Systemwalker

**Systemwalker
Runbook Automation**

Reference Guide

Windows/Linux

Preface

Purpose of this Document

This document describes the commands and configuration files of Systemwalker Runbook Automation V15.1.3.

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) 8.1" refers to the following products:

    - Windows(R) 8.1 Pro(x86)

    - Windows(R) 8.1 Enterprise(x86)

    - Windows(R) 8.1 Pro(x64)

    - Windows(R) 8.1 Enterprise(x64)

- 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 R2 Standard(x64)

  - Microsoft(R) Windows Server(R) 2012 R2 Datacenter(x64)

  - 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

- Windows Internet Explorer (R) is referred to as Internet Explorer.

- 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.

- 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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Contents

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_uaexport (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_systime (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 ssoclbackup (Interstage Single Sign-On Backup Command)

Type	Function Name	Command Name
	Interstage Single Sign-On Restore Command	1.5.8 ssoclrestore (Interstage Single Sign-On Restore Command)
	CMDB Backup Command	1.5.9 cmdbbackup (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 ssoclsetup (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

> ssoclsetup 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:

```
ssoclsetup ssoserver.example.com AuthSSL
Please input SSO Repository administrator DN password
Password:
Retype:
IREP: INFO: irep10815: Password file was created.
file=C:\INTERS~3\F3FMsso\ssoatcsv\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/ssoclsetup 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 ssoclunsetup (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 (CMDB 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 ssoclsetup (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 retrieve 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 retrieve 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.

If the password contains double quotation marks ("), enter as shown below:

- When -password is not specified:

Position of double quotation marks	Password string example	Input example
Beginning only	"swrbauser	"swrbauser
End only	swrbauser"	swrbauser"
Both at the beginning and at the end	"swrbauser"	""swrbauser""
Within the password	swrba"user	swrba"user

- When -password is specified:

Position of double quotation marks	Password string example	Input example
Beginning only	"swrbauser	-password \"swrbauser
End only	swrbauser"	-password swrbauser\"
Both at the beginning and at the end	"swrbauser"	-password \"\"swrbauser\"\"
Within the password	swrba"user	-password swrba\"user

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 exists, 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 user space for the process definition name. When you user 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.xpdl 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_uaexport (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.

Colu mn	Item	Can omit or not	Default Value	Input Content	Content that is Checked	Conditions
1	IP address	Not possi ble	-	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	Authenticatio n destination type	Not possi ble	-	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 possi ble	-	Specify the user account for the authentication destination.	Number of characters that can be entered	Between 1 and 255 characters
					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	Possi ble	-	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

Colu mn	Item	Can omit or not	Default Value	Input Content	Content that is Checked	Conditions
5	Administrator user	Not possi ble	-	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 possi ble	-	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	Possi ble	Empty	Only default values can be specified Any value except a default value that is specified will result in an error.	Number of characters that can be entered	See Input content.
					Character set	See Input content.
8	Comment	Possi ble	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_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 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_uaexport (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_uaexport [-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.

Note

Access keys are valid for one year from the date on which they were obtained.

It is not possible to check the validity period of an access key. Store the validity period that is displayed when the access key is obtained alongside the key itself.

Return Values

Return Value	Meaning
0	Normal termination
1	Command execution error

Return Value	Meaning
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--
{{ezsGjLOinOQpHzfVu9I2JcHCRTIl2OzFNy7CVqexSKAwiKb/veZCJIx66nTr2rJsoG7wr8jKoeY3BQYWh70ORstQa/
wbqOl87S7RsSeojQPDGbxrUG8LyTpiILl5WEDSAjzqpC+xprE6sX45GZF5mnPlkw23QYPl}}--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\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.

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:LogicalPSU 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:rcxml2004-05
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

ⓟ Point

. . . .

- 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\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

- 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

colu mn	item	Omissi on	Omissio n Value	Inputted Contents	Check Contents	Condition
				omission is improper. the registration of user account information fails. - When you update registered user account information, this command doesn't change the password.		

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 ups, 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 *calendar name*
swrba_holexport -rh *calendar name*

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
```

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.

/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 additional, 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 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 cannot 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

```
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 ssoclbackup (Interstage Single Sign-On Backup Command)

Description

The environment created by the configuration command (ssoclsetup) 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/FJSVsso/ sv_back
	- The definition file of authentication server	\<Backup directory>\ssoroot\SSO\ac_back
	- The message file displayed on Web browser of the authentication server.	\<Backup directory>/ssoroot/FJSVsso/ ac_back
	- The definition file of the Business Server	\<Backup directory>\ssoroot\SSO\az_back
	- Message file displayed on Web browser of Business Server.	\<Backup directory>/ssoroot/FJSVsso/ az_back
Interstage HTTP Server	The following files in all Web servers.	\<Backup directory>\ssoroot\IHS\
	- The environment definition file in Interstage HTTP Server	\<Backup directory>/ssoroot/FJSVihs/

Resources	Files (Note 1)	Stored destination (Note 2) (upper line [Windows] lower line [Linux])
	- Password file - Root directory for publishing.	

Interstage Directory Service	The following files of repositories using as SSO repository.
	
	  - The repository
	
	  - The repository data
	
	  - Access log
		\<Backup directory\>\ssoroot\IDS\rep_back\
		
		\<Backup directory\>/ssoroot/FJSVirep/ rep_back.tar.gz

Interstage Certificate Environment	- 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

ssoclbackup *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 been 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 been 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 ssoclsericectl 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 (ssoclsetup) 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"

```
ssoclbackup C:\backup
```

[Linux]

For example: restore "/usr/backup"

```
/opt/FJSVswrbam/bin/ ssoclbackup /usr/backup
```

1.5.8 ssoclrestore (Interstage Single Sign-On Restore Command)

Description

The environment of Interstage single sign-on which was backed up by the ssoclbackup 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 ssoclbackup 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 ihsdisp 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 ihsdisp command.

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

Synopsis

```
ssoclrestore 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 been 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 been 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 ssoclbackup (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 ssoclsetup 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"

```
> ssoclrestore 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/ssoclrestore /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 cmdbbackup (CMDB Backup Command)

Description

This command backs up CMDB assets to a specified directory.

Synopsis

[Windows]

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

[Linux]

```
cmdbbackup.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]

<div style="border:1px solid">

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

</div>

[Linux]

<div style="border:1px solid">

/opt/FJSVcmdbm/bin

</div>

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\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

[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

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 I D(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	*<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

- 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 swrbacolinf*yyyy-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	[*CMDB manager's data base storage directory*]\FJSVcmdba\etc
Linux	/etc/opt/FJSVcmdba/etc

- Linked Server

Windows	[*Agent installed directory*]\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	[*CMDB manager's data base storage directory*]\FJSVcmdba\etc
Linux	/etc/opt/FJSVcmdba/etc

- Linked Server

Windows	[[*Agent installed directory*]\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	[*CMDB manager's data base storage directory*]\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

: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
Time when the process instance started	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.
Name of the process instance	Name of the process instance	The name of the process instance.
Process instance state	Closed	The state of the process instance. closed: Indicates that the process instance has ended
Time when the process instance ended	yyyy-mm-dd hh:mm.ss:sss	The time when the process instance ended.
Activity name	Activity name	The activity name.
Transition date/time	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 space is displayed.
Person in charge	User ID or group ID	The user ID to which the task has been assigned. If processing has not transitioned to the activity, a space is displayed.
Status	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.
Selection result	Arrow name	The name of the selected arrow. If processing has not transitioned to the activity, a space is displayed.
Exit node	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
C:>_	Executing a Command	C:>_	3.2.1 Execute arbitrary command	SWRBA_COMMAND_RUN
		WMI	3.2.2 Execute WMI query	SWRBA_WMI_QUERY
		(Y/N)	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
	Configuration 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
	Communication 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
		OS	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/FJSVlnkbs/lnk02
	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 was submitted successfully. This is the value returned by the submitted command. If a command name that does not exist is specified in the commandline option, "1", "127", or "9009" may be returned.
✗	Failure	161	Failed to submit 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.

Icon	Name	Return value	Description
		189	An attempt to connect to the Business Server over the network (using SSH, Windows PowerShell, Telnet, RSH, or REXEC) 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 Linux has been specified.
		197	There is an error in the input information.
		200	Submission of the 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 is set to the following message if the command is submitted successfully. The operation component was successful. If an error occurs during the processing that controls the submission 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 was submitted.
command_stderr(*1)	This variable is set to the standard error output for the command that was submitted.
command_rcode	This variable is set to the return value for the command that was submitted.
returnCode	This variable is set to the return value of the operation component. Refer to "Return Values" for details.

*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 componentscomponents 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	This variable will be set to the following message if a WMI query is executed successfully. The operation component was successful. If a WMI query fails to execute, the content of the error will be output as a string.
wmi_query_result	This variable is set to the execution results of the WMI query, using the following format. **QueryResult1** "PropertyName1","Value1" "PropertyName2","Value2" **QueryResult2** "PropertyName1","Value1" "PropertyName2","Value2" \<Example\> If "root/cimv2" has been specified for the namespace and "SELECT Freespace,DeviceID FROM Win32_LogicalDisk" has been specified for the query statement: **QueryResult1** "DeviceID","C:" "FreeSpace","13665103872" **QueryResult2** "DeviceID","D:" "FreeSpace","52320559104" **QueryResult3** "DeviceID","E:" "FreeSpace","43498602496"
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 is1,024 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 componentscomponents definition file becomes effective. Refer to "2.5 Definition File for Operation Components" for details.

Return Values

Icon	Name	Return value	Description
(green success icon)	Success	0	All commands have been executed.
(red failure icon)	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
<?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>
      <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:
  ! ~ _ - .

- 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:

- ! ~ _ - .

- If the target server is Linux or Solaris, and 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 target server is Linux or Solaris, and 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 content can be specified.

Specify access permissions content 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	The permission content will not be changed
X	Execute permissions only	The permission content will not be changed
W	Write permissions only	The permission content will not be changed
WX	Write and execute permissions	The permission content will not be changed

Permissions content	OS type: Linux or Solaris	OS type: Windows
R	Read permissions only	The permission content will not be changed
RX	Read and execute permissions	The permission content will not be changed
RW	Read and write permissions	The permission content will not be changed
RWX	Full control	The permission content will not 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.

If the access permissions for a file are to be changed on an environment where the OS type is Windows, specify the same content as the ownerauthority option.

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	The permission content will not be changed
X	Execute permissions only	The permission content will not be changed
W	Write permissions only	The permission content will not be changed
WX	Write and execute permissions	The permission content will not be changed
R	Read permissions only	The permission content will not be changed
RX	Read and execute permissions	The permission content will not be changed
RW	Read and write permissions	The permission content will not be changed
RWX	Full control	The permission content will not 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.

If the access permissions for a file are to be changed on an environment where the OS type is Windows, specify the same content as the ownerauthority option.

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	This variable will be set to the following message if the access permissions for the file are changed successfully. The operation component was successful. If changing the access permissions 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

- 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:

- ! ~ _ - .

- If the target server is Linux or Solaris, and 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.

Icon	Name	Return value	Description
		200	Existence confirmation 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	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:

- ! ~ _ - .

- If the target server is Linux or Solaris, and 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.
-	-	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 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:

- ! ~ _ - .

- If the target server is Linux or Solaris, and 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:

- ! ~ _ - .

- If the target server is Linux or Solaris, and 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:

- ! ~ _ - .

- If the target server is Linux or Solaris, and 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:

- ! ~ _ - .

- 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 target server is Linux or Solaris, and the specified sourcefile is a symbolic link, the linked file/directory will be copied.

- If the target server is Linux or Solaris, and 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 (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 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:

- ! ~ _ - .

- 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 target server is Linux or Solaris, and 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 target server is Linux or Solaris, and 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:

- ! ~ _ - .

- If the target server is Linux or Solaris, and 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 obtains the size of a file, or the total size of files in a 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.
-	-	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 size of a file or directory is obtained successfully. The operation component was successful. If obtaining the size of a file or directory fails, the content of the error will be output as a string.

Variable	Description
file_size	This variable is set to the size of a file or directory. The unit of measurement for size is the value specified in the sizeunit option, which is rounded up and displayed.
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:

- ! ~ _ - .

- If the target server is Linux or Solaris, and 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 (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
	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.
-	-	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 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:

- ! ~ _ - .

- If the target server is Linux or Solaris, and 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:

- ! ~ _ - .

- If the target server is Linux or Solaris, and 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 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.

(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]	Success	0	Creating the directory was successful.
![Failure]	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:

- ! ~ _ - .

- 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:

- ! ~ _ - .

- If the target server is Linux or Solaris, and a symbolic link is specified in directoryname, the symbolic link 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.

3.4.15 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	The permission content will not be changed
X	Execute permissions only	The permission content will not be changed
W	Write permissions only	The permission content will not be changed
WX	Write and execute permissions	The permission content will not be changed
R	Read permissions only	The permission content will not be changed
RX	Read and execute permissions	The permission content will not be changed
RW	Read and write permissions	The permission content will not be changed
RWX	Full control	The permission content will not 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.

If the access permissions for a directory are to be changed on an environment where the OS type is Windows, specify the same content as the ownerauthority option.

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	The permission content will not be changed
X	Execute permissions only	The permission content will not be changed
W	Write permissions only	The permission content will not be changed
WX	Write and execute permissions	The permission content will not be changed
R	Read permissions only	The permission content will not be changed
RX	Read and execute permissions	The permission content will not be changed
RW	Read and write permissions	The permission content will not be changed
RWX	Full control	The permission content will not 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.

If the access permissions for a file are to be changed on an environment where the OS type is Windows, specify the same content as the ownerauthority option.

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.
		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.

Variable	Description
	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:

- ! ~ _ - .

- If the target server is Linux or Solaris, and 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

Icon	Name	Return value	Description
			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.
		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:

- ! ~ _ - .

- If the target server is Linux or Solaris, and the specified filename is a symbolic link, the linked file will be compressed.

- If the target server is Linux or Solaris, and 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.

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 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:

- ! ~ _ - .

- 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 target server is Linux or Solaris, and the specified directoryname is a symbolic link, the linked directory will be compressed.

- If the target server is Linux or Solaris, and 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.
-	-	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:

- ! ~ _ - .

- If the target server is Linux or Solaris, and the specified compfilename is a symbolic link, the linked file will be extracted.

- If the target server is Linux or Solaris, and 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 it 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.

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 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:

- ! ~ _ - .

- If the target server is Linux or Solaris, and 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

Host where files are to be loaded	Character encoding of the text file
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.
		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.

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 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:

- ! ~ _ - .

- If the target server is Linux or Solaris, and 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 serrch 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.

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	Search to 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 searched successfully. The operation component was successful. 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:

- ! ~ _ - .

- If the target server is Linux or Solaris, and the specified searchfile is a symbolic link, the linked file will be searched.

- If the target server is Linux or Solaris, and 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 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.

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	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:

- ! ~ _ - .

- If the target server is Linux or Solaris, and the specified filename is a symbolic link, the linked file will be loaded.

- If the target server is Linux or Solaris, and the specified outputfile 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

Host containing the file to which the string is to be added	Character encoding of the text file
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

Icon	Name	Return value	Description
			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. 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:

- ! ~ _ - .

- If the target server is Linux or Solaris, and the specified searchfile is a symbolic link, the linked file will be loaded.

- If the target server is Linux or Solaris, and 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

Character-code
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.
		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.

Variable	Description
	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:

- ! ~ _ - .

- If the target server is Linux or Solaris, and the specified searchfile is a symbolic link, the linked file will be converted.

- If the target server is Linux or Solaris, and 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. 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.

Icon	Name	Return value	Description
		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:

- ! ~ _ - .

- 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.*')])]

🅿 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.

- 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 "Chapter 6 Configuration Item Format" 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.
		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, 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.*')])]

P Point

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- 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.
		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.

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 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_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.

3.5.3 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

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- 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.

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(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.
		200	Deletion of the configuration item terminated abnormally.
-	-	201	Execution of the operation component timed out.
		202	The operation component has not been executed.

Icon	Name	Return value	Description
		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.
		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 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. 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*]

Variable	Description
	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	This variable is set to one of the following strings according to the status of the service or process. - 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" If an attempt to check whether the service or 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.

3.7.2 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
(blue icon)	Stop	0	The service or process is stopped.
(blue icon)	Running	161	The service or process has running. Retried if a retry count has been specified.
(red icon)	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	This variable is set to one of the following strings according to the status of the service or process. - 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	- 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. - 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" If an attempt to check whether the service is running fails, the content of the error will be output as a string. - 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. - 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. - 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) 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 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. - 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.
-	-	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 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) lbhostname

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
(green check icon)	Success	0	Removal from the load balancing target was successful.
(red error icon)	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 form 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.
-	-	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 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.
      mwtype, 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 Enterpri**se 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.
-	-	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 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.
 mwtype, 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 Enterpri**se 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 concurrency 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 concurrency.

(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	- 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 concurrency 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 concurrency.

(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	- 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 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 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 concurrency 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
	This variable will be set to the following message if the operating system stop request is successful.
	The operation component was successful.
	If the operating system 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 operating system stop requests are successful.
	The operation component was successful.
	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.
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) execpassword

This operation component does not use the value of execpassword. The value of execpassword will be ignored even if it is specified.

(7) multiplicity

Specify the execution concurrency 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
	This variable will be set to the following message if the operating system restart request is successful. The operation component was successful. If the operating system restart 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 operating system restart requests are successful. The operation component was successful. 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.
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 concurrency 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
	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.
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 concurrency 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	- 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
	This variable will be set to the following message if all of the servers are stopped successfully. The operation component was successful. 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.
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 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.

3.9.10 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 concurrency 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	- 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: AAAAA-BBBBB-CCCCC-DDDDD-EEEEE

(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) servername

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 relevants 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: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	- 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 icon	Success	0	Successfully set maintenance mode.
Failure icon	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	- 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	- 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. - 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_impiimport command, see " swrba_ipmiimport (IPMI Information Import Command) ".

    - Example of the input file(CSV format) specified for swrba_impiimport 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
(blue circle icon)	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.
(red X icon)	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 "XXXXX" 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 (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 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
(green check icon)	Success	0	The event has been notified successfully.
(red X icon)	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 *Systemwalker Centric Manager Reference Manual* 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 opmtrcsv 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	This variable will be set to the following message if the operation component successfully checks the occurrence of events monitored by the monitoring product. The operation component was successful. 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.
event_search_result	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. The output format varies depending on the operation management product that is performing event monitoring. If event monitoring is performed by Systemwalker Centric Manager, the opmtrcsv command is used to set the search results in CSV format. Refer to the *Systemwalker Centric Manager Reference Manual* for details on the setting format and the setting items. 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.
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 (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 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	Success	0	Changing of the event status was successful.
Failure	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 opmtrcsv 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 opmtrcsv 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:

- ! ~ _ - .

- 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
(green check icon)	Success	0	Monitoring suppression has been set up successfully.
(red X icon)	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.
-	-	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 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 mpmonresume 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 cancelation 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 [*message*] part will be converted to spaces. [*event ID*],[*event type*],[*source*],[*level*],[*message*],[*occurrence time*] <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) perfcounterpath

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	This variable is set to the performance counter value, using the following format. [*date/time obtained*], [*counter path 1*], [*counter path 2*], ... Example: "Time","\\HOSTNAME\Memory\Available bytes","\\HOSTNAME\processor(_total)\% processor time" "09/02/2011 16:48:14.640","955019264.000000","1.562500" "09/02/2011 16:48:15.640","954822656.000000","0.000000" "09/02/2011 16:48:16.640","954806272.000000","0.000000"
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 job net 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 job net name exists in only one project.

If job net of the name that specified in job net name 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: - 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 concurrency for checking the operational status of the node.

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	- If only one host name or IP address has been specified for the "hostname" option
	This variable is set to one of the following strings according to the operational status of the node:
	- If the node is operating: "Run"
	- If the node is not operating: "Stop"
	If an attempt to check the operational status of the node fails, the content of the error will be set as a string.
	- If multiple host names or IP addresses have been specified for the "hostname" option
	If all nodes are running, the string "Run" will be set.
	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.
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	- 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
	- If multiple port numbers or service names are specified for the "port" option If connections can be established to all ports, this variable will be set to the following message. The operation component was successful. 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.
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 201and 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
(green check)	Success	0	Successfully set up the network for the operating system.
(red X)	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-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.

f 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

	This variable will be set to the following message if updates are successfully applied to all of the servers.
	
	The operation component was successful.
	
	  - If terminating abnormally:
	
	    Set the error content as a string.
	
	    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".
	
	      - 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	The result of applying the updates is stored in this variable.
	
	  - The result is output in the following format:
	  [RC (return code applied to update], [Patch No (applied update number)], [Message (message)]

failure_patchlist	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.
	
	Updates output to the "notexist_patchlist" are included.
	
	  - 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	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. patch number or update program ID
returnCode	This variable is set to the return value.

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:
  ! ~ _ - .

- 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 later]

    ```
    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 wuauserv
    net start wuauserv
    ```

  - 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
	If the duration period for repetition processing has passed, this variable will be set to the following message. The duration is over. If the operation fails, the content of the error will be set as a string.
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 yyyymmdd. 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	Success	0	Schedule Definitions successfully registered.
Failure	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

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

Class Name

Swrba_Input

List of Methods

Method	Description
String input_analysis(String filename, String element)	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
String input_analysis(String filename, String element)	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

- XML::Parser 2.40

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
Swrba_Logger new(String classname, String logfile)	It is a constructor of Swrba_Logger.
String info(String outData)	Output the specified text string to the log. The log level is "INFO".
String warn(String outData)	Output the specified text string to the log. The log level is "WARN ".
String error(String outData)	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
String run(String hostname, String username, String password, String exec_username, String exec_password, String commandline)	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.
Integer return_code()	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.
String stdout()	Return the standard output of the results of the command execution.
String stderr()	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_usernameSpecify 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
String receive_file(String hostname, String username, String password, String source, String destination, String ostype)	Acquire the file from the specified host. "Success" is returned if acquisition was successful. An exception is returned if acquisition failed.
String send_file(String hostname, String username, String password, String source, String destination, String ostype)	Transfer files to the specified host. "Success" is returned if transfer was successful.

	An exception is returned if transfer failed.
Integer return_code()	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.

ostypeSpecify 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
String change_file_authority(String hostname, String username, String password, String execusername, String execpassword, String filename, String ownerauthority, String groupauthority, String otherauthority, String ostype)	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.
Integer return_code()	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 content 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 content 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
String search_file(String hostname, String username, String password, String filename, String ostype, String execusername, String execpassword)	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.
Integer return_code()	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
String make_file(String hostname, String username, String password, String filename, String text, String overwrite, String ostype, String exec_username, String exec_password)	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.
String delete_file(String hostname, String username, String password, String filename, String ostype, String exec_username, String exec_password)	Delete files from the specified host. "Success" is returned if the file deletion was successful. An exception is returned if the file deletion failed.
Integer return_code()	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
String add_string(String hostname, String username, String password, String filename, String addstring, String outputfile, String overwrite, String ostype, String execusername, String execpassword)	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.
Integer return_code()	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
String copy_file(String hostname, String username, String password, String sourcefilename, String destination, String overwrite, String ostype, String execusername, String execpassword)	Copy files on the specified host. "Success" is returned if the file copy was successful. An exception is returned if the file copy failed.
String move_file(String hostname, String username, String password, String sourcefilename, String destination, String overwrite, String ostype, String execusername, String execpassword)	Move files on the specified host. "Success" is returned if the file movement was successful.

	An exception is returned if the file movement failed.
Integer return_code()	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
String compress_file(String hostname, String username, String password, String compfilename, String filename, String overwrite, String ostype, String execusername, String execpassword)	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.
String decompress_file(String hostname, String username, String password, String compfilename, String directoryname, String ostype, String execusername, String execpassword)s	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.
Integer return_code()	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
String change_file_encoding(String searchfile, String outputfile, String character_encoding, String from_encoding, String overwrite)	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.
Integer return_code()	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
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)	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.
Integer return_code()	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
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)	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.
Integer return_code()	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
String make_directory(String hostname, String username, String password, String directoryname, String ostype, String execusername, String execpassword)	Make directories to the specified host.. "Success" is returned if the file making was successful. An exception is returned if the file making failed.
String delete_directory(String hostname, String username, String password, String directoryname, String ostype, String execusername, String execpassword)	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.
Integer return_code()	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
String change_directory_authority(String hostname, String username, String password, String directoryname, String ownerauthority, String groupauthority, String otherauthority, String ostype, String execusername, String execpassword)	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.
Integer return_code()	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
String compress_directory(String hostname, String username, String password, String compfilename, String directoryname, String overwrite, String ostype, String execusername, String execpassword)	Compress directories on the specified host. The compressed format is zip form. "Success" is returned if the directory compression was successful. An exception is returned if the directory compression failed.
Integer return_code()	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.

execusernameSpecify 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
String service_process_start_check(String servicename, String processname, String hostname, String username, String password, String ostype, String execusername, String execpassword)	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.
String service_process_stop_check(String servicename, String processname, String hostname, String username, String password, String ostype, String execusername, String execpassword)	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.
String service_start_check(String servicename, String hostname, String username, String password, String ostype)	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.
String service_stop_check(String servicename, String hostname, String username, String password, String ostype)	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.
String start_service(String service, String hostname, String username, String password, String ostype, String execusername, String execpassword)	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.
String stop_service(String service, String hostname, String username, String password, String ostype, String execusername, String execpassword)	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.
Integer return_code()	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.

serviceSpecify 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
String process_start_check(String processname, String hostname, String username, String password, String ostype, String execusername, String execpassword)	Confirm whether the process of the specified host is running. "Success" is returned if confirmation of the start status of the process was successful. An exception is returned if confirmation of the start status of the process failed.
String process_stop_check(String processname, String hostname, String username, String password, String ostype, String execusername, String execpassword)	Confirm whether the process of the specified host has stopped. "Success" is returned if confirmation of the stop status of the process was successful. An exception is returned if confirmation of the stop status of the process failed.
Integer process_number_check(String processname, String hostname, String username, String password, String ostype, String execusername, String execpassword)	Confirm whether the process of the specified host is running. The number of detected processes is returned if confirmation of the start status of the processes was successful. An exception is returned if confirmation of the start status of the process failed.
Integer return_code()	Return the return value of the results of the start/stop status confirmation of a process.

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

String get_info(String searchxpath, String xpath, String hostname, String username, String password, String execusername, String execpassword, String ostype)	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.
String set_info(String searchxpath, String xpath, String content, String hostname, String username, String password, String execusername, String execpassword, String ostype)	Update a specific configuration item. "Success" is returned if update was successful. An exception is returned if update failed.
Integer return_code()	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:

3.15.11.1 REST

Class Name

Swrba_Protocol

List of Methods

Method	Description
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)	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.
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)	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.
Integer return_code()	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.

methodnameSpecify the method name of HTTP (HTTPS) to be executed. Specify GET, POST, PUT, and DELETE
for the method name.

resourcepathSpecify 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
String port_check(String hostname, String port)	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.
Integer return_code()	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
String server_start(String ipmiipaddress, String ipmiusername, String ipmipassword)	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.
String server_shutdown(String ipmiipaddress, String ipmiusername, String ipmipassword)	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.
String server_check(String ipmiipaddress, String ipmiusername, String ipmipassword)	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
String loadbalancer_remove(String lbhostname, Integer removetime, String hostname, String username, String password, String execpassword)	Remove the specified server from a load balancing target. "Success" is returned if removal was successful. An exception is returned if removal failed.
String loadbalancer_embed(String lbhostname, String hostname, String username, String password, String execpassword)	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 "" 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
String get_resource_state(String hostname, String username, String password, String resource, String mwtype, String mwinstalledpath, String ostype, String execusername, String execpassword)	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.
String switch_cluster(String hostname, String username, String password, String nodename, String resource, String mwtype, String mwinstalledpath, String ostype, String execusername, String execpassword)	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.
Integer return_code()	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
String Systemoperation_shutdown(String hostname, String deferringtime, String ostype, String username, String password, String execusername, String execpassword)	Perform the stop request to OS. "Success" is returned if the stop request was successful. An exception is returned if the stop request failed.
String Systemoperation_reboot(String hostname, String deferringtime, String ostype, String username, String password, String execusername, String execpassword)	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
String change_hostname(String hostname, String newhostname, String ostype, String username, String password, String execusername, String execpassword, String domainusername, String domainpassword)	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.
ostypeSpecify 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
String join_domainorworkgroup(String hostname, String username, String password, String domain, String workgroup, String domainusername, String domainpassword)	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.
String set_dns(String hostname, String username, String password, String interfacename, String dns, String ostype, String execusername, String execpassword)	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.
String set_wins(String hostname, String username, String password, String interfacename, String wins)	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.
```

*wins*Specify 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	<i*nstallation 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
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)	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.

*commandline*Specify the command, with relevant arguments, that installs the software.

*sourcehostname*Specify the host name or IP address of the host from where the installation file of the software is to be sent.

*sourcefile*Specify the name of the installation file.

*destinationfile*Specify 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
String start_workunit(String hostname, String username, String password, String wuname, String systemname, String mwtype, String mwinstalledpath, String ostype, String execusername, String execpassword)	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.
String stop_workunit(String hostname, String username, String password, String wuname, String systemname, String stopmode, String mwtype,String mwinstalledpath, String ostype, String execusername, String execpassword)	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.
Integer return_code()	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
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)	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.
String event_ updatestatus(String hostname, String eventnumber, String eventstatus, String mwtype, String mwinstalledpath, String ostype, String username, String password, String execusername, String execpassword)	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.
Integer return_code()	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
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,)	Start the job net. "Success" is returned if the start was successful. An exception is returned if the start failed.

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 execpassword,)	Acquire the status of the job net. The status of the job net is returned if confirmation was successful. An exception is returned if confirmation failed.

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.

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_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.

Information

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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.

 Information
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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.

> - 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 Service

    Install IIS and FTP if it they have not been installed yet.

  - On UNIX systems, the following software is required.

    - vsftpd

    Install 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,returnpropname

- 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

- Ger 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"

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	- If managing server with ServerView Resource Orchestrator: ServerView Resource Orchestrator or ServerView Resource Orchestrator or FJSVrcvmr - Otherwise: VMware vCenter Server

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

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
```

P Point

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. Click **Run of Windows**.

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**.
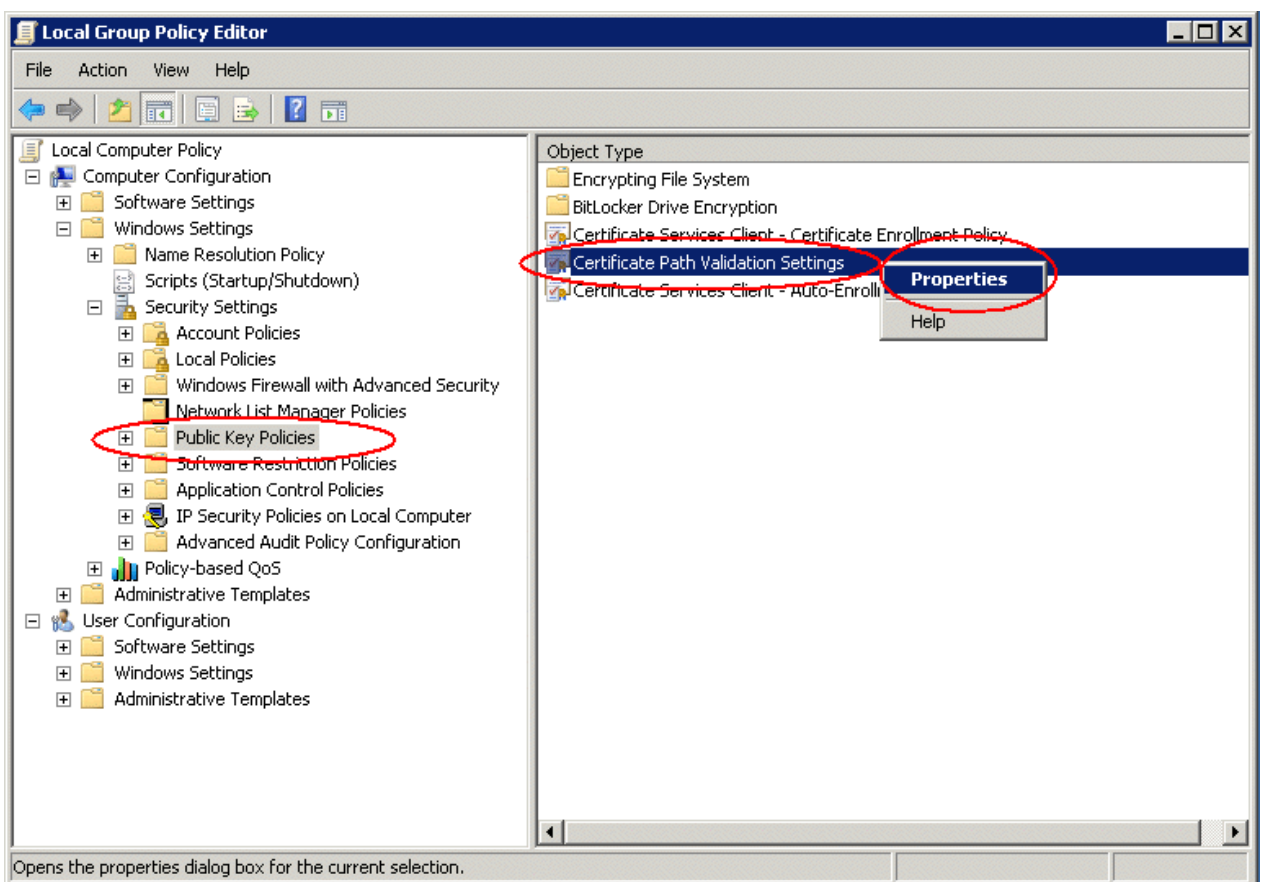
4. Click the **Network Retrieval** tab, and specify the following:

   - 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**.
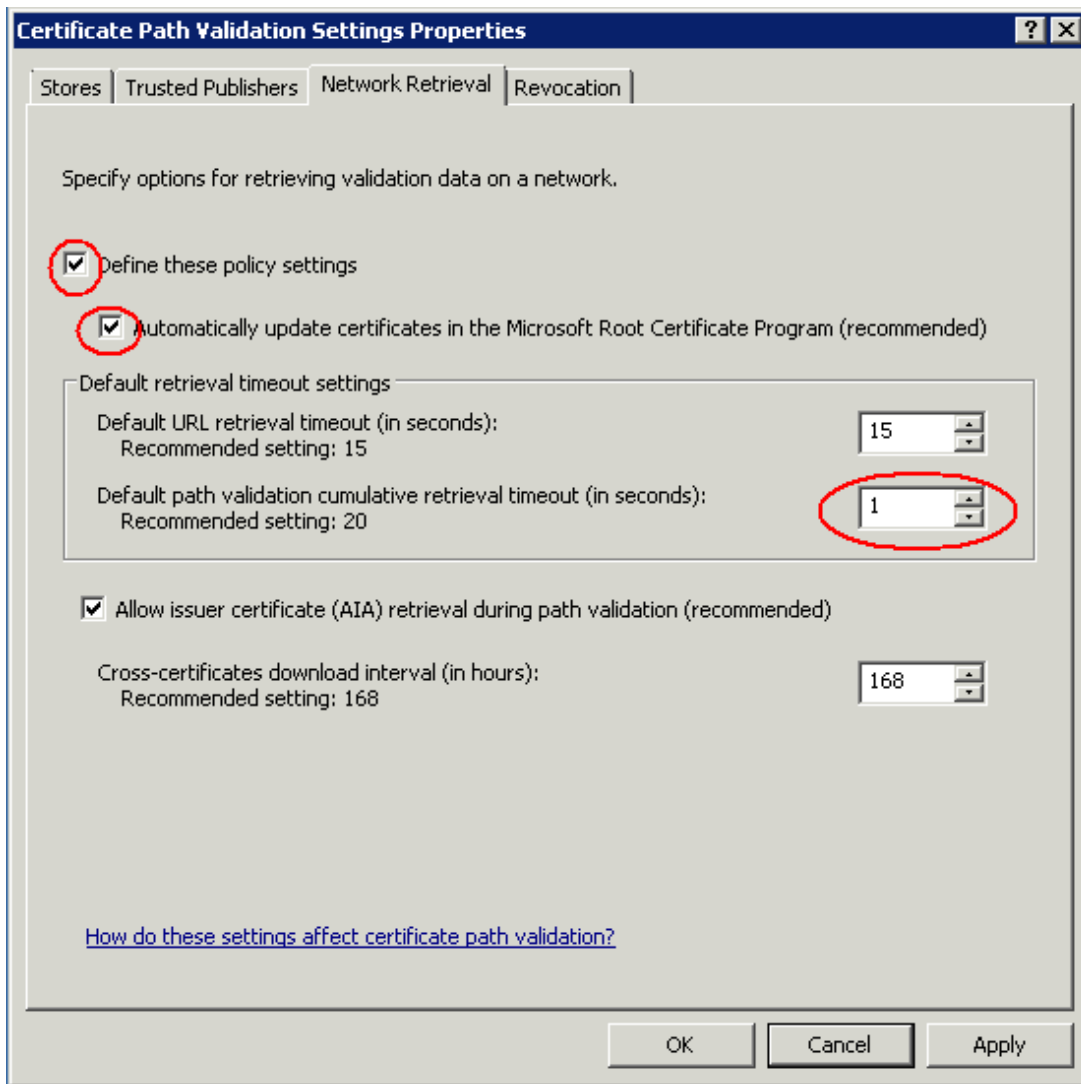
📒 **Note**

....

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

The relationship between "logical node", "Service/daemon", and "OS process" are described below.
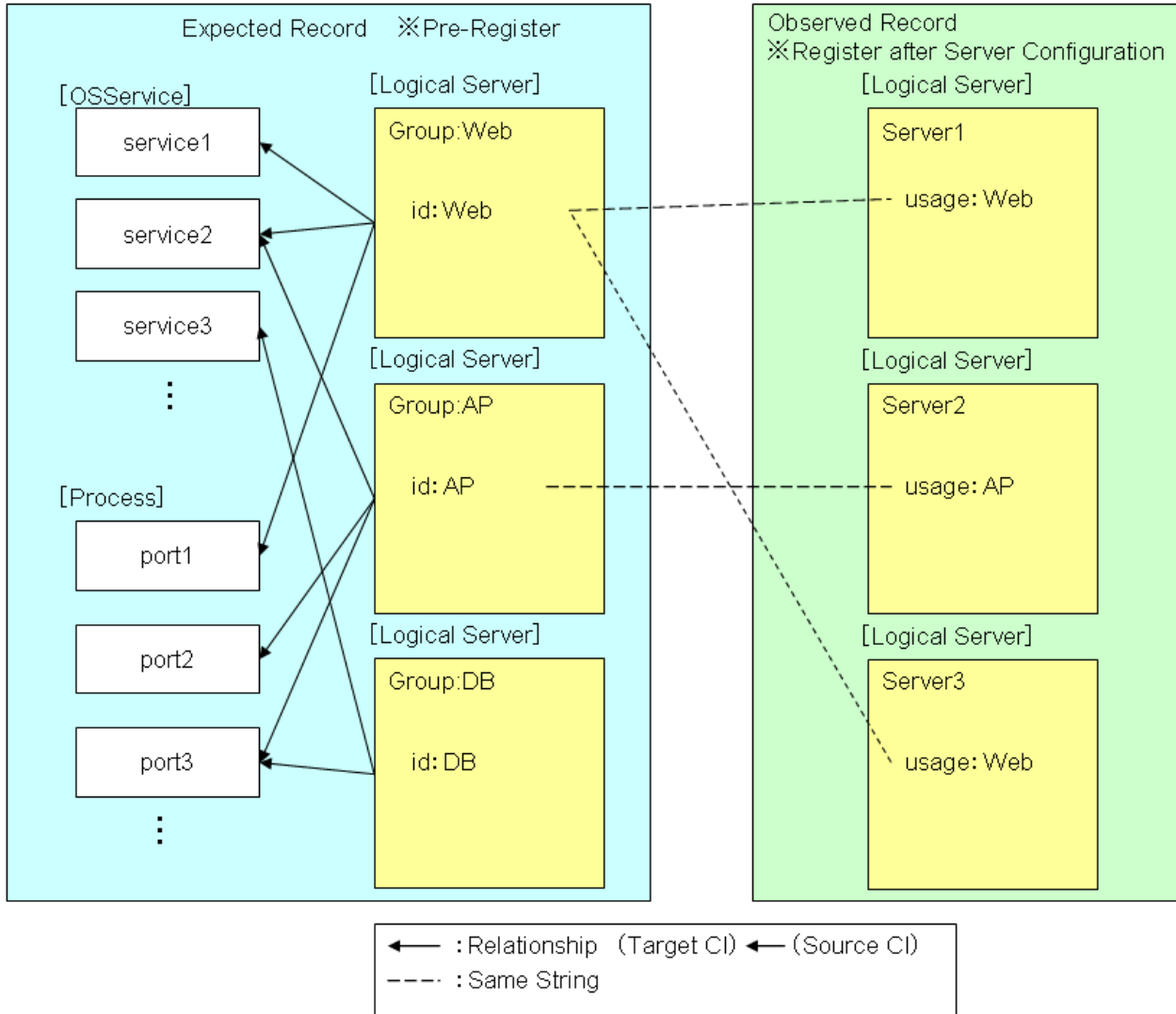
In above figure, confirmed group name, service name and port number are registered as below.

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 text in HTML.
TextInput	IBPMTextInput	The widget to input and edit a single line of text. This corresponds to <input type="text" value="value"> and <input type="password" value="value"> in HTML.
CheckBox	IBPMCheckBox	The widget to display an "on/off" (selected or cleared) check box. This corresponds to <input type="checkbox" value="value "> in HTML.
RadioButton	IBPMRadioButton	The widget to display a radio button. This corresponds to <input type="radio" value="value"> in HTML.
TextArea	IBPMTextArea	The widget to input and edit one or more lines of text. This corresponds to <textarea> in HTML.
Select	IBPMSelect	The widget to display a list from which single or multiple items can be selected. This corresponds to <select> <option> 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 <span> tag.

Format for the <div> tag:

```
<div rcf:id="widget ID" rcf:type="widget type" rcf:property_name="value" ... ></div>
```

Format for the <span> 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 uda_ plus <identifier of the UDA>. 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="IBPMTextInput" rcf:maxLength="10" rcf:color="blue">
</span>
```

Note that you can describe some screen widgets with either the <div> tag or the <span> tag, but you must describe certain screen widgets with the <div> tag.
For the widgets that you can describe with either <div> or <span>, 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 <span> 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 <span> 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="IBPMTextInput"></span>
    ```

  - Incorrect example:

    ```
    <span rcf:id="id2" rcf:type="IBPMTextInput"/>
    ```

- 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 <span> 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 <span> 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	- 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="IBPMText" rcf:value="character string"></div>
<br/> 
```

- Specifying the position:relative style attribute in <div> or <span> 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

enter String   ••••••••|

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 <span> 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	Requi red	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
		- 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	- 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 <span> 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	- Size - Color - Border - Padding
Label	label	rcf-CheckBox-label	- Color - Font - Text (except textIndent, textAlign, and whiteSpace)

Figure 4.1 Structure of CheckBox Widget
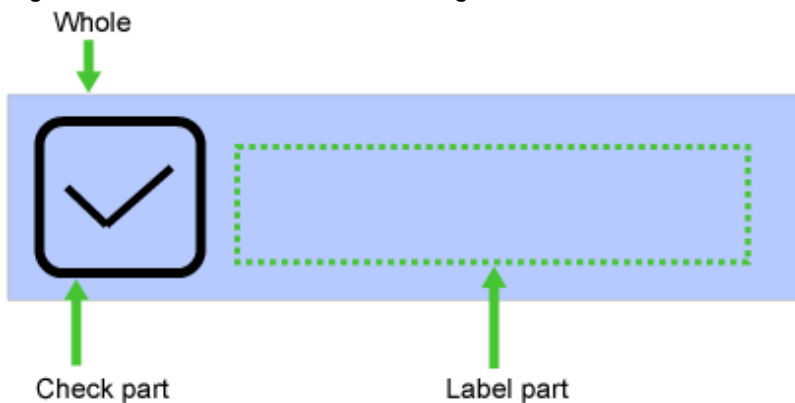
Refer to 4.2.5 Style Properties for details.

4.2.1.4 RadioButton

RadioButton is the widget for displaying a radio button.

P 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 <span> 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. - 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. - 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 icon] **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	- Size - Color - Border - Padding
Label	label	rcf-RadioButton-label	- Color - Font - Text (except textIndent, textAlign, and whiteSpace)

Figure 4.2 Structure of RadioButton Widget
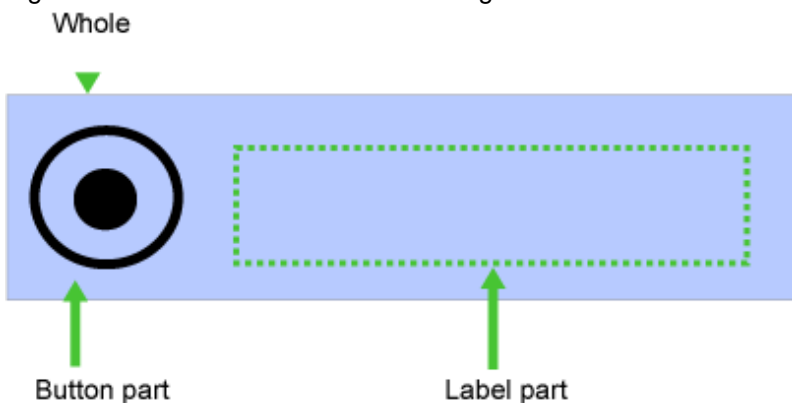
Refer to 4.2.5 Style Properties for details.

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".


```
<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.

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 <span> 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.

Style Properties

Part Name	Prefix	Class Name	Available Styles
Whole widget	None	rcf-TextArea	- 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>
```

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 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. 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 options which are separated by comma. - The label and value for each item have the same value. Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA.		""
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 (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. In case of multiple selections, - Specifies the last selected index.	No	-1
selectedIndexes	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.	No	[]

Name	Data Type	Description	Required	Default Value
		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 values depending on selected indexes are saved to the UDA value in comma separated format. Refer to 4.2.4 Common Properties for Screen Widgets for information on how to specify a UDA.		
selectedValue	String	In case of single selection, - 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). In case of multiple selections, - Specifies the value of the last selected item. Values are stored in the order in which items are selected.	No	""
selectedValues	String Array	Specifies a value array of the selected items. Values 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 (RCF12605).	No	[]
size	Number	Specifies the height (the number of rows) of the selection list. You can specify an integer greater than 1. If you specify a value less than 1, an error occurs.	No	(Set automatically) In case of single selection: 1 In case of multiple selections: 4
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. - 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	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
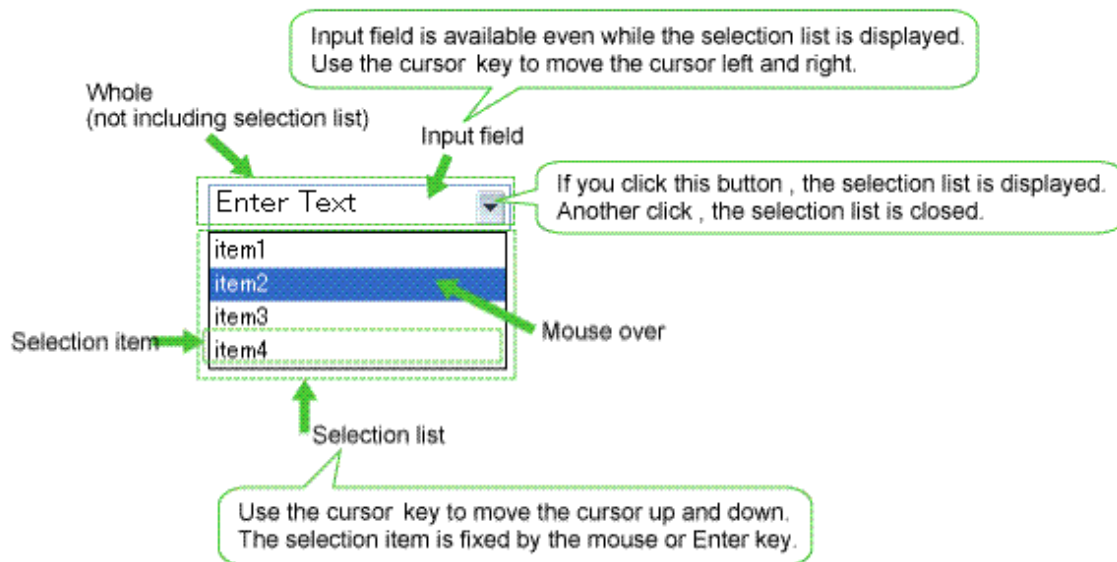
You can undo using Ctrl+Z. Refer to 4.4.1.7 Undo Using Ctrl+z in Text Input Widgets for details.

📄 **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>
```

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
buttonImageSize	-	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
		- 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	- Size - Border
Input field	input	rcf-ComboBox-input	- 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 <span> 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.

Point

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` [calendar icon]

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.

P Point

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This widget is displayed in the following way:

- Using with <div> tag, line feed is inserted before and after the widget.

- Using with <span> 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.

- 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

selectedIndexes	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. - 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. - 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

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- 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

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- 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.

Style Properties

Style properties of whole widgets are shown below.

Part Name	Prefix	Class Name	Available Styles
Whole widget	None	rcf-SelectList	- 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(white)
optionHovered (mouseover item)	rcf-SelectList-optionHovered	backgroundColor	Specifies the background color of the mouseover item.	#316AC5
		color	Specifies the font color of the mouseover item.	#FFFFFF(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
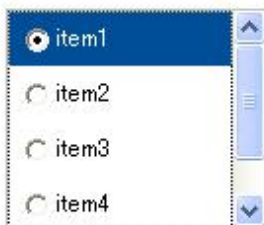
In single selection mode, radio buttons are displayed.

Figure 4.4 Multiple Selections Mode
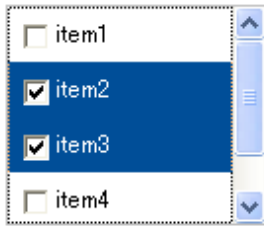
In multiple selections mode, check boxes are displayed.

Format

```
<div rcf:type="IBPMCheckList" ... ></div>
```

📛 **Note**

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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.

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🅿 **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
		- 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. 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.		
selectedIndexes	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 (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 values depending on selected indexes are saved to the UDA value in a comma-separated format. 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	""
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
mandatory	Boolean	Specifies whether or not the entered value is required.	No	false

Name	Data Type	Description	Required	Default Value
		- 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	- 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	backgroundColor	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	backgroundColor	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
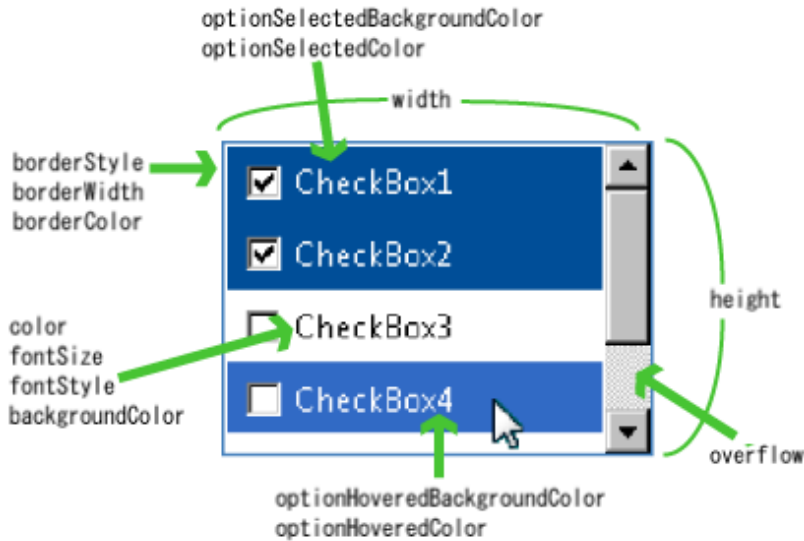
If the size of the items is too large for the display area, the widget is displayed in the following way:

- 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>
```

P 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	- 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="IBPMPanel" ... >
    HTML element
</div>
```
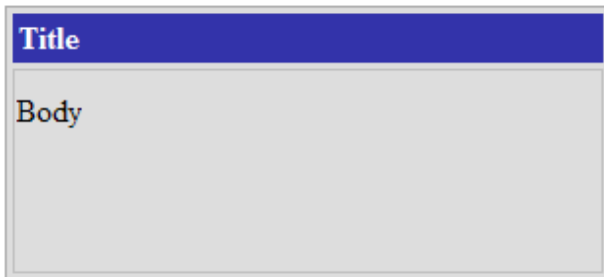
P Point

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
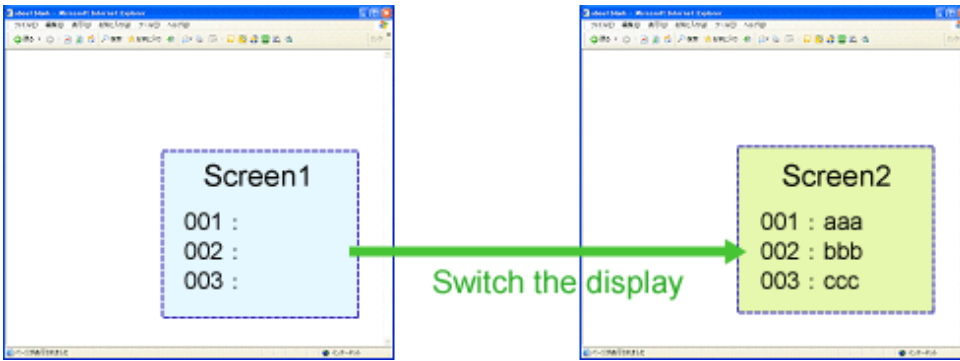
Format

```
<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	- 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>
```

P 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
selectedIndexLock	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.
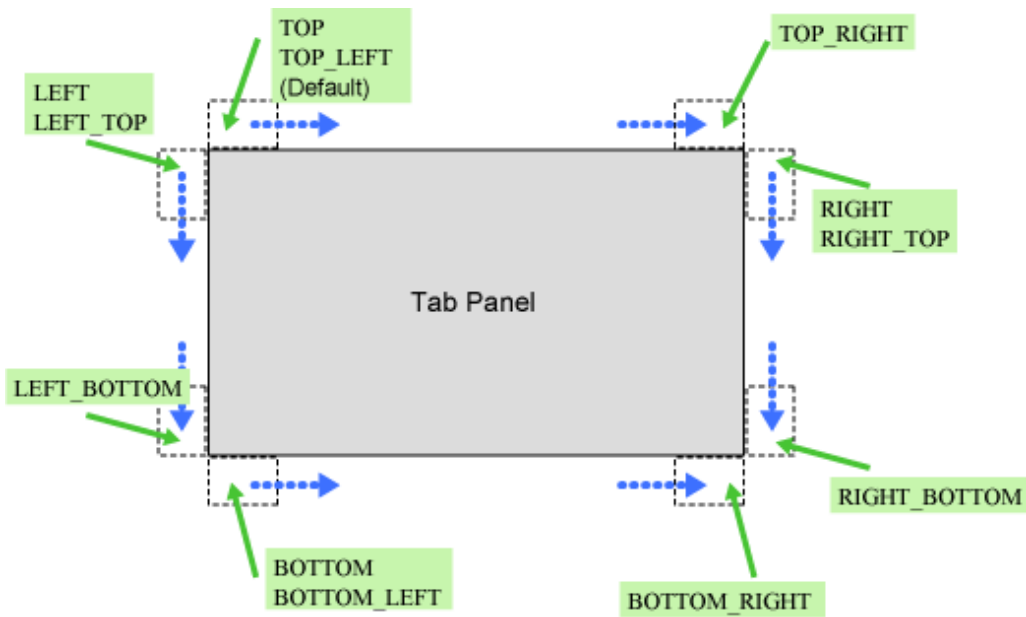
Specifying keys

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.
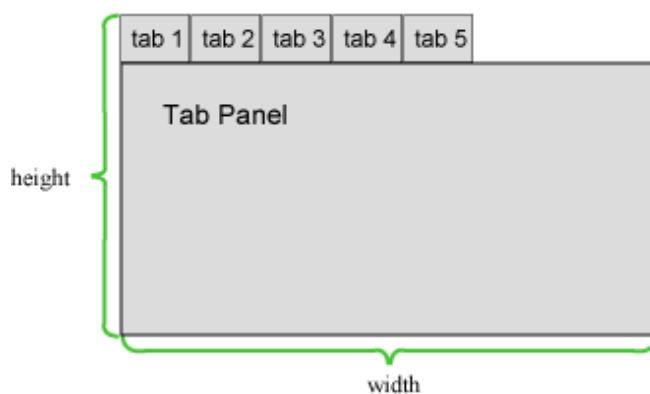
Specifying tab size

Regardless of the tab location, the default value of the headerWidth and headerHeight properties is auto.
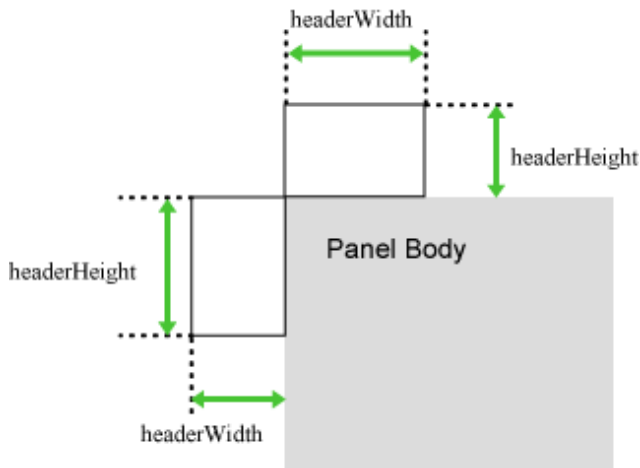
If tabs are placed on the left or right side, the tab width depends on the length of the longest tab label.

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.
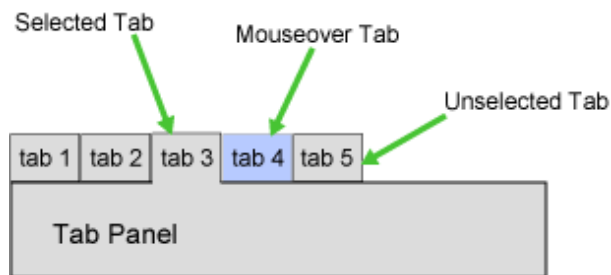
Style Properties

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>
```

![Note icon] **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.

- -

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>
```

Start retrieval using activate method.

Sample HTML Fragment Description

```
<div rcf:id="uda_0685861775"
    rcf:type="IBPMText"
    rcf:value="Name:">
</div>
<div rcf:id="uda_name"
    rcf:type="IBPMTextInput">
</div>
<div rcf:id="uda_0439885142"
    rcf:type="IBPMText"
    rcf:value="Address:">
</div>
<div rcf:id="uda_address"
    rcf:type="IBPMTextInput>
</div>
```

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-FragmentContainer	- 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="IBPMText"
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.
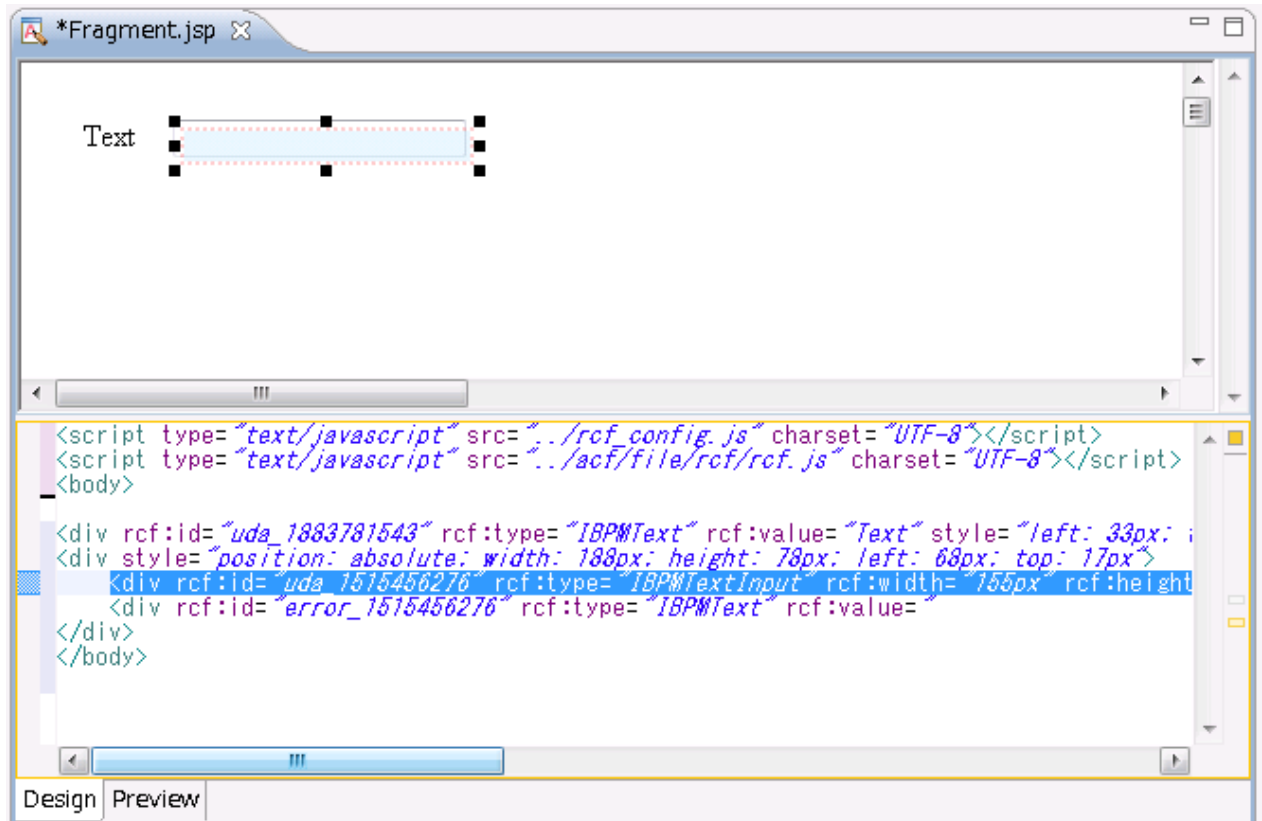
4. Delete description other than added UI widget. Execute upload and export of the application under this condition. The content of edited file (jsp) is the following.

```
<div rcf:id="uda_1883781543" rcf:type="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="IBPMText"
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="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="IBPMText"
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

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
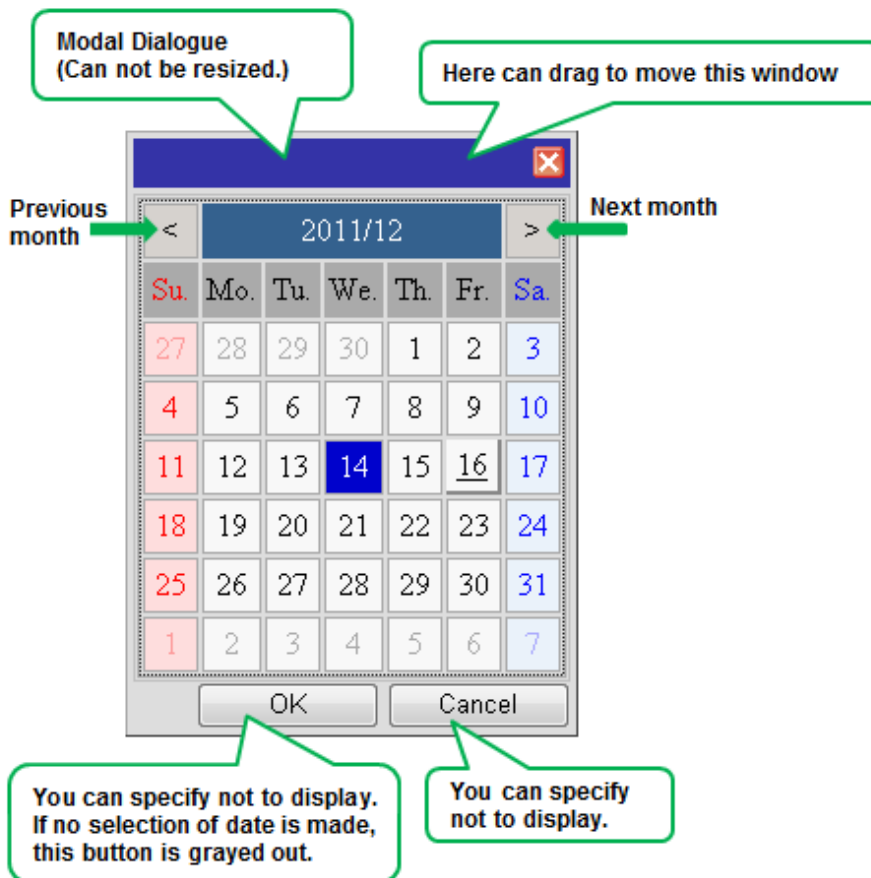
Format

```
<span rcf:id="uda_var1" rcf:type="IBPMDateInput" ...></span>
<div rcf:id="IBPMPopupCalendar_1" rcf:type="IBPMPopupCalendar"
rcf:targetDateInputId="uda_var1" ...></div>
<span rcf:id="CalendarButton_1" rcf:type="CalendarButton" rcf:target="IBPMPopupCalendar_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

· ·

. . . .

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="IBPMPopupCalendar_1" rcf:type="IBPMPopupCalendar" 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.

. . . .

 Point

. . . .

This widget is displayed as follows:

- Using with <div> tag, line feed is inserted before and after the widget.

- Using with <span> 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="IBPMPopupCalendar_1" rcf:type="IBPMPopupCalendar"
rcf:targetDateInputId="uda_var1" ...></div>
<span rcf:id="CalendarButton_1" rcf:type="CalendarButton" rcf:target="IBPMPopupCalendar_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: - 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, ou 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.

- 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
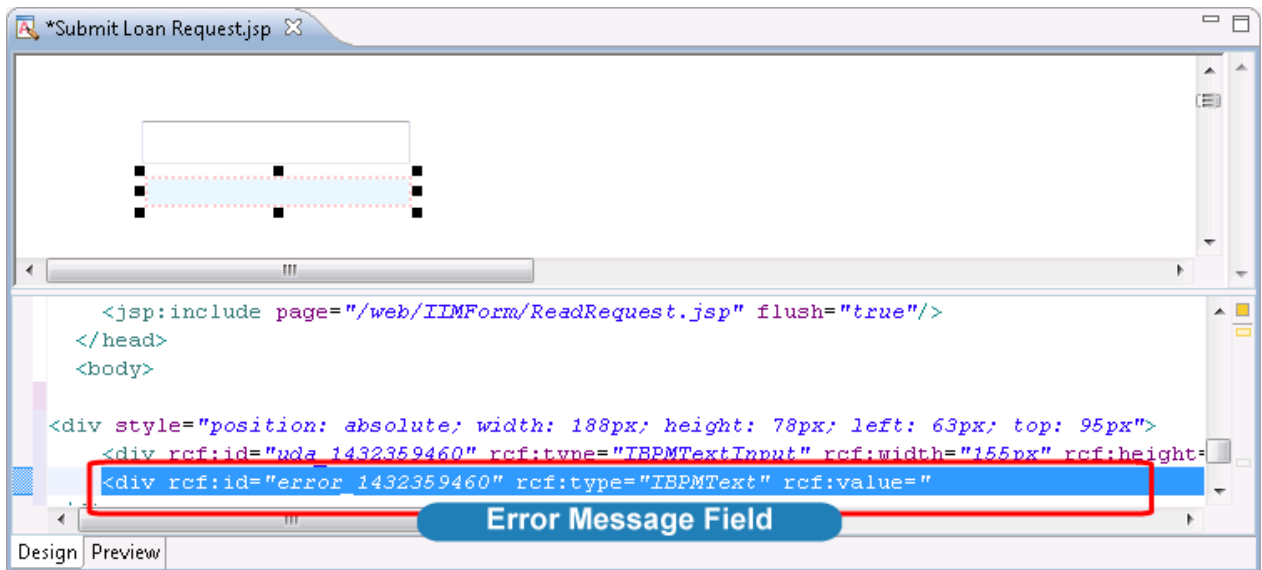
Error Message is displayed to this Error Message Field, when you execute the following operations in Console:

- 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.

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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**

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- 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.

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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 <span> 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	Specifies the list of RadioButton IDs included in the group. Note that the order of items in the targets property is the order in which the focus shifts. An error occurs if the value of this property is one of the following: - 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	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. If a value that does not match any value in the group is specified, an error occurs.	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 <span> 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 <span> 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
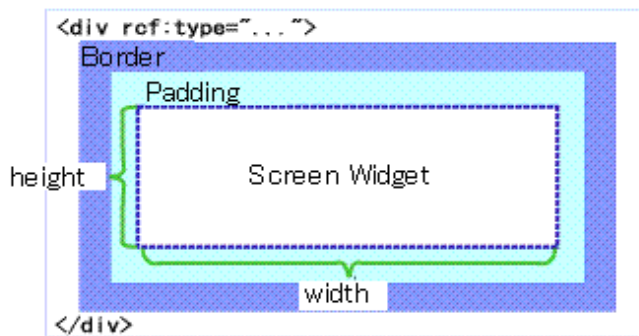
However, width and height of the following widgets include the size of border area:

- 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 c3dyYmFhZG1pbjpzeXN0ZW13YWxrZXIjMQ==
```

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
<?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 c3dyYmFhZG1pbjpzeXN0ZW13YWxrZXIjMQ==
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>
        </processInstances>
    </processInstances>
</ProcessInstaneceResponse>
```

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 /rbaserver/ProcessInstances?state=running&appid=TEST&pdname=Sample HTTP/1.1
Host: rbamanager.systemwalker.fujitsu.com:8009
Authorization: Basic c3dyYmFhZG1pbjpzeXN0ZW13YWxrZXIjMQ==
```

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>
    </processInstance>
</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 c3dyYmFhZG1pbjpzeXN0ZW13YWxrZXIjMQ==
```

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=""/>
```

```
            <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>
</ProcessInstaneceResponse>
```

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.
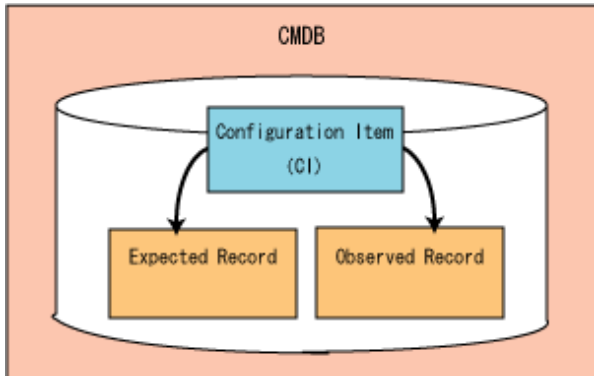
It also describes a configuration item as XML format like below.

```
<?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 items 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 "procudtName" 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 configuratio	-	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..*
LogicalSystemB oard	LogicalSer verConfigu ration	Informatio n 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	LogicalSyste mBoard (LSB) number (LSB identifier within the cabinet)	string	0..1
			nextPartition ID	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, "ffffff00"	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 MemoryMirr	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 pass phrase	string	0..1
			encryptionPhrase	Attribute	Encrypted pass phrase	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 identifie	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_u7fjsv3w 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, "fjpfc2.2.1"	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
ServerResource Pool		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
			gatewayAd dress	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
			masterIPAddress	Attribute	IP address of the node that is running as the master within this group	string	0..1
Configuration (NetworkNode) (Deprecated)	NetworkNode	Settings information for network nodes	Interfaces	Element	Settings information for logical interfaces	-	0..1
			LinkAggregations	Element	Settings information for link aggregations	-	0..1
			LoadBalancings	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
LogicalNetwork Configuration	LogicalNetwork	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
			LoadBalancings	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" "iso88023Csmacd" "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..*
NetworkAddress	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	SLBConte nt	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		
			mcuChange Delay	Attribute	The time required for starting hot standby operations (in seconds) when switchovers occur during MCU redundant operations	int	0..1
FujitsuHotStand byPeerNode	FujitsuHot Standby	Fujitsu Hot Standby correspond ent 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 communicatin g with the correspondent router	IDREF	0..1
			alivemode	Attribute	Flag indicating whether to send alive packets	boolean	0..1
			alivepeerli mit	Attribute	Limit for the weights of correspondent routers	int	0..1
			alivepeergr oup	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		
			aliveresend Interval	Attribute	Resend interval for alive packets	int	0..1
			alivedeadIn terval	Attribute	Interval for which alive packets are disabled	int	0..1
			alivertyInte rval	Attribute	Interval for checking whether alive packets have recovered	int	0..1
			alivesndInt erval	Attribute	Interval for sending alive packets	int	0..1
			alivetrigger mode	Attribute	Flag used to enable or disable trigger mode for alive confirmation packets	boolean	0..1
TrackNode	HotStandb y	Node monitored for Hot Standby switching	ipAddress	Attribute	IP address of the monitored node	string	0..1
			resendInter val	Attribute	Packet resend interval	int	0..1
			normalInter val	Attribute	Normal packet transmission interval	int	0..1
			errorInterva l	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	HotStandb y	Interface monitored for Hot Standby switching	interface	Attribute	Reference to the monitored interface (Configuratio n)	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 authenticate 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 LSUpdate 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: "=" "!="	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	FilteringP olicy	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	FilteringP olicy	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
			LogicalUserDefinedUnitConfiguration	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 Descriptio n	Component Name	Component Type	Component Description	Data Type	# of
ServerDomain		Server domain informatio n	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..*
			ServerPoolGr oup	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 Descriptio n	Component Name	Component Type	Component Description	Data Type	# of
DefaultServerD omain		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..*
			ServerPoolGr oup	Element	Server pool group	-	0..1
			Defines	Element	Settings information	-	0..1
ServerGroup	ServerDo main DefaultSer verDomain	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
ServerPoolGrou p	ServerDo main DefaultSer verDomain	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..*
			StoragePoolGroup	Element	Storage pool group	-	0..1
DefaultStorageDomain	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..*
			StoragePoolGroup	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	NMTOKENS	0..1
			connectStorage	Attribute	Connection storage node (used when the storage group is not shared)	NMTOKENS	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 informationab out Volume configuration (size, number of items), etc. of StorageGroup that is not shared.		
StorageSubGro up	StorageSu bGroups	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
			connectServe r	Attribute	Connection server node	NMTO KENS	0..1
			status	Attribute	Generic status	string	0..1
			Volume	Element	Reference to a logical volume	-	0..*
Volume	StorageGr oup, StoragePo olGroup, StorageSu bGroup, VolumeInf o	Logical volume	-	Text	Reference to a logical volume	IDREF	1
FreeVolume	StoragePo olGroup	Free volume	-	Text	Reference to a free volume	IDREF	1
StorageGroupT emplate	StorageSu bGroups	Volume configurati on for storage sub group	VolumeInfo	Element	Configuration information for the LogicalVolum e	-	0..*
VolumeInfo	StorageGr oupTempla te	Volume configurati on informatio n	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	IDREFS	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	IDREFS	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	Servername ePool	Server interface pool	interfaceDevi ceID	Attribute	String that allows the server interface to be identified Eg, MAC address Port address	string	0..1
			idType	Attribute	Type of interfaceDevic eID 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
			virtualIPAdd ress	Attribute	Virtual IP address pool for the server (only required if GLS or something similar has been set up)	string	0..1
RoutingObject	NetworkD omain	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
					"PRIMEPOWER2500"		
			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, "00PRIMEPWR#P##PW0LBS111###KJ000012######"	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..*
			RemovableDisk	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	Configuration	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)	hexBinary	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
			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
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
ExpansionDriveOption	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
StorageSystemDiskSet	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
					"FastEtherner0/1" "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
UserDefinedUnitConfiguration	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 Descripti on	Component Name	Componen t Type	Component Description	Data Type	# of
					addresses allowed		
			totalOperato rs	Attribute	Total number of operators	int	0..1
			phoneNumb er	Attribute	Main telephone number	string	0..1
			emailAddres s	Attribute	Email address for inquiries	string	0..1
			lastUpdate	Attribute	Date of the last update	dateTi me	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 Descripti on	Component Name	Componen t Type	Component Description	Data Type	# of
Component		Informati on about the position of the device in the configurat ion (independ ent 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	dateTi me	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 stared 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..*
ShippingProductGroup	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"		
			orderSetNu mber	Attribute	Order set number. Regarded as "1" if omitted.	int	0..1
			groupSetNu mber	Attribute	Product group set number. Regarded as "1" if omitted. Not valid if rank="order"	int	0..1
			productSetN umber	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		Informati on 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
			EIARackRef	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
EIARackRef	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..*
			Recognition Staff	Element	Person approving the request	-	0..1
			Managemen tRecordPro perties	Element	Various properties for target records	-	0..1
Requester	ChangeRec ord, ReleaseRec ord	Person making the request	id	Attribute	ID for the person making the request	IDREF	1
			date	Attribute	Time when the request was made	dateTi me	1
AcceptStaff	ChangeRec ord, ReleaseRec ord	Person receiving the request	id	Attribute	ID for the person receiving the request	IDREF	1
			date	Attribute	Time when the request was received	dateTi me	1
ReplyStaff	ChangeRec ord, ReleaseRec ord	Person respondin g to the request	id	Attribute	ID for the person responding to the request	IDREF	1
			date	Attribute	Time when the request was responded to	dateTi me	1
			type	Attribute	Type of response (answer, checking installed devices, release task, etc)	string	1
			Note	Element	Response content	-	1
RecognitionStaff	ChangeRec ord, ReleaseRec ord	Person approvin g 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
			application Date	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	dataTime	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	dataTime	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
NETFramework Application		.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
			installedSer ver	Attribute	Installation node	string	0..1
			installedPat h	Attribute	Installation directory	string	0..1
			requiredVer sion	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
FileConfigurati on		File configurat ion informati on	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
			installedSer ver	Attribute	Installation node	string	0..1
			path	Attribute	Base path	string	0..1
			Configuratio nFiles	Element	Configuration file information group	-	0..1
ConfigurationFi les	FileConfigu ration	Configura tion file informati on group	Configuratio nFile	Element	Configuration file information	-	0..*
ConfigurationFi le	Configuratio nFiles	Configura tion file informati on	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	dateTi me	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		Systemwalker Centric Manager 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
			TransactionServiceSetiings	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
			isSSLEnabled	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
TransactionServiceSetiings	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
ISConfigurationSettings	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
			livimgTime	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	Event channel name	string	0..1
			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
			isAutoDisconEnabled	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
			isAutoStart Enabled	Attribute	Automatically starts the event channel when the event service starts	boolean	0..1
			EventChann elSystemSet tings	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
EventChannelS ystemSettings	EventChann el	Environm ent settings	localTransac tionTimeout	Attribute	Timeout time for local transactions (seconds)	int	0..1
			isCheckCon sumerEnabl ed	Attribute	Error return mode for when a consumer is not connected	boolean	0..1
			isDisconnec tEnabled	Attribute	Whether to call the disconnect method on suppliers or consumers when event channels terminate	boolean	0..1
			channelBloc kadeLevel	Attribute	Blockade mode for each channel	string	0..1
			surveillance EventdataQ ueueRate	Attribute	Ratio of the monitoring value to the maximum number of event data records that can accumulate in an event channel	int	0..1
			surveillance RestartEven tdataQueue Rate	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		
			blockadeRel easeEventda taRate	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
			eventDataM ax	Attribute	Maximum number of event data records that can accumulate in an event channel	int	0..1
			nonvolatileL ivingTime	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 informati on	status	Attribute	Status	string	0..1
			documentRo ot	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
			isKeepAlive Enabled	Attribute	Uses the HTTP Keep-Alive function	boolean	0..1
			keepAliveTi meout	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..*
			WebServer Connector	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
			isSSLEnabled	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
			historyNummber	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
			isAutoStart Enabled	Attribute	Indicates whether the event channel starts automatically when the event service starts	boolean	0..1
			globalTrans actionMax	Attribute	Number of global transactions that can be executed simultaneously	int	0..1
			observeCom mitTimeout	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
			localTransac tionTimeout	Attribute	Timeout time for local transactions (seconds)	int	0..1
			isCheckCon sumerEnabl ed	Attribute	Error return mode when a consumer is not connected	boolean	0..1
			channelBloc kadeLevel	Attribute	Blockade mode for each channel	string	0..1
			surveillance EventdataQ ueueRate	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	Type	string	0..1
			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
			numberOfRevisionDirectories	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
			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
			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		
			isKeepAlive Enabled	Attribute	KeepAlive communications between the connector and the Servlet container	boolean	0..1
			WebServer Ref	Attribute	Web server	-	0..*
WebServerRef	WebServer ConnectorS ettings	Web server	idref	Attribute	ID reference for the Web server	IDREF	1
			VirtualHost Ref	Element	Virtual host	-	0..*
VirtualHostRef	WebServer Ref	Virtual host	idref	Attribute	ID reference for the virtual host	IDREF	1
ServletContaine rSettings	WorkUnitSy stemSettings	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
			connectorM axRequests	Attribute	Maximum number of connections	int	0..1
			processorMi nSpareThrea ds	Attribute	Initial and incremental values for processing threads for the Servlet container	int	0..1
			processorM axThreads	Attribute	Maximum number of processing threads for the Servlet container	int	0..1
			processorM axSpareThre ads	Attribute	Maximum number of processing threads for the Servlet container while in a standby state	int	0..1
			isFileListEn abled	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
			isTrafficDirectorMonitorEnabled	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
			connectionT imeout	Attribute	Connection timeout (seconds)	int	0..1
			idleTimeout	Attribute	Idle timeout (seconds)	int	0..1
			connectionU seTimeoutTi me	Attribute	Monitoring time for the connection in use (minutes)	int	0..1
			isCloseTime outConnecti onEnabled	Attribute	Closes connections that have timed out	boolean	0..1
			statementCa cheSize	Attribute	Statement cache size	int	0..1
			isAutoClose StatementEn abled	Attribute	Statement auto close	boolean	0..1
			sqlWaitTim eoutTime	Attribute	Communication s waiting time (seconds)	int	0..1
			isOutputSQ LToLogEna bled	Attribute	Outputs SQL statements to logs	boolean	0..1
			isAbnormal Reconnectio nEnabled	Attribute	Reconnects when errors occur	boolean	0..1
			intervalTim e	Attribute	Interval time (seconds)	int	0..1
			retryCount	Attribute	Retry count	int	0..1
SessionRecover ySettings	WorkUnitSy stemSettings	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
			srsPortNum ber	Attribute	Port of the Session Registry Server where sessions are backed up	int	0..1
			backupMod e	Attribute	Backup timing	string	0..1
			backupInter val	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
			DeploymentServer	Element	Deployment destination server information	-	1
			DeployedPackageEnvironment	Element	Deployment destination environment information	-	1
			RegistrationFiles	Element	Application configuration file	-	1
DeploymentServer	DeployedPackage	Deployment	id	Attribute	LogicalServer global ID	string	1

Element Name	Parent Element	Element Descripti on	Component Name	Component Type	Component Description	Data Type	# of
		destinatio n server informati on	name	Attribute	LogicalServer nickname	string	1
			osType	Attribute	LogicalServer OS type	string	1
			ipAddress	Attribute	Main LogicalServer IP address	string	1
DeployedPacka geEnvironment	DeployedPa ckage	Deployme nt destinatio n environm ent	Deployment Condition	Element	Deployment destination condition	-	0..*
			Deployment Environmen tData	Element	Deployment destination information	-	1
DeploymentCon dition	DeployedPa ckageEnviro nment	Deployme nt destinatio n condition	type	Attribute	Condition type	string	1
			name	Attribute	Value set for the item specified in the type attribute	string	1
DeploymentEnv ironmentData	DeployedPa ckageEnviro nment	Deployme nt destinatio n informati on	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 Descripti on	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	dataTime	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	LAN information	-	0..*

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
			subnetAddress	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