | | |
| WebApplication | ISModule | Web application information | name | Attribute | Web application name | string | 0..1 |
| | | | deploymentDirectory | Attribute | Deployment directory | string | 0..1 |
| | | | servlets | Attribute | Servlet | string | 0..1 |
| | | | isCrossContextEnabled | Attribute | Allows dispatch to other Web applications | boolean | 0..1 |
| | | | isCookiesEnabled | Attribute | Session management using cookies | boolean | 0..1 |
| | | | isStoreSessionCookiesEnabled | Attribute | Saves sessions on the Web browser | boolean | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------|----------------|-----------------------------|---------------------------|----------------|---|-----------|------|
| | | | sessionCookieSecurity | Attribute | Always adds a "Secure" attribute to cookies | string | 0..1 |
| | | | urlEncode | Attribute | Encoding | string | 0..1 |
| | | | isJSAuthenticationEnabled | Attribute | Web server authentication information | boolean | 0..1 |
| EJBApplication | ISModule | EJB application information | name | Attribute | Application name | string | 0..1 |
| | | | beanType | Attribute | Bean type | string | 0..1 |

6.66 MasterPackage

When specifying an element in the Element Name cell using an XPath expression, assign "swcm" as the namespace prefix.

- Example: `/%MasterPackage[./#expected/swcm:MasterPackage/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------------------|----------------|--------------------------------|--------------------------|----------------|--|-----------|------|
| MasterPackage | | MasterPackage information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Application name | string | 1 |
| | | | nickname | Attribute | Nickname | string | 1 |
| | | | status | Attribute | Approval status | string | 1 |
| | | | applicationType | Attribute | Application type | string | 1 |
| | | | revision | Attribute | Revision identifier | string | 1 |
| | | | comment | Attribute | Comment | string | 0..1 |
| | | | fingerprintAlgorithm | Attribute | Fingerprint collection algorithm | string | 1 |
| | | | MasterPackageEnvironment | Element | Deployment destination environment information | - | 1 |
| RegistrationFiles | Element | Application configuration file | - | 1 | | | |
| MasterPackageEnvironment | MasterPackage | Deployment destination | DeploymentCondition | Element | Application execution condition | - | 0..* |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------------|--------------------------|--|----------------------|----------------|--|-----------|------|
| | | environment information | Deployment Candidate | Element | Deployment destination candidate | - | 1..* |
| DeploymentCondition | MasterPackageEnvironment | Application execution condition | type | Attribute | Condition type | string | 1 |
| | | | name | Attribute | Value set for the item specified in the type attribute | string | 1 |
| DeploymentCandidate | MasterPackageEnvironment | Deployment destination candidate | type | Attribute | Deployment destination information type | string | 1 |
| | | | name | Attribute | Value set for the item specified in the type attribute | string | 1 |
| RegistrationFiles | MasterPackage | DML registration file information | Registration File | Element | Individual registration file information | - | 1..* |
| RegistrationFile | Registration Files | Individual registration file information | id | Element | Registration file ID | ID | 1 |
| | | | version | Attribute | Version | string | 1 |
| | | | name | Attribute | File name | string | 1 |
| | | | type | Attribute | File type | string | 1 |
| | | | fingerprint | Attribute | Fingerprint value | string | 0..1 |

6.67 DeployedPackage

When specifying an element in the Element Name cell using an XPath expression, assign "swcm" as the namespace prefix.

- Example: `/%DeployedPackage[./#expected/swcm:DeployedPackage = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-----------------|----------------|------------------------------|-----------------|----------------|-----------------------|-----------|------|
| DeployedPackage | | Deployed Package information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Application name | string | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | status | Attribute | Approval status | string | 1 |
| | | | applicationType | Attribute | Application type | string | 1 |
| | | | moduleName | Attribute | Module name | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------|-----------------|---------------------|----------------------------|----------------|--|-----------|------|
| | | | revision | Attribute | Revision identifier | string | 1 |
| | | | comment | Attribute | Comment | string | 0..1 |
| | | | fingerprintAlgorithm | Attribute | Fingerprint collection algorithm | string | 1 |
| | | | deployStatus | Attribute | Deployment status | string | 1 |
| | | | message | Attribute | Detail message for deployment status | string | 1 |
| | | | sendDateSchedule | Attribute | Scheduled date/time of distribution | dateTime | 1 |
| | | | sendDate | Attribute | Date/time of distribution | dateTime | 1 |
| | | | deployDateSchedule | Attribute | Scheduled date/time of deployment | dateTime | 1 |
| | | | deployDate | Attribute | Date/time of deployment | dateTime | 1 |
| | | | sendLine | Attribute | Instruction for distribution | string | 1 |
| | | | deployLine | Attribute | Instruction for application | string | 1 |
| | | | discoveryLine | Attribute | Instruction for discovery | string | 1 |
| | | | sendType | Attribute | Distribution timing | string | 1 |
| | | | deployType | Attribute | Type of application | string | 1 |
| | | | discoveryType | Attribute | Type of discovery | string | 1 |
| | | | Deployment Server | Element | Deployment destination server information | - | 1 |
| | | | DeployedPackageEnvironment | Element | Deployment destination environment information | - | 1 |
| | | | Registration Files | Element | Application configuration file | - | 1 |
| DeploymentServer | DeployedPackage | Deployment | id | Attribute | LogicalServer global ID | string | 1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------------|----------------------------|------------------------------------|---------------------------|----------------|--|-----------|------|
| | | destination server information | name | Attribute | LogicalServer nickname | string | 1 |
| | | | osType | Attribute | LogicalServer OS type | string | 1 |
| | | | ipAddress | Attribute | Main LogicalServer IP address | string | 1 |
| DeployedPackageEnvironment | DeployedPackage | Deployment destination environment | DeploymentCondition | Element | Deployment destination condition | - | 0..* |
| | | | DeploymentEnvironmentData | Element | Deployment destination information | - | 1 |
| DeploymentCondition | DeployedPackageEnvironment | Deployment destination condition | type | Attribute | Condition type | string | 1 |
| | | | name | Attribute | Value set for the item specified in the type attribute | string | 1 |
| DeploymentEnvironmentData | DeployedPackageEnvironment | Deployment destination information | type | Attribute | Deployment destination information type | string | 1 |
| | | | name | Attribute | Value set for the item specified in the type attribute | string | 1 |

6.68 Directory

When specifying an element in the Element Name cell using an XPath expression, assign "swcm" as the namespace prefix.

- Example: `/%Directory[#expected/swcm:Directory/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|-----------------------|-----------|------|
| Directory | | Directory | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Name | string | 0..1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |

6.69 File

When specifying an element in the Element Name cell using an XPath expression, assign "swcm" as the namespace prefix.

- Example: `/%File[#expected/swcm:File/@id = '...']`

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|---|-----------|------|
| File | | File | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Name | string | 0..1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | status | Attribute | Status | string | 0..1 |
| | | | note | Attribute | Comment | string | 0..1 |
| | | | fingerprint | Attribute | Fingerprint value | string | 0..1 |
| | | | date | Attribute | Date and time when the configuration file was updated | dateTime | 0..1 |
| | | | size | Attribute | File size | int | 0..1 |

6.70 GRelation

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|--|-----------|------|
| Link | | Link | id | Attribute | Unique identifier | ID | 1 |
| | | | type | Attribute | Link identifier | string | 0..1 |
| | | | src | Attribute | Link source | IDREF | 1 |
| | | | dest | Attribute | Link target | IDREF | 1 |
| | | | bidi | Attribute | Specifies whether the link is bi-directional true: bi-directional false: uni-directional (default) | boolean | 0..1 |
| | | | allocation | Attribute | The number, proportion or positions of links allocated | string | 0..1 |
| | | | info | Attribute | Supplementary information (an ID reference to an element containing information specific to the link) | IDREF | 0..1 |
| | | | impact | Attribute | The impact of any problems | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|-------------------------------------|-----------|------|
| | | | | | with either end of the link | | |
| | | | lastUpdate | Attribute | The date when data was last updated | dateTime | 0..1 |
| | | | updateInfo | Attribute | Update information | string | 0..1 |

Chapter 7 Configuration Items Collected by Agents

This chapter explains the configuration items that each agent collects. Note that some configuration items may not be collected, or some configuration item attributes may not be stored, depending on the settings for the linked product.

7.1 Agents for Systemwalker Centric Manager

The agents for Systemwalker Centric Manager collect the following configuration items.

- SystemwalkerCentricManager

This item stores middleware information for Systemwalker Centric Manager.

- ServerDomain

This item stores department information for Systemwalker Centric Manager.

- LogicalServer

This item stores node information for Systemwalker Centric Manager, and hardware information from the Systemwalker Centric Manager inventory information.

- InstalledSoftware

This item stores software information from the Systemwalker Centric Manager inventory information.

- InstalledPatch

This item stores Software Update Management information from the Systemwalker Centric Manager inventory information.

- The "*" and "#" symbols after the attribute names in the "Component Name" column of the following tables indicate Systemwalker Centric Manager node information and inventory information respectively.

7.1.1 SystemwalkerCentricManager

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------------|----------------|---|----------------|----------------|-----------------------|-----------|------|
| SystemwalkerCentricManager | | Systemwalker Centric Manager middleware information | id * | Attribute | Unique identifier | ID | 1 |
| | | | nickname * | Attribute | Nickname | string | 0..1 |
| | | | kind * | Attribute | Server type | string | 0..1 |

7.1.2 ServerDomain

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------------|----------------|----------------|-----------------------|-----------|------|
| ServerDomain | | Server domain information | id * | Attribute | Unique identifier | ID | 1 |
| | | | name * | Attribute | Official name | string | 1 |
| | | | nickname * | Attribute | Nickname | string | 0..1 |

7.1.3 LogicalServer

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------------|----------------|---------------------------------------|----------------------------|----------------|--|-----------|------|
| LogicalServer | | Server node information | id *# | Attribute | Unique identifier | ID | 1 |
| | | | name *# | Attribute | Official name | string | 0..1 |
| | | | nickname * | Attribute | Nickname. Used as a display name for partitions, etc. | string | 0..1 |
| | | | ipAddress *# | Attribute | IP address | string | 0..1 |
| | | | hostname *# | Attribute | Host name. Equal to the value obtained by executing the hostname command on the partition. | string | 0..1 |
| | | | lastUpdate # | Attribute | Last updated | dateTime | 0..1 |
| | | | status * | Attribute | Generic status | string | 0..1 |
| | | | comment # | Attribute | Comment | string | 0..1 |
| | | | vendorID * | Attribute | Vendor name | string | 0..1 |
| | | | modelName # | Attribute | Model | string | 0..1 |
| | | | serialNumber # | Attribute | Serial number | string | 0..1 |
| | | | LogicalServerConfiguration | Element | Component configuration | - | 0..1 |
| | | | SystemSettings | Element | System settings | - | 0..1 |
| LogicalServerConfiguration | LogicalServer | Server node configuration information | LAN | Element | LAN information | - | 0..* |
| | | | LogicalRemovableDisk | Element | Removable disk information | - | 0..* |
| | | | LogicalNIC | Element | Network card | - | 0..* |
| | | | LogicalCPU | Element | CPU information | - | 0..* |
| | | | LogicalMemory | Element | Memory information | - | 0..* |
| | | | LogicalMouse | Element | Mouse information | - | 0..* |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------------------|--------------------------------------|------------------|----------------|--|-------------|------|
| | | | LogicalKeyboard | Element | Keyboard information | - | 0..* |
| | | | LogicalFirmware | Element | Firmware information | - | 0..* |
| | | | LogicalPrinter | Element | Printer information | - | 0..* |
| | | | LogicalMonitor | Element | Display information | - | 0..* |
| | | | LogicalDrive | Element | Drive configuration information | - | 0..* |
| | | | LogicalDisk | Element | Disk information | - | 0..* |
| | | | LogicalPSU | Element | PSU information | - | 0..* |
| | | | Link | Element | Link between components | - | 0..* |
| LAN | LogicalServerConfiguration | Local area network (LAN) information | id * | Attribute | Unique identifier | ID | 1 |
| | | | macAddress * | Attribute | MAC address Example) "00:E0:00:C4:84:F0" | string | 0..1 |
| | | | ipAddress * | Attribute | IP address Example) "192.0.2.0" | string | 0..1 |
| | | | netmask * | Attribute | Net mask Example) "ffffff00" | string | 0..1 |
| | | | speed * | Attribute | Network speed | string | 0..1 |
| | | | description * | Attribute | Interface description | string | 0..1 |
| | | | netmaskAddress * | Attribute | Representative subnet address | string | 0..1 |
| | | | index * | Attribute | LAN number | unsignedInt | 0..1 |
| SNMP | SystemSettings | SNMP information | description * | Attribute | Description | string | 0..1 |
| | | | community * | Attribute | Community name | string | 1 |
| | | | securityModel * | Attribute | Security model Format: "V1" "V3" | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------------|----------------------------|----------------------------|----------------------|----------------|---|-----------|------|
| | | | securityLevel * | Attribute | Security level Format: "NoauthNopriv" "authNopriv" "authPriv" | string | 0..1 |
| | | | userName * | Attribute | User name for accessing the server | string | 0..1 |
| | | | certifyProtocol * | Attribute | Authentication protocol | string | 0..1 |
| | | | encryptionProtocol * | Attribute | Encryption protocol | string | 0..1 |
| LogicalFirmware | LogicalServerConfiguration | Firmware | id # | Attribute | Unique identifier | ID | 1 |
| | | | version # | Attribute | Version Example) "25.03.0000" | string | 0..1 |
| LogicalNIC | LogicalServerConfiguration | Network card | id # | Attribute | Unique identifier | ID | 0..1 |
| | | | name # | Attribute | Network card name | string | 0..1 |
| LogicalCPU | LogicalServerConfiguration | CPU information | name # | Attribute | CPU | string | 0..1 |
| | | | clock # | Attribute | Clock speed (units: MHz) | long | 0..1 |
| | | | status # | Attribute | CPU details | string | 0..1 |
| LogicalMemory | LogicalServerConfiguration | Memory information | size # | Attribute | Memory size (units: KB) | long | 0..1 |
| | | | index # | Attribute | Device locator | string | 0..1 |
| LogicalMouse | LogicalServerConfiguration | Mouse information | type # | Attribute | Mouse type | string | 0..1 |
| | | | numberOfButtons # | Attribute | Number of mouse buttons | long | 0..1 |
| LogicalKeyboard | LogicalServerConfiguration | Keyboard information | type # | Attribute | Keyboard type | string | 0..1 |
| LogicalRemovableDisk | LogicalServerConfiguration | Removable Disk (DVD, etc.) | id # | Attribute | Unique identifier | ID | 1 |
| | | | productName # | Attribute | Product name | string | 0..1 |
| LogicalDrive | LogicalServerConfiguration | Drive configuration | name # | Attribute | Drive name | string | 0..1 |
| | | | type # | Attribute | Drive type | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------|----------------------------|---------------------|-------------------|----------------|---|-----------|------|
| | | information | maxMediaSize # | Attribute | Available disk space | string | 0..1 |
| | | | volumeLabel # | Attribute | Volume label | string | 0..1 |
| LogicalDisk | LogicalServerConfiguration | Disk information | vendorID # | Attribute | Vendor name | string | 0..1 |
| | | | productID # | Attribute | Model name | string | 0..1 |
| | | | size # | Attribute | Disk capacity | string | 0..1 |
| | | | interfaceType # | Attribute | Disk interface | string | 0..1 |
| | | | description # | Attribute | Description | string | 0..1 |
| LogicalPSU | LogicalServerConfiguration | PSU information | option * | Attribute | Power control option | string | 0..1 |
| LogicalMonitor | LogicalServerConfiguration | Monitor | id # | Attribute | Unique identifier | ID | 1 |
| | | | name # | Attribute | Official name | string | 0..1 |
| | | | nickname | Attribute | Display name (logical device name) | string | 0..1 |
| | | | lowPowerStandby # | Attribute | Indicates whether the monitor is in power-saving standby mode | boolean | 0..1 |
| | | | powerOff # | Attribute | Indicates whether the power is off | boolean | 0..1 |
| LogicalPrinter | LogicalServerConfiguration | Printer | name # | Attribute | Official name | string | 0..1 |
| | | | type # | Attribute | Type | string | 0..1 |
| SystemSettings | LogicalServer | System settings | Network | Element | Network information | - | 0..1 |
| | | | OSSetting | Element | Operating system information | - | 0..1 |
| | | | UserSetting | Element | User information | - | 0..1 |
| | | | DNS | Element | DNS information | - | 0..1 |
| | | | DHCP | Element | DHCP information | - | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------------|----------------|------------------------------|---------------------|----------------|---|-----------|------|
| | | | Screen | Element | Screen information | - | 0..1 |
| | | | ScreenSaver | Element | Screen saver information | - | 0..1 |
| | | | Swap | Element | Swap information | - | 0..1 |
| | | | Language | Element | Environment | - | 0..1 |
| | | | FileSystem | Element | File system | - | 0..1 |
| | | | PartitionSetting | Element | Partition information | - | 0..1 |
| | | | NTDomain | Element | NT domain information | - | 0..1 |
| | | | SNMP | Element | SNMP information | - | 0..1 |
| Network | SystemSettings | Network information | ipAddress # | Attribute | IP address | string | 0..1 |
| | | | hostname * | Attribute | Host name | string | 0..1 |
| | | | gateway * | Attribute | Default gateway | string | 0..1 |
| | | | subnetMask * | Attribute | Subnet mask | string | 0..1 |
| | | | subnetAddress * | Attribute | Subnet address | string | 0..1 |
| | | | RoutingTableSetting | Element | Router information | - | 0..1 |
| RoutingTableSetting | Network | Routing table information | gateway # | Attribute | Default gateway | string | 0..1 |
| OSSetting | SystemSettings | Operating system information | name * | Attribute | Operating system | string | 0..1 |
| | | | buildNumber # | Attribute | Operating system build number | string | 0..1 |
| | | | version # | Attribute | Service pack | string | 0..1 |
| | | | vendor # | Attribute | Vendor name | string | 0..1 |
| | | | productID # | Attribute | Operating system product ID (serial number) | string | 0..1 |
| | | | codeSet * | Attribute | Character encoding | string | 0..1 |
| | | | Windows | Element | Windows information | - | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|--------------------------|--------------------|----------------|---------------------------------|-----------|------|
| Windows | OSSetting | Windows information | computerName # | Attribute | Computer name | string | 0..1 |
| | | | domainName # | Attribute | Domain name | string | 0..1 |
| | | | windowsDir # | Attribute | Window directory name | string | 0..1 |
| | | | systemDir # | Attribute | System directory name | string | 0..1 |
| | | | dosVersion # | Attribute | DOS version | string | 0..1 |
| UserSetting | SystemSettings | User information | loginName # | Attribute | Login name | string | 0..1 |
| DNS | SystemSettings | DNS information | serverName # | Attribute | DNS server name | string | 0..1 |
| DHCP | SystemSettings | DHCP information | serverName # | Attribute | DHCP server | string | 0..1 |
| | | | flag * | Attribute | DHCP flag | boolean | 0..1 |
| Screen | SystemSettings | Screen information | resolution # | Attribute | Screen resolution | string | 0..1 |
| | | | colorDepth # | Attribute | Number of colors (units: bits) | int | 0..1 |
| | | | refreshFrequency # | Attribute | Screen refresh rate (units: Hz) | long | 0..1 |
| | | | videoAdapter # | Attribute | Video adapter name | string | 0..1 |
| | | | videoMemorySize # | Attribute | Video memory size (units: KB) | long | 0..1 |
| ScreenSaver | SystemSettings | Screen saver information | name # | Attribute | Screen saver name | string | 0..1 |
| Swap | SystemSettings | Swap information | size # | Attribute | Swap file size (units: KB) | long | 0..1 |
| Language | SystemSettings | Language information | inputSystem # | Attribute | Default input language | string | 0..1 |
| FileSystem | SystemSettings | File system | name # | Attribute | File system | string | 0..1 |
| | | | type # | Attribute | File system type | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|------------------|----------------|-----------------------|----------------|----------------|-------------------------------------|-----------|------|
| | | | mountPoint # | Attribute | Mount point | string | 0..1 |
| | | | totalSize # | Attribute | File system capacity (KB) | long | 0..1 |
| | | | freeSize # | Attribute | File system free capacity (KB) | long | 0..1 |
| PartitionSetting | SystemSettings | Partition information | totalSize # | Attribute | Partition capacity (units: KB) | long | 0..1 |
| | | | freeSize # | Attribute | Partition free capacity (units: KB) | long | 0..1 |
| NTDomain | SystemSettings | NT domain information | name * | Attribute | NT domain name | string | 0..1 |

7.1.4 InstalledSoftware

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-------------------|----------------|---------------------|-------------------|----------------|--|-----------|------|
| InstalledSoftware | | Installed software | id # | Attribute | Unique identifier | ID | 1 |
| | | | nickname # | Attribute | Nickname | string | 0..1 |
| | | | fileSize # | Attribute | Size (units: bytes) | long | 0..1 |
| | | | productName # | Attribute | Product name | string | 0..1 |
| | | | version # | Attribute | Version | string | 0..1 |
| | | | registryKey # | Attribute | Registry key name | string | 0..1 |
| | | | vendor # | Attribute | Vendor name | string | 0..1 |
| | | | installedPlace # | Attribute | Installation directory | string | 0..1 |
| | | | package # | Attribute | Package name | string | 0..1 |
| | | | lastUpdate # | Attribute | Date and time when the file was last updated | dateTime | 0..1 |
| | | | installedServer # | Attribute | Installation node | string | 0..1 |
| | | | package # | Attribute | Package name | string | 0..1 |

7.1.5 InstalledPatch

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------------------|----------------|-------------------------------|-------------------|----------------|---------------------------------|-------------|------|
| InstalledPatch | | Patch information | id # | Attribute | Unique identifier | ID | 1 |
| | | | name # | Attribute | Software name | string | 0..1 |
| | | | nickname # | Attribute | Nickname | string | 0..1 |
| | | | distributeDate # | Attribute | Distribution date | dateTime | 0..1 |
| | | | indicateKind # | Attribute | Type of instruction | string | 0..1 |
| | | | distributeState # | Attribute | Distribution status | string | 0..1 |
| | | | applyState # | Attribute | Application status | string | 0..1 |
| | | | errorDate # | Attribute | Date when an error was received | dateTime | 0..1 |
| | | | errorCode # | Attribute | Error code | unsignedInt | 0..1 |
| | | | errorDetail # | Attribute | Detailed error information | string | 0..1 |
| | | | type # | Attribute | Type | string | 0..1 |
| | | | platform # | Attribute | Platform | string | 0..1 |
| | | | productNumber # | Attribute | Patch number | string | 0..1 |
| | | | patchLanguage # | Attribute | Language type | string | 0..1 |
| | | | applyDate # | Attribute | Application date | dateTime | 0..1 |
| distributeIndicateDate # | Attribute | Distribution instruction date | dateTime | 0..1 | | | |
| installedServer # | Attribute | Installation destination node | string | 0..1 | | | |

7.2 Agents that Automatically Collect IT Resource Information for Business Server

The following configuration items are collected from agents that automatically collect IT resource information for Business Server.

7.2.1 ServerDomain

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------------|----------------|----------------|-----------------------|-----------|------|
| ServerDomain | | Server domain information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Official name | string | 1 |
| | | | nickname | Attribute | Nickname | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |

7.2.2 LogicalServer

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------|----------------|-------------------------|----------------------------|----------------|--|-----------|---------|
| LogicalServer | | Server node information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Official name | string | 0..1 |
| | | | nickname | Attribute | Nickname. Used as a display name for partitions, etc. | string | 0..1 |
| | | | ipAddress | Attribute | IP address | string | 0..1 |
| | | | hostname | Attribute | Host name. Equal to the value obtained by executing the hostname command on the partition. | string | 0..1 |
| | | | machineType | Attribute | Machine attribute | string | 0..1 |
| | | | vendorID | Attribute | Vendor name | string | 0..1 |
| | | | LogicalServerConfiguration | Element | Component configuration | - | 0..1 |
| | | | SystemSettings | Element | System settings | - | 0..1 |
| | | | InstalledSoftwares | Element | Software that has already been installed | - | 0..1 |
| | | | InstalledPatches | Element | Information about patches | - | 0..1 |
| | | | LogicalServerConfiguration | LogicalServer | Server node | LAN | Element |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------|----------------------------|--------------------------------------|----------------|----------------|--|-------------|------|
| | | configuration information | | | | | |
| LAN | LogicalServerConfiguration | Local area network (LAN) information | id | Attribute | Unique identifier | ID | 1 |
| | | | interface | Attribute | Interface name | string | 0..1 |
| | | | macAddress | Attribute | MAC address Example) "00:E0:00:C4:84:F0" | string | 0..1 |
| | | | ipAddress | Attribute | IP address Example) "192.0.2.0" | string | 0..1 |
| | | | netmask | Attribute | Net mask Example) "ffffff00" | string | 0..1 |
| | | | speed | Attribute | Network speed | string | 0..1 |
| | | | description | Attribute | Interface description | string | 0..1 |
| | | | index | Attribute | LAN number | unsignedInt | 0..1 |
| LogicalCPU | LogicalServerConfiguration | CPU information | name | Attribute | CPU | string | 0..1 |
| | | | clock | Attribute | Clock speed (units: MHz) | long | 0..1 |
| | | | status | Attribute | CPU status | string | 0..1 |
| LogicalMemory | LogicalServerConfiguration | Memory information | size | Attribute | Memory size (units: KB) | long | 0..1 |
| LogicalDrive | LogicalServerConfiguration | Drive configuration information | name | Attribute | Drive name | string | 0..1 |
| SystemSettings | LogicalServer | System settings | Network | Element | Network information | - | 0..1 |
| | | | OSSetting | Element | Operating system information | - | 0..1 |
| | | | SNMP | Element | SNMP information | - | 0..1 |
| Network | SystemSettings | Network information | ipAddress | Attribute | IP address | string | 0..1 |
| | | | hostname | Attribute | Host name | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|------------------------------|-----------------|----------------|--|-----------|------|
| | | | subnetMask | Attribute | Subnet mask | string | 0..1 |
| | | | subnetAddresses | Attribute | Subnet address | string | 0..1 |
| OSSetting | SystemSettings | Operating system information | name | Attribute | Operating system | string | 0..1 |
| | | | version | Attribute | Service pack | string | 0..1 |
| SNMP | SystemSettings | SNMP information | description | Attribute | Description | string | 0..1 |
| | | | community | Attribute | Community name | string | 1 |
| | | | securityModel | Attribute | Security model Format: "V1" "V3" | string | 0..1 |

7.2.3 InstalledSoftware

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|-------------------|--------------------|---------------------|----------------|----------------|-----------------------|-----------|------|
| InstalledSoftware | InstalledSoftwares | Installed software | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Software name | string | 0..1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | version | Attribute | Version | string | 0..1 |
| | | | vendor | Attribute | Vendor name | string | 0..1 |

7.2.4 InstalledPatch

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|----------------|------------------|---------------------|----------------|----------------|-----------------------|-----------|------|
| InstalledPatch | InstalledPatches | Patch information | id | Attribute | Unique identifier | ID | 1 |
| | | | name | Attribute | Software name | string | 0..1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | productNumber | Attribute | Product name | string | 0..1 |

7.2.5 Server

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------|----------------|---|----------------|----------------|--|-----------|------|
| Server | | Server node information | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | serialNumber | Attribute | Serial number | string | 0..1 |
| | | | productName | Attribute | Product name (Model Name) | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| | | | Configuration | Element | Configuration information | - | 0..1 |
| Configuration | Server | Configuration information for the physical server (components and links between components) | CPU | Element | CPU (chip) | - | 0..* |
| | | | Memory | Element | Memory module | - | 0..1 |
| | | | PSU | Element | Power Supply Unit Power source (PSU, FEP) | - | 0..1 |
| | | | Fan | Element | Fan | - | 0..1 |
| | | | PCICard | Element | PCI card | - | 0..1 |
| | | | HardDisk | Element | Hard disk | - | 0..1 |
| | | | RemovableDisk | Element | Removable Disk | - | 0..1 |
| | | | OnBoardIO | Element | Onboard I/O | - | 0..1 |
| | | | RAIDDevice | Element | RAID device | - | 0..1 |
| | | | IOU | Element | I/O unit | - | 0..1 |
| Other | Element | Other component | - | 0..1 | | | |
| CPU | Configuration | CPU (chip) | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | productID | Attribute | Manufacturer name | string | 0..1 |
| | | | clockFrequency | Attribute | Clock frequency | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---|----------------|----------------|-------------------------|-----------|------|
| | | | status | Attribute | Generic status | string | 0..1 |
| Memory | Configuration | Memory module | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | moduleType | Attribute | Module specification | string | 0..1 |
| | | | size | Attribute | Size | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| PSU | Configuration | Power Supply Unit Power source (PSU, FEP) | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| Fan | Configuration | Fan | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | designation | Attribute | Usage specification | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| PCICard | Configuration | PCI card | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | index | Attribute | PCI number | string | 0..1 |
| | | | vendorID | Attribute | Vendor name | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | status | Attribute | Product number | string | 0..1 |
| HardDisk | Configuration | Hard disk | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | vendorID | Attribute | Vendor name | string | 0..1 |
| | | | size | Attribute | Size (basic units: MiB) | string | 0..1 |
| | | | interfaceType | Attribute | Interface type | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------|----------------|----------------------------|----------------|----------------|--------------------------------|-----------|------|
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| RemovableDisk | Configuration | Removable disk (DVD, etc.) | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | vendorID | Attribute | Vendor name | string | 0..1 |
| | | | size | Attribute | Size (basic units: MiB) | string | 0..1 |
| | | | interfaceType | Attribute | Interface type | string | 0..1 |
| | | | type | Attribute | Type | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| status | Attribute | Generic status | string | 0..1 | | | |
| OnBoardIO | Configuration | Onboard I/O | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | index | Attribute | Identifier for the onboard I/O | string | 0..1 |
| | | | type | Attribute | I/O type | string | 0..1 |
| RAIDDevice | Configuration | RAID disk information | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | raidLevel | Attribute | Raid Level | string | 0..1 |
| | | | writePolicy | Attribute | Write policy | string | 0..1 |
| | | | size | Attribute | Size (basic units: MiB) | string | 0..1 |
| status | Attribute | Generic status | string | 0..1 | | | |
| IOU | Configuration | I/O unit | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|-----------------------|-----------|------|
| Other | Configuration | Other components | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |

7.2.6 Server (Blade Server Chassis)

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|---------------|----------------|---------------------------|----------------|----------------|--|-----------|------|
| Server | | Physical server | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | serialNumber | Attribute | Serial number | string | 0..1 |
| | | | productName | Attribute | Product name (Model Name) | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| | | | Configuration | Element | Configuration information | - | 0..1 |
| Configuration | Server | Configuration information | Panel | Element | Panel | - | 0..1 |
| | | | PSU | Element | Power Supply Unit Power source (PSU, FEP) | - | 0..1 |
| | | | Fan | Element | Fan | - | 0..1 |
| | | | SystemBoard | Element | System board | - | 0..1 |
| Panel | Configuration | Panel | id | Attribute | Unique identifier | ID | 1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| PSU | Configuration | Power supply unit (PSU) | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| Fan | Configuration | Fan | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |

| Element Name | Parent Element | Element Description | Component Name | Component Type | Component Description | Data Type | # of |
|--------------|----------------|---------------------|----------------|----------------|-----------------------|-----------|------|
| | | | designation | Attribute | Usage specification | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |
| SystemBoard | Configuration | System board | id | Attribute | Unique identifier | ID | 1 |
| | | | nickname | Attribute | Display name | string | 0..1 |
| | | | index | Attribute | System board number | string | 0..1 |
| | | | sbType | Attribute | SB type | string | 0..1 |
| | | | serialNumber | Attribute | Serial number | string | 0..1 |
| | | | productName | Attribute | Product name | string | 0..1 |
| | | | productNumber | Attribute | Product number | string | 0..1 |
| | | | status | Attribute | Generic status | string | 0..1 |