**Systemwalker
Runbook Automation**

Template Operator's Guide

Windows/Linux

Preface

Purpose of This Document

This document describes operations using the operation process templates of Systemwalker Runbook Automation V15.1.1.

Intended Readers

This document is intended for operators and managers who use operation process templates with Systemwalker Runbook Automation.

It is assumed that readers of this manual already have general knowledge of Systemwalker Runbook Automation.

Abbreviations and Generic Terms Used

- The term "Windows(R) 8" refers to the following products:

    - Windows(R) 8 Pro(x86)

    - Windows(R) 8 Enterprise(x86)

    - Windows(R) 8 Pro(x64)

    - Windows(R) 8 Enterprise(x64)

- The term "Windows(R) 7" refers to the following products:

    - Windows(R) 7 Home Premium(x86)

    - Windows(R) 7 Professional(x86)

    - Windows(R) 7 Ultimate(x86)

    - Windows(R) 7 Enterprise(x86)

    - Windows(R) 7 Home Premium(x64)

    - Windows(R) 7 Professional(x64)

    - Windows(R) 7 Ultimate(x64)

    - Windows(R) 7 Enterprise(x64)

- The term "Windows Vista (R)" refers to the following products:

    - Windows Vista(R) Home Basic(x86)

    - Windows Vista(R) Home Premium(x86)

    - Windows Vista(R) Business(x86)

    - Windows Vista(R) Ultimate(x86)

    - Windows Vista(R) Enterprise(x86)

    - Windows Vista(R) Business(x64)

    - Windows Vista(R) Ultimate(x64)

- The term "Windows(R) XP" refers to the following products:

    - Microsoft(R) Windows(R) XP Professional x64 Edition

    - Microsoft(R) Windows(R) XP Professional

    - Microsoft(R) Windows(R) XP Home Edition

- The term "Windows Server 2012" refers to the following products:

    - Microsoft(R) Windows Server(R) 2012 Standard(x64)

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

- The term "Windows Server 2008" refers to the following products:

    - Microsoft(R) Windows Server(R) 2008 R2 Standard(x64)

    - Microsoft(R) Windows Server(R) 2008 R2 Enterprise(x64)

    - Microsoft(R) Windows Server(R) 2008 R2 Datacenter(x64)

    - Microsoft(R) Windows Server(R) 2008 Standard(x86)

    - Microsoft(R) Windows Server(R) 2008 Enterprise(x86)

    - Microsoft(R) Windows Server(R) 2008 Standard(x64)

    - Microsoft(R) Windows Server(R) 2008 Enterprise(x64)

    - Microsoft(R) Windows Server(R) 2008 Datacenter(x64)

    - Microsoft(R) Windows Server(R) 2008 Standard without Hyper-V(x86)

    - Microsoft(R) Windows Server(R) 2008 Enterprise without Hyper-V(x86)

    - Microsoft(R) Windows Server(R) 2008 Datacenter without Hyper-V(x64)

- The term "Windows Server 2003" refers to the following products:

    - Microsoft(R) Windows Server(R) 2003, Standard Edition

    - Microsoft(R) Windows Server(R) 2003, Enterprise Edition

    - Microsoft(R) Windows Server(R) 2003, Standard x64 Edition

    - Microsoft(R) Windows Server(R) 2003, Enterprise x64 Edition

    - Microsoft(R) Windows Server(R) 2003 R2, Standard Edition

    - Microsoft(R) Windows Server(R) 2003 R2, Enterprise Edition

    - Microsoft(R) Windows Server(R) 2003 R2, Standard x64 Edition

    - Microsoft(R) Windows Server(R) 2003 R2, Enterprise x64 Edition

- The Oracle Solaris Operating System may be referred to as Solaris, Solaris Operating System or Solaris OS.

- Microsoft (R) Cluster Server and Microsoft (R) Cluster Service are referred to as MSCS.

- The versions of Systemwalker Runbook Automation that run on Windows systems are referred to as the Windows version.

- The versions of Systemwalker Runbook Automation that run on Linux systems are referred to as the Linux version.

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February 2013

Revision history
March 2012: First edition
July 2012: Second edition
July 2012: Third edition
September 2012: Fourth edition
February 2013: Fifth edition

Contents

Chapter 1 Overview

This chapter gives an overview of using templates with Systemwalker Runbook Automation.

1.1 Templates List

This section lists the templates provided by the product.

Table 1.1 Template list

Template	Overview
Chapter 2 Operation Template for Virtual Environments	This template performs the following operations for virtualized environments on the basis of specified information, and notifies the operation results by mail: - Deploying systems Creates virtual servers. - Changing systems Performs virtual server system changes. After a change, virtual server detailed information is fetched and attached to the operation results mail. - Discarding systems Deletes virtual servers. - Starting systems Starts virtual servers. - Stopping systems Stops virtual servers. - Restarting systems Restarts virtual servers. - Creating system snapshots Creates virtual server snapshots. - Restoring system snapshots Restores virtual server snapshots. - Deploying systems and registering them in CMDB Create virtual server system and register virtual server information in CMDB. - Changing systems and registering them in CMDB Change virtual server system and register virtual server information in CMDB.
Chapter 3 Operation Confirmation Template	At scheduled times, this template provides the server (hardware) power supply status, confirms the server operation status, and also checks any event messages collected by the monitoring software.
Chapter 4 Web 3-Tier System Start and Stop Template	This template performs the following operations for Web 3-tier systems, and notifies the operation results by mail: - Starting systems Starts DB servers, AP servers, and Web servers, in that sequence. - Stopping systems Stops Web servers, AP servers, and DB servers, in that sequence.
Chapter 5 Problem Occurrence First Response Template	When the monitoring software raises an alarm, this template performs the initial isolation tasks, mail contact, and primary restoration tasks.
Chapter 6 VMware HA Operation Management Template	If using VMware in an HA cluster configuration, it is necessary to operate in the following order. - Stop virtual server - Switch to maintenance mode

Template	Overview
	- Force ESX Server to stop As this operation cannot be performed if there is a power outage, there is a danger it may cause a system problem after the power is restored. When running in an environment where Systemwalker Runbook Automation is installed and VMware is being used in an HA cluster configuration, the VMware HA operation management template automatically stops ESX Servers in the appropriate order when a power failure occurs.
Chapter 7 Release Automation Template	The release package provided by the developers is fully automated right up until it is installed on the Business Server. Additionally, Fingerprint collection is used in order to check that the correct release package has been installed.

1.2 Operating Environment

This section describes the operating environment required for using templates.

1.2.1 Systemwalker Runbook Automation Versions

The following version of Systemwalker Runbook Automation is the template target:

- Systemwalker Runbook Automation V15.1.2

1.3 Template Storage Locations

This section explains the template storage locations.

Templates are stored in the following locations:

- **Navigator** view of Systemwalker Runbook Automation Studio
  Each template is stored in an application project.

- "Systemwalker Runbook Automation Media Pack (V15.1.2) Disc No. 2/2" [templates] folder on the DVD-ROM media
  Each template is stored in a folder under the templates folder.

Table 1.2 Template storage locations

Application project name/Folder name	Template
swrba_template_vserver	Operation template for virtual environments
swrba_template_operation_confirm	Operation confirmation template
swrba_template_server	Web 3-tier system start and stop template
swrba_template_detected_event	Problem occurrence first response template
swrba_template_vmware	VMware HA operation component template
swrba_template_release	Release automation template

1.4 Preparations

This section describes the preparations to be made in advance.

The following preparatory tasks must be performed before the templates are used:

- Customizing the automatic operation processes

- Registering the automatic operation processes at the Management Server

- Setting the operation part environments

Customizing the automatic operation processes

1. Use Systemwalker Runbook Automation Studio to copy the automatic operation processes of the templates to be used to the application projects used for operations. Copy all the process definitions and forms that comprise the automatic operation processes. Refer to "File Configuration" for the automatic operation processes and forms to be copied.

2. Change the settings of the copied automatic operation processes to suit the work contents.

   The following groups are set for the roles of the activities positioned in the template automatic operation processes:

   - Work by operators: Role

   - Work by person in charge of operations: AdminRole

   Modify the roles to suit the environment, or register the above groups at the Management Server.

   Refer to "Changing Input Values Set in the Automated Operation Process" for the content of other automatic operation process settings.

See

Refer to the *Systemwalker Runbook Automation Studio User's Guide* for the method for changing automatic operation processes.
Refer to the *Systemwalker Runbook Automation Operations Guide* for information concerning registering groups.

Registering the automatic operation processes at the Management Server

After changing the settings to suit the work contents, register the automatic operation processes at the Management Server.

See

Refer to the *Systemwalker Runbook Automation Studio User's Guide* for the method for registering automatic operation processes at the Management Server.

Setting the operation part environments

Some environment settings must be set in advance for the operation parts used by templates. Set the required environment settings before executing the templates.

Table 1.3 Operation parts environment settings

Template name	Operation component name	Settings overview
Operation template for virtual environments	Build virtual server Delete virtual server Start virtual server Stop virtual server Restart virtual server Change virtual server system Get detailed virtual server information Create virtual server snapshot Restore virtual server snapshot	Register the virtual environment management product and Management Server of managed products authentication information in the configuration management data set (CMDB).
	Send emails	Prepare the SMTP communications environment.
	Register logical node	Execute the Management Server CMDB Environment Setup Command. Refer to "Setup procedure (When using template which registered in CMDB)" in the *Systemwalker Runbook Automation Installation Guide.*

Template name	Operation component name	Settings overview
Operation confirmation template	Get server power status	Register the IP address, user, password set in checked object server for IPMI in the configuration management data set (CMDB).
	Check operational status of node	Clear the ping response suppression at managed servers.
	Check the occurrence of the event in the monitored product	Register Management Server operating system type and the authentication information for connecting Server and operation management product name for checking event in the configuration management data set (CMDB). Set communications environment for connecting Operation Management Server
	Send emails	Prepare the SMTP communications environment.
Web 3-tier system start and stop template	Start the server	Register the IP address, user, password set in checked object server for IPMI in the configuration management data set (CMDB). Note:1
	Check operational status of node	Clear the ping response suppression at managed servers.
	Check that service/process has started	Register Management Server operating system type and the authentication information for connecting Server and operation management product name for checking event in the configuration management data set (CMDB). Note:1 Set communications environment for connecting Operation Management Server Note:1
	Include as load balancing target	Register the authentication information for connecting IP address for operation management network which set in IPCOM in the configuration management data set (CMDB). Set communications environment to connect IP address for connecting operation managed network Note:1
	Remove as load balancing target	
	Stop service	Register the operating system type for stopped server and the authentication information for connecting Server in the configuration management data set (CMDB). Note:1 Set communications environment for connecting starting server. Note:1
	Stop OS	
	Get server power status	
	Send emails	Prepare the SMTP communications environment.
Problem occurrence first response template	Check that service/process has started	Register Web Server operating system type and the authentication information for connecting Server in the configuration management data set (CMDB). Note:1 Set communications environment for connecting starting Server Note:1
	Restart operating system	

Template name	Operation component name	Settings overview
	Send emails	Prepare the SMTP communications environment.
VMware HA operation management template	Stop the virtual server on VM host	Registers authentication information of the virtual environment operation management products, or the Management Server of the operation management products with the Configuration Management Database (CMDB).
	Stop virtual server	
	Set the maintenance mode of the VM host	
	Stop the VM host forciblyt	
	Send emails	Prepares the environment for SMTP communications.
Release automation template	Check operating status of node	Resumes ping responses on confirmation target Business Servers.
	Transfer files	Registers the operating system type for the target server that receives the files, and the authentication information for the connection with that server, in the Configuration Management Database (CMDB). Sets the communication environment for connecting with the server that transfers the files.
	Send emails	Prepares the SMTP communication environment.

Note1: Work on operated target Web Server, AP Server, and DB Server.

 See
. . . .

Refer to the *Systemwalker Runbook Automation Reference Guide* for details of the environment settings for each operation part.
. . . .

Chapter 2 Operation Template for Virtual Environments

2.1 What is the Operation Template for Virtual Environments?

To perform operations in a virtualized environment, users need to know what virtualization software and virtual environment management product are used at the server, and must be skilled in the operation methods of those products. For example, if ServerView Resource Orchestrator is installed as the management product of the system, the user must be familiar with the ServerView Resource Orchestrator screen operations.

The operation template for virtual environments allows the user to perform the following operations and information collection operations for virtual servers without knowing the specifications of these virtualization products:

- Deploying systems

- Changing systems

- Discarding systems

- Starting systems

- Stopping systems

- Restarting systems

- Creating system snapshots

- Restoring system snapshots

- Deploying systems and registering them in CMDB

- Changing systems and registering them in CMDB

The templates support the following virtualization software:

- VMware

- Hyper-V

2.2 Installation Configuration

This section describes the installation configuration for using the operation template for virtual environments.

The figure below shows an overview of the installation configuration of Systemwalker Runbook Automation and the operation template for virtual environments.

Figure 2.1 Overview of installation configuration
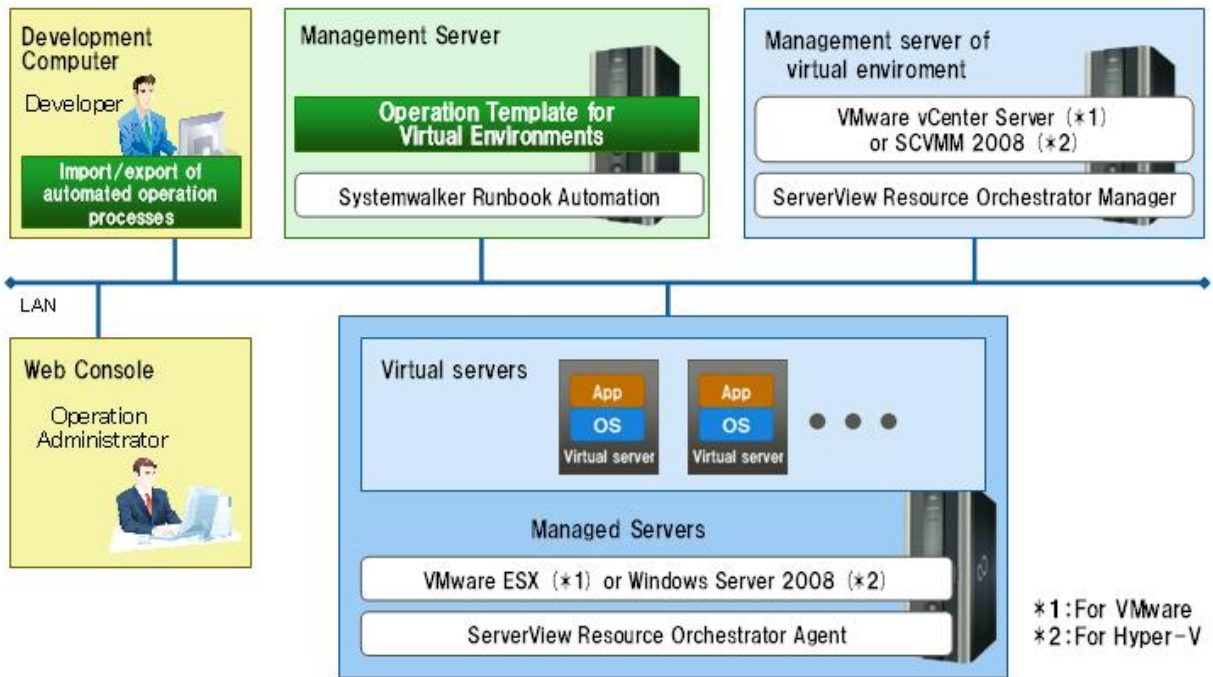
2.3 Operation Overview

This section gives an overview of operation.

Figure 2.2 Operation
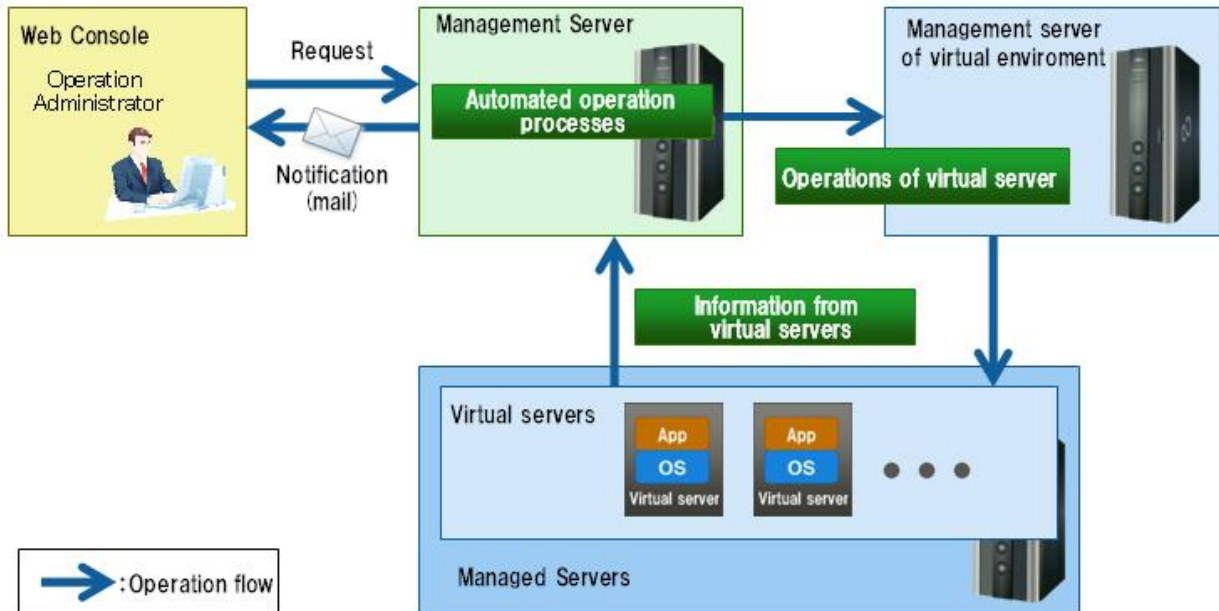
The person in charge of system operations uses the Web console to notify the Management Server of the operations to be performed. As a result, Automated Operation Processes are run and the virtual server operations are executed.

2.4 Hardware Conditions

The following conditions must be met:

[Virtual environment Management Server]

- Hardware that supports ServerView Resource Orchestrator V2.2.0-V3.1.1

[Managed servers]

- Hardware that supports ServerView Resource Orchestrator V2.2.0-V3.1.1

2.5 Software Conditions

The software shown below must be installed in order to use the operation template for virtual environments.

Note that the operation template for virtual environments targets systems where Systemwalker Software Configuration Manager is not installed.

[Virtual environment Management Server]

- Manager of ServerView Resource Orchestrator V2.2.0-V3.1.1

- The software required when ServerView Resource Orchestrator V2.2.0-V3.1.1 is used to manage VMware or Hyper-V

[Managed servers]

- Agent of ServerView Resource Orchestrator V2.2.0-V3.1.1

- The software required when ServerView Resource Orchestrator V2.2.0-V3.1.1 is used to manage VMware or Hyper-V

See
. . . .

Refer to the *ServerView Resource Orchestrator User's Guide* for details on the software required to use ServerView Resource Orchestrator to manage a virtual environment.
. . . .

2.6 File Configuration

The file configuration for the operation template for virtual environments is shown below.

Systemwalker Runbook Automation Studio

The process definitions and forms that comprise the Automated Operation Processes are stored in the [swrba_template_vserver] project of Systemwalker Runbook Automation Studio.

```
[swrba_template_vserver]
[Process Definitions]
  Process definitions
[web]
  Forms
```

Table 2.1 List of process definitions for the operation template for virtual environments

Process definition	Automated Operation Process used
swrba_template_vserver_create.xpdl	Building systems
swrba_template_vserver_change.xpdl	Changing systems
swrba_template_vserver_delete.xpdl	Deleting systems
swrba_template_vserver_start.xpdl	Starting systems
swrba_template_vserver_stop.xpdl	Stopping systems
swrba_template_vserver_restart.xpdl	Restarting systems
swrba_template_vserver_getsnapshot.xpdl	Creating system snapshots
swrba_template_vserver_putsnapshot.xpdl	Restoring system snapshots

Process definition	Automated Operation Process used
swrba_template_vserver_autocreate.xpdl	Building systems and registering them in CMDB
swrba_template_vserver_change_cmdb.xpdl	Changing systems and registering them in CMDB

Table 2.2 List of forms for the operation template for virtual environments

Form	Automated Operation Process used
common_create_swrba_template_vserver.jsp	Building systems
server1_create_swrba_template_vserver.jsp	
server2_create_swrba_template_vserver.jsp	
common_change_swrba_template_vserver.jsp	Changing systems
server1_change_swrba_template_vserver.jsp	
server2_change_swrba_template_vserver.jsp	
input_delete_swrba_template_vserver.jsp	Deleting systems
input_start_swrba_template_vserver.jsp	Starting systems
input_stop_swrba_template_vserver.jsp	Stopping systems
input_restart_swrba_template_vserver.jsp	Restarting systems
input_getsnapshot_swrba_template_vserver.jsp	Creating system snapshots
input_putsnapshot_swrba_template_vserver.jsp	Restoring system snapshots
base_autocreate_swrba_template_vserver.jsp	Building systems and registering them in CMDB
server_autocreate_swrba_template_vserver.jsp	
network_autocreate_swrba_template_vserver.jsp	
software_autocreate_swrba_template_vserver.jsp	
base_autocreate_swrba_template_vserver_approval.jsp	
network_autocreate_swrba_template_vserver_approval.jsp	
server_autocreate_swrba_template_vserver_approval.jsp	
software_autocreate_swrba_template_vserver_approval.jsp	
basic_change_swrba_template_vserver.jsp	Changing systems and registering them in CMDB
server_change_swrba_template_vserver.jsp	
basic_change_swrba_template_vserver_approval.jsp	
server_change_swrba_template_vserver_approval.jsp	

Systemwalker Runbook Automation DVD-ROM media

The configuration of files stored on the Systemwalker Runbook Automation DVD-ROM media is shown below.

```
[templates] folder
  [swrba_template_vserver folder]
    swrba_template_vserver.bar      (1)
    readme.txt                      (2)
```

Table 2.3 Configuration of the operation template for virtual environments

	Type	Content
(1)	Automated Operation Process	Automated Operation Processes that perform virtual environment operations

	Type	Content
(2)	Usage explanation	Explanations of usage

2.7 Advance preparation of this specific template

If you use the following templates, it is necessary to do preliminary work.

- Deploying systems and registering them in CMDB

- Changing systems and registering them in CMDB

Registering information in CMDB

In Automated Operation Processes of above template, it obtains specified value of service option and port option of operation component: **Check server running normally**. If you use template, register check information of running information in CMDB in advance. Note that at least one service should be registered so that it can be checked for the Windows server build.
For the detail of settings, refer to the *Information Registration to CMDB (Check information of normal running state of server) in the Systemwalker Runbook Automation Reference Guide*.

In addition, one of registering information, for **Registering information in checked server** that operated after building virtual servers, treat as below.

- Deploying systems and registering them in CMDB

    It is not necessary to register because registering is executed in template.

- Changing systems and registering them in CMDB

    If operate virtual server which created by template [**Deploying systems and registering them in CMDB],** it is not necessary to register. If operate another virtual server, register in advance.

And in the **Deploying systems and registering them in CMDB** template, if install software, register the following information of from-transfer host of installed file in CMDB in advance.

- OS Type

    Register OS Type of transfer from host in the [logical node]-[System settings]-[OS attribute]-[OS type] attribute.

    Specify "Windows" or "Linux".

    For the operation of registering data in CMDB, refer to the *Configuration Management* in *Systemwalker Runbook Automation Operation Guide*.

- Connected User name and user password that connected with using SSH

    Register with using swrba_uaimport command

For example of input file specified in swrba_uaimport command (CSV format)

```
"from-transfer Host IP address","OS","connected user name with using SSH to from-transfer
host","connected user password with using SSH to from-transfer ","true","false",,"comment"
```

    For the detail of swrba_uaimport command, refer to *the swrba_uaimport(import command of user information)* in the *Systemwalker Runbook automation Reference Guide*.

Environment setting of Management Server

In above template, the information of built virtual server and the information of virtual server changed system have been reflected in CMDB. To set environment of this reflection procedure, execute CMDB environment setting command in Management server.
Refer to the "Setup procedure(When using the "Register logical node" operation component)" in the *Systemwalker Runbook Automation Installation Guide* for details.

2.8 Overview of Automated Operation Processes

2.8.1 Deploying Systems

This section describes the items below concerning the system deployment Automated Operation Process provided by the operation template for virtual environments.

- Processing overview

- Changing input values set in the Automated Operation Process

- Information entered in screens

2.8.1.1 Processing Overview

The Automated Operation Process that deploys systems performs processing in the following sequence to build a virtual server system:

1. Building the virtual server

2. Sending completion notification by mail

Change the Automated Operation Process to suit your operations.

- Changing the number of virtual servers targeted for operations

The Automated Operation Process is formed such that each process performs operations in parallel for two virtual servers.
To change the number of servers for which the operation is performed, change the Automated Operation Process as described in 2.9 Changing the Number of Virtual Servers Targeted for an Operation.

The operation components shown below are positioned in the Automated Operation Process.

Table 2.4 Operation component placement

Name	Name of operation component to be used	Purpose
Build virtual server 1-2	**Build virtual server**	Building virtual servers
Completion notification 1-2	**Send emails**	Posting the results of building the virtual servers

2.8.1.2 Changing Input Values Set in the Automated Operation Process

The following settings are required for the Automated Operation Process:

- User-defined attributes

- Operation component input information

User-defined attributes

Values must be set in the user-defined attributes of the Automated Operation Process. Enter values as shown below.

Table 2.5 Automated Operation Process user-defined attributes

User-defined attribute name	Input value	Use
smtp_server	Host name or IP address of the mail send (SMTP) server	Used as the hostname parameter value of the operation component that sends mail
from_address	Error mail send source address	Used as the fromaddress parameter value of the operation component that sends mail

Operation component input information

A parameter value must be set as input information for the following operation component positioned in the Automated Operation Process:

- **Build virtual server** 1-2

Also, if required, set parameter values as input information for the following operation component:

- **Completion notification** 1-2

Enter parameter values as shown below.

Table 2.6 Operation component input information

Operation component name	Parameter name	Input value
Build virtual server 1-2	serverpassword	Same value as the manager password set in the image to be used for building the virtual servers (*1)
Completion notification 1-2	smtpusername (*2)	User name for SMTP authentication to the host of the mail send (SMTP) server
	smtppassword (*2)	User password for SMTP authentication to the host of the mail send (SMTP) server

*1:
Make the manager password the same in all images to be used.
To use different passwords in each image, enter the password from the request screen. Or, change the parameter name at each server.

*2:
Set this parameter in environments that require authentication to the SMTP server when mail is sent.

2.8.1.3 Information Entered in Screens

Use the following screen to enter the values required for operations when the operations are performed by the Automated Operation Process:

- **Enter the build information** screen

    Enter the values when executing the Automated Operation Process. This screen is comprised of the following three screens:

    - Screen for input of information common to each server

    - Server 1 information input screen

    - Server 2 information input screen

Information entered in the Enter the build information screen (common to each server)

Enter the information below in the **Enter the build information** screen (common to each server).

Table 2.7 Information entered in the Enter the build information screen (common to each server)

Input item	Mandatory	Input content	Automated Operation Process user-defined attribute for which input value is being set
Recipient address of the completion notification mail	Mandatory	Send destination address of mail notifying completion	toaddress

Information entered in the Enter the build information screen (Server 1)

Enter the information below in the **Enter the build information** screen (**Server 1**)

Table 2.8 Information entered in the Enter the build information screen (Server 1)

Input item	Mandatory	Input content	Automated Operation Process user-defined attribute for which input value is being set
IP address of the virtual environment management server	Mandatory	Specify the IP address of the management server of the virtual environment management product.	manageserver1

Input item	Mandatory	Input content	Automated Operation Process user-defined attribute for which input value is being set
Applied template name	Mandatory	Specify the name of the template to be applied to the virtual server being built.	templatename1
Applied image name	Mandatory	Specify the name of the image to be applied to the virtual server being built.	imagename1
Name assigned to the virtual server	Mandatory	Specify the name to be given to the virtual server being built.	servername1
Assigned network resource name	Mandatory	Specify the network resource name to be allocated to the virtual server being built.	network1
Assigned IP address	Optional	Specify the IP address to be allocated to the virtual server being built.	serveripaddress1
Product key	Optional	Specify the product key to be allocated to the virtual server being built.	productkey1
Number of CPUs	Optional	If the number of CPUs is being changed from that in the template information, specify the number of CPUs after the change.	numofprocessor1
CPU performance	Optional	If the CPU performance is being changed from that in the template information, specify the CPU performance after the change.	processorspeed1
Memory size	Optional	If the memory size is being changed from that in the template information, specify the memory size after the change.	memorysize1

Information entered in the Enter the build information screen (Server 2)

Enter the information below in the **Enter the build information** screen (**Server 2**).

Table 2.9 Information entered in the Enter the build information screen (Server 2)

Input item	Mandatory	Input content	Automated Operation Process user-defined attribute for which input value is being set
IP address of the virtual environment management server	Mandatory	Specify the IP address of the management server of the virtual environment management product.	manageserver2

Input item	Mandatory	Input content	Automated Operation Process user-defined attribute for which input value is being set
Applied template name	Mandatory	Specify the name of the template to be applied to the virtual server being built.	templatename2
Applied image name	Mandatory	Specify the name of the image to be applied to the virtual server being built.	imagename2
Name assigned to the virtual server	Mandatory	Specify the name to be given to the virtual server being built.	servername2
Assigned network resource name	Mandatory	Specify the network resource name to be allocated to the virtual server being built.	network2
Assigned IP address	Optional	Specify the IP address to be allocated to the virtual server being built.	serveripaddress2
Product key	Optional	Specify the product key to be allocated to the virtual server being built.	productkey2
Number of CPUs	Optional	If the number of CPUs is being changed from that in the template information, specify the number of CPUs after the change.	numofprocessor2
CPU performance	Optional	If the CPU performance is being changed from that in the template information, specify the CPU performance after the change.	processorspeed2
Memory size	Optional	If the memory size is being changed from that in the template information, specify the memory size after the change.	memorysize2

2.8.2 Changing Systems

This section describes the items below concerning the system change Automated Operation Process provided by the operation template for virtual environments.

  - Processing overview

  - Changing input values set in the Automated Operation Process

  - Information entered in screens

2.8.2.1 Processing Overview

The Automated Operation Process that changes systems performs processing in the following sequence to change a virtual server system:

1. Stopping the virtual server

2. Changing the virtual server system

3. Starting the virtual server

4. Fetching virtual server details

5. Outputting the fetched information to file

6. Attaching the file created at Step 5 to the completion notification mail and sending the mail

7. Deleting the file created at Step 5

Change the Automated Operation Process to suit your operations.

- Changing the number of virtual servers targeted for operations

    The Automated Operation Process is formed such that each process performs operations in parallel for two virtual servers.
    To change the number of servers for which the operation is performed, change the Automated Operation Process as described in 2.9 Changing the Number of Virtual Servers Targeted for an Operation.

swrba_template_vserver_change

Start

Server 1

Server 1

Stop virtual server 1 — Success
Modify virtual server 1 — Success
Stop results — Startup required — Start virtual server 1 — Success
Startup not required — Obtain detailed virtual server infor... — Success
Output detailed information to a f... — Success
Completion notification 1 — Failure — Delete output file 1 — Success
Completion notification (no attach...)
Error notification 1

Failure / Success Success Success — Exit — Finish — Exit1

Server 2

Server 2

Stop virtual server 2 — Success
Modify virtual server 2 — Success
Stop results — Startup required — Start virtual server 2 — Success
Startup not required — Obtain detailed virtual server infor... — Success
Output detailed information to a f... — Success
Completion notification 2 — Failure — Delete output file 2 — Success
Completion notification (no attach...)
Error notification 2

Success Success Success — Exit

- 19 -

The operation components shown below are positioned in the Automated Operation Process.

Table 2.10 Operation part placement

Name	Operation component name	Purpose
Stop virtual server 1-2	Stop virtual server	Stopping virtual servers
Modify virtual server 1-2	Modify virtual server	Changing a virtual server system
Start virtual server 1-2	Start virtual server	Starting virtual servers
Obtain detailed virtual server information 1-2	Get detailed virtual server information	Fetching virtual server details
Output detailed information to a file 1-2	Create files	Outputting the fetched virtual server details to file so they can be attached to completion notification mail
Delete output file 1-2	Delete files	Deleting the file used for output of details
Completion notification 1-2 Completion notification (no attachments) 1-2	Send emails	Notifying completion of a virtual server system change
Error notification 1-2	Send emails	Notifying of an error occurrence in a virtual server system change

2.8.2.2 Changing Input Values Set in the Automated Operation Process

The following settings are required for the Automated Operation Process:

- User-defined attributes

- Operation component input information

User-defined attributes

Values must be set in the user-defined attributes of the Automated Operation Process. Enter values as shown below.

Table 2.11 Automated Operation Process user-defined attributes

User-defined attribute name	Input value	Use
smtp_server	Host name or IP address of the mail send (SMTP) server	Used as the hostname parameter value of the operation component that sends mail
from_address	Error mail send source address	Used as the fromaddress parameter value of the operation component that sends mail

Operation component input information

If required, set a parameter value as input information for the following operation components positioned in the Automated Operation Process:

- **Completion notification** 1-2

- Completion notification (no attachments) 1-2

- **Error notification** 1-2

Enter parameters as shown below.

Table 2.12 Operation component input information

Operation component name	Parameter name	Input value
Completion notification 1-2 Completion notification (no attachments) 1-2 **Error notification** 1-2	smtpusername (*1)	User name for SMTP authentication to the host of the mail send (SMTP) server
	smtppassword (*1)	User password for SMTP authentication to the host of the mail send (SMTP) server

*1:
Set this parameter in environments that require authentication to the SMTP server when mail is sent.

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Refer to the *Systemwalker Runbook Automation Studio User's Guide* for details on how to change Automated Operation Processes.
....

2.8.2.3 Information Entered in Screens

Use the following screen to enter the values required for operations when the operations are performed by the Automated Operation Process:

- **Enter the modification information** screen
  Enter the values when executing the Automated Operation Process. This screen is comprised of the following three screens:

  - Screen for input of information common to each server

  - Server 1 information input screen

  - Server 2 information input screen

Information entered in the Enter the modification information screen (common to each server)

Enter the information below in the **Enter the modification information** screen (common to each server).

Table 2.13 Information entered in the Enter the modification information screen (common to each server)

Input item	Mandatory	Input content	Automated Operation Process user-defined attribute for which input value is being set
Recipient address of the completion notification mail	Mandatory	Send destination address for completion notification mail and error notification mail	toaddress

Information entered in the Enter the modification information screen (Server 1)

Enter the information below in the **Enter the modification information** screen (**Server 1**).

Table 2.14 Information entered in the Enter the modification information screen (Server 1)

Input item	Mandatory	Input content	Automated Operation Process user-defined attribute for which input value is being set
Name of the virtual server to be modified	Mandatory	Specify the name of the virtual server being changed.	servername1
Virtual server name	Optional	If the virtual server name is being changed, specify the name of the virtual server after the change.	newservername1
Number of CPUs	Optional	If the number of CPUs is being changed, specify the number of CPUs after the change.	numofprocessor1
CPU performance	Optional	If the CPU performance is being changed, specify the CPU performance after the change.	processorspeed1
Memory size	Optional	If the memory size is being changed, specify the memory size after the change.	memorysize1
Disk space to be added	Optional	If the disk is being extended, specify the size of the extended disk.	disksize1

Information entered in the Enter the modification information screen (Server 2)

Enter the information below in the **Enter the modification information** screen (**Server 2**).

Table 2.15 Information entered in the Enter the modification information screen (Server 2)

Input item	Mandatory	Input content	Automated Operation Process user-defined attribute for which input value is being set
Name of the virtual server to be modified	Mandatory	Specify the name of the virtual server being changed.	servername2
Virtual server name	Optional	If the virtual server name is being changed, specify the name of the virtual server after the change.	newservername2
Number of CPUs	Optional	If the number of CPUs is being changed, specify the number of CPUs after the change.	numofprocessor2
CPU performance	Optional	If the CPU performance is being changed, specify the CPU performance after the change.	processorspeed2
Memory size	Optional	If the memory size is being changed, specify the memory size after the change.	memorysize2
Disk space to be added	Optional	If the disk is being extended, specify the size of the extended disk.	disksize2

2.8.3 Discarding Systems

This section describes the items below concerning the system discard Automated Operation Process provided by the operation template for virtual environments.

- Processing overview

- Changing input values set in the Automated Operation Process

- Information entered in screens

2.8.3.1 Processing Overview

The Automated Operation Process that discards systems performs processing in the following sequence to delete a virtual server:

1. Stopping the virtual server

2. Deleting the virtual server

3. Sending completion notification by mail

Change the Automated Operation Process to suit your operations.

- Changing the number of virtual servers targeted for operations

  The Automated Operation Process is formed such that each process performs operations in parallel for two virtual servers.
  To change the number of servers for which the operation is performed, change the Automated Operation Process as described in 2.9
  Changing the Number of Virtual Servers Targeted for an Operation.

The operation components shown below are positioned in the Automated Operation Process.

Table 2.16 Operation component placement

Name	Operation component name	Purpose
Stop virtual server 1-2	Stop virtual server	Stopping virtual servers
Delete virtual server 1-2	Delete virtual server	Deleting virtual servers
Completion notification 1-2	Send emails	Notifying completion of virtual server deletion
Error notification 1-2	Send emails	Notifying of an error occurrence in virtual server deletion

2.8.3.2 Changing Input Values Set in the Automated Operation Process

The following settings are required for the Automated Operation Process:

- User-defined attributes

- Operation component input information

User-defined attributes

Values must be set in the user-defined attributes of the Automated Operation Process. Enter values as shown below.

Table 2.17 Automated Operation Process user-defined attributes

User-defined attribute name	Input value	Use
smtp_server	Host name or IP address of the mail send (SMTP) server	Used as the hostname parameter value of the operation component that sends mail
from_address	Error mail send source address	Used as the fromaddress parameter value of the operation component that sends mail

Operation component input information

If required, set a parameter value as input information for the following operation components positioned in the Automated Operation Process:

- **Completion notification** 1-2

- **Error notification** 1-2

Enter parameters as shown below.

Table 2.18 Operation component input information

Operation component name	Parameter name	Input value
Completion notification 1-2 **Error notification** 1-2	smtpusername (*1)	User name for SMTP authentication to the host of the mail send (SMTP) server
	smtppassword (*1)	User password for SMTP authentication to the host of the mail send (SMTP) server

*1:
Set this parameter in environments that require authentication to the SMTP server when mail is sent.

2.8.3.3 Information Entered in Screens

Use the following screen to enter the values required for operations when the operations are performed by the Automated Operation Process:

- **Enter the deletion information** screen
  Enter the values when executing the Automated Operation Process.

Information entered in the Enter the deletion information screen

Enter the information below in the **Enter the deletion information** screen.

Table 2.19 Information entered in the Enter the deletion information screen

Input item	Mandatory	Input content	Automated Operation Process user-defined attribute for which input value is being set
Recipient address of the completion notification mail	Mandatory	Send destination address for completion notification mail and error notification mail	toaddress
Server 1 information Virtual server name	Mandatory	Specify the name of the virtual server being deleted.	servername1
Server 2 information Virtual server name	Mandatory	Specify the name of the virtual server being deleted.	servername2

2.8.4 Starting Systems

This section describes the items below concerning the system start Automated Operation Process provided by the operation template for virtual environments.

- Processing overview

- Changing input values set in the Automated Operation Process

- Information entered in screens

2.8.4.1 Processing Overview

The Automated Operation Process that starts systems performs processing in the following sequence to start a virtual server:
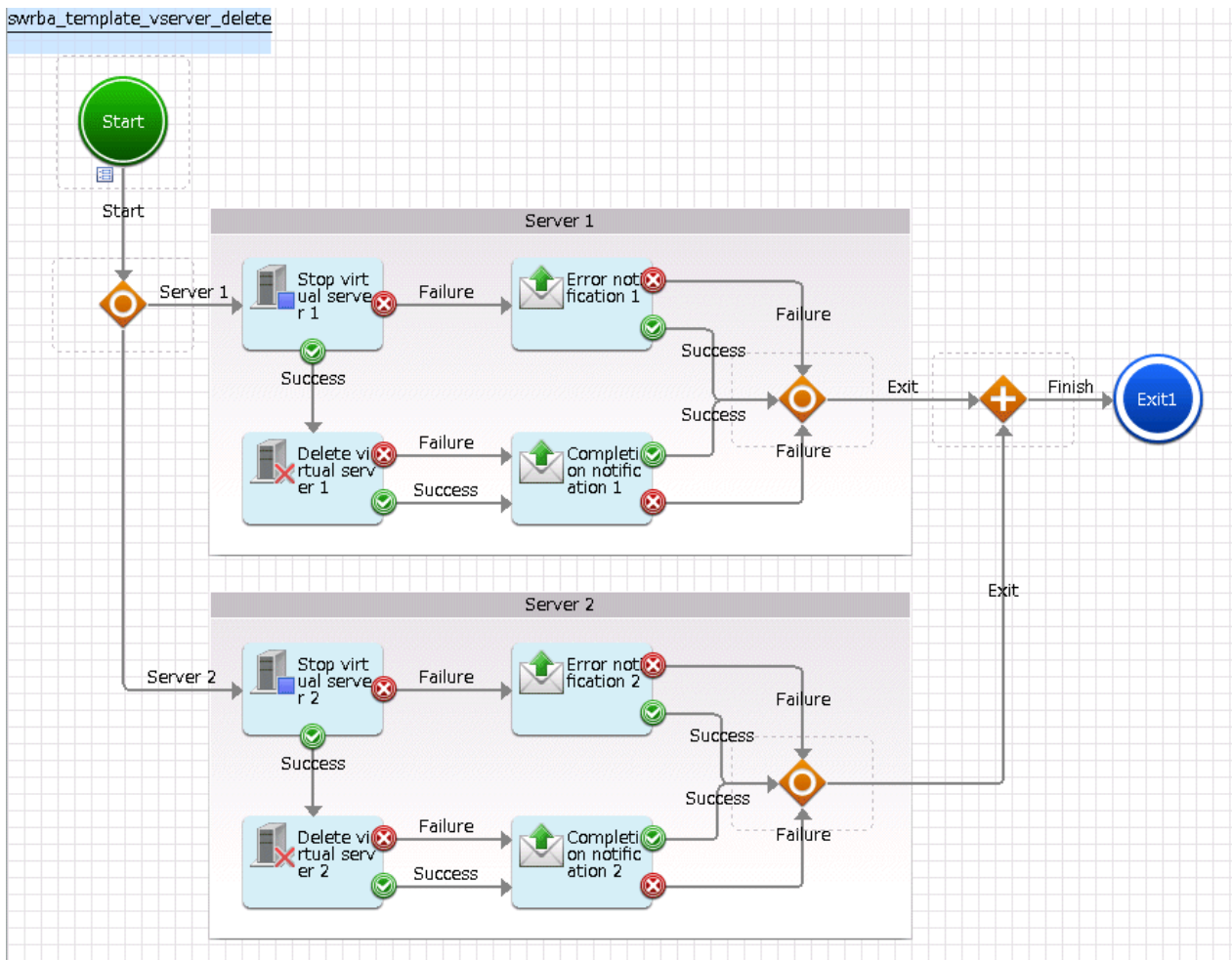
1. Starting the virtual server

2. Sending completion notification by mail

Change the Automated Operation Process to suit your operations.

- Changing the number of virtual servers targeted for operations

    The Automated Operation Process is formed such that each process performs operations in parallel for two virtual servers.
    To change the number of servers for which the operation is performed, change the Automated Operation Process as described in 2.9 Changing the Number of Virtual Servers Targeted for an Operation.

The operation components shown below are positioned in the Automated Operation Process.

Table 2.20 Operation component placement

Name	Operation component name	Purpose
Start virtual server 1-2	Start virtual server	Starting virtual servers
Completion notification 1-2	Send emails	Notifying results of starting virtual servers

2.8.4.2 Changing Input Values Set in the Automated Operation Process

The following settings are required for the Automated Operation Process:

- User-defined attributes

- Operation component input information

User-defined attributes

Values must be set in the user-defined attributes of the Automated Operation Process. Enter values as shown below.

Table 2.21 Automated Operation Process user-defined attributes

User-defined attribute name	Input value	Use
smtp_server	Host name or IP address of the mail send (SMTP) server	Used as the hostname parameter value of the operation component that sends mail
from_address	Error mail send source address	Used as the fromaddress parameter value of the operation component that sends mail

Operation component input information

If required, set parameter values as input information for the following operation component positioned in the Automated Operation Process:

- **Completion notification** 1-2

Enter parameters as shown below.

Table 2.22 Operation component input information

Operation component name	Parameter name	Input value
Completion notification 1-2	smtpusername (*1)	User name for SMTP authentication to the host of the mail send (SMTP) server
	smtppassword (*1)	User password for SMTP authentication to the host of the mail send (SMTP) server

*1:
Set this parameter in environments that require authentication to the SMTP server when mail is sent.

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Refer to the *Systemwalker Runbook Automation Studio User's Guide* for details on how to change Automated Operation Processes.

2.8.4.3 Information Entered in Screens

Use the following screen to enter the values required for operations when the operations are performed by the Automated Operation Process:

- **Enter the startup information** screen
  Enter the values when executing the Automated Operation Process.

Information entered in the Enter the startup information screen

Enter the information below in the **Enter the startup information** screen.

Table 2.23 Information entered in the Enter the startup information screen

Input item	Mandatory	Input content	Automated Operation Process user-defined attribute for which input value is being set
Recipient address of the completion notification mail	Mandatory	Send destination address for completion notification mail	toaddress
Server 1 information Virtual server name	Mandatory	Specify the name of the virtual server being started.	servername1
Server 2 information Virtual server name	Mandatory	Specify the name of the virtual server being started.	servername2

2.8.5 Stopping Systems

This section describes the items below concerning the system stop Automated Operation Process provided by the operation template for virtual environments.

- Processing overview

- Changing input values set in the Automated Operation Process

- Information entered in screens

2.8.5.1 Processing Overview

The Automated Operation Process that stops systems performs processing in the following sequence to stop a virtual server:
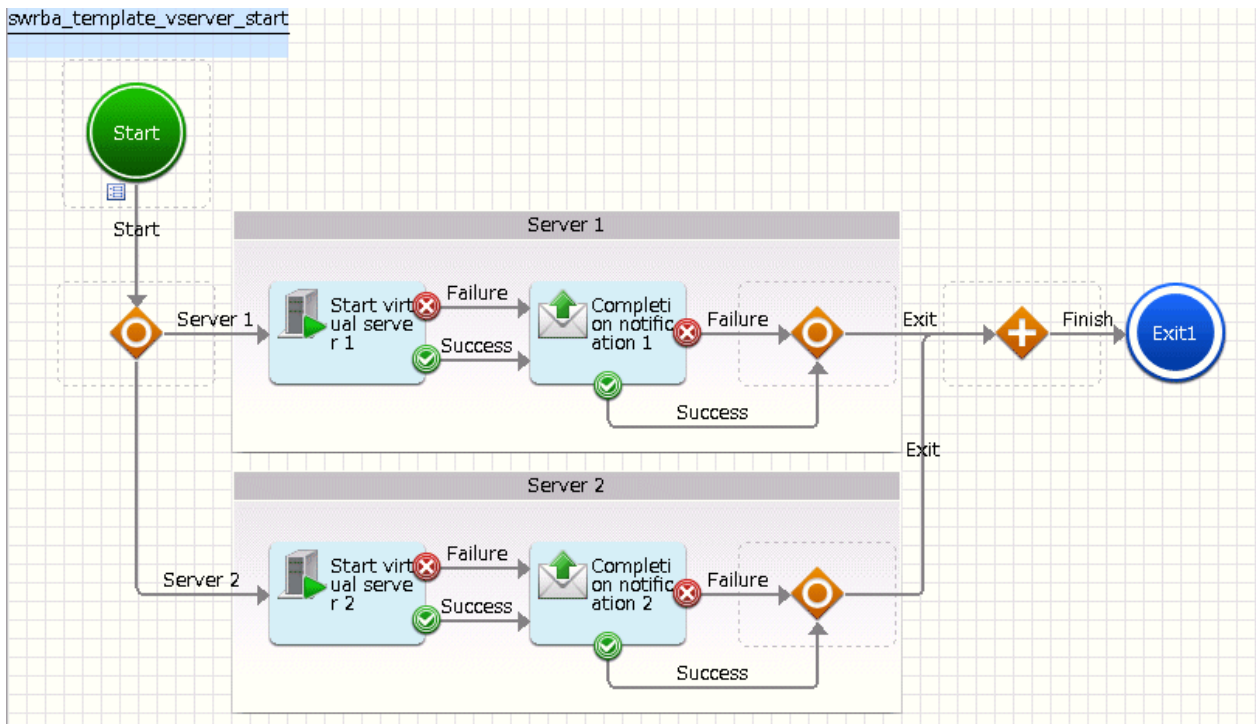
1. Stopping the virtual server

2. Sending completion notification by mail

Change the Automated Operation Process to suit your operations.

- Changing the number of virtual servers targeted for operations

  The Automated Operation Process is formed such that each process performs operations in parallel for two virtual servers.
  To change the number of servers for which the operation is performed, change the Automated Operation Process as described in 2.9 Changing the Number of Virtual Servers Targeted for an Operation.

The operation components shown below are positioned in the Automated Operation Process.

Table 2.24 Operation component placement

Name	Operation component name	Purpose
Stop virtual server 1-2	Stop virtual server	Stopping virtual servers
Completion notification 1-2	Send emails	Notifying results of stopping virtual servers

2.8.5.2 Changing Input Values Set in the Automated Operation Process

The following settings are required for the Automated Operation Process:

- User-defined attributes

- Operation component input information

User-defined attributes

Values must be set in the user-defined attributes of the Automated Operation Process. Enter values as shown below.

Table 2.25 Automated Operation Process user-defined attributes

User-defined attribute name	Input value	Use
smtp_server	Host name or IP address of the mail send (SMTP) server	Used as the hostname parameter value of the operation component that sends mail
from_address	Error mail send source address	Used as the fromaddress parameter value of the operation component that sends mail

Operation component input information

If required, set a parameter value as input information for the following operation components positioned in the Automated Operation Process:

- **Completion notification** 1-2

Enter parameters as shown below.

Table 2.26 Operation component input information

Operation component name	Parameter name	Input value
Completion notification 1-2	smtpusername (*1)	User name for SMTP authentication to the host of the mail send (SMTP) server
	smtppassword (*1)	User password for SMTP authentication to the host of the mail send (SMTP) server

*1:
Set this parameter in environments that require authentication to the SMTP server when mail is sent.

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Refer to the *Systemwalker Runbook Automation Studio User's Guide* for details on how to change Automated Operation Processes.
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2.8.5.3 Information Entered in Screens

Use the following screen to enter the values required for operations when the operations are performed by the Automated Operation Process:

- **Enter the stop information** screen
  Enter the values when executing the Automated Operation Process.

Information entered in the Enter the stop information screen

Enter the information below in the **Enter the stop information** screen.

Table 2.27 Information entered in the Enter the stop information screen

Input item	Mandatory	Input content	Automated Operation Process user-defined attribute for which input value is being set
Recipient address of the completion notification mail	Mandatory	Send destination address for completion notification mail and error notification mail	toaddress
Server 1 information Virtual server name	Mandatory	Specify the name of the virtual server being stopped.	servername1
Server 2 information Virtual server name	Mandatory	Specify the name of the virtual server being stopped.	servername2

2.8.6 Restarting Systems

This section describes the items below concerning the system restart Automated Operation Process provided by the operation template for virtual environments.

- Processing overview

- Changing input values set in the Automated Operation Process

- Information entered in screens

2.8.6.1 Processing Overview

The Automated Operation Process that restarts systems performs processing in the following sequence to restart a virtual server:

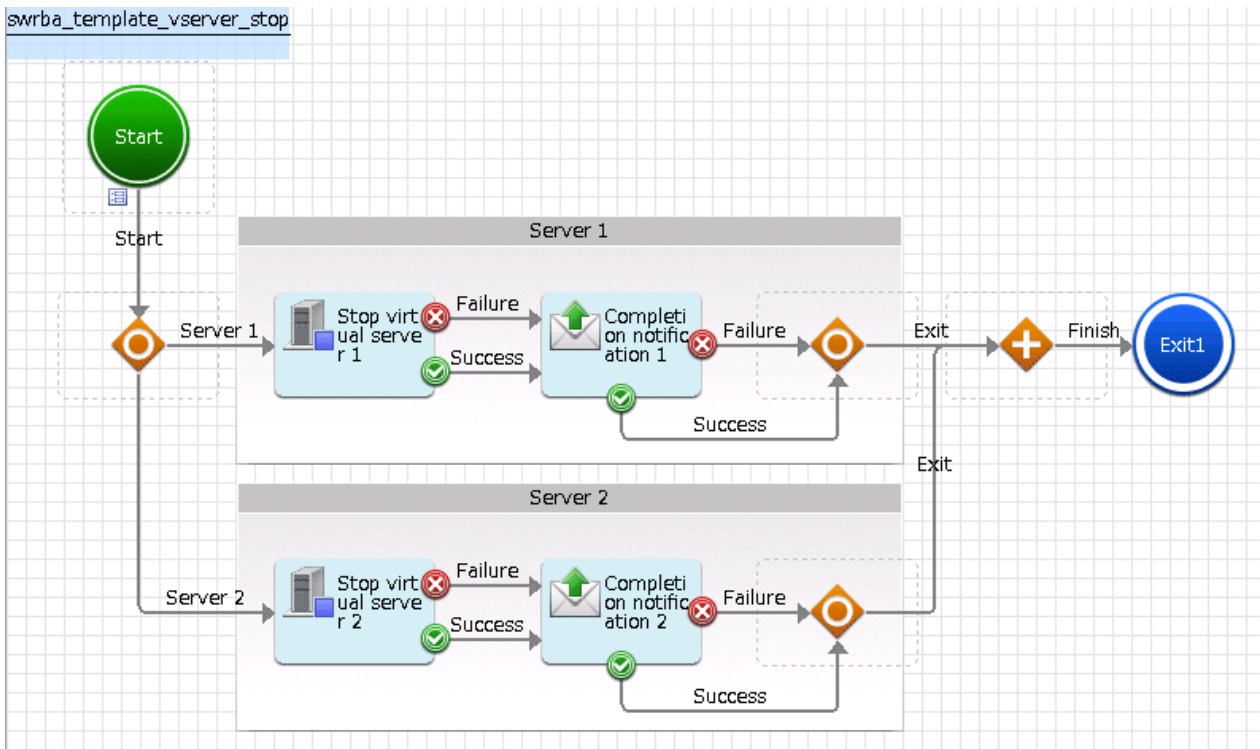1. Restarting the virtual server

2. Sending completion notification by mail

Change the Automated Operation Process to suit your operations.

- Changing the number of virtual servers targeted for operations

  The Automated Operation Process is formed such that each process performs operations in parallel for two virtual servers.
  To change the number of servers for which the operation is performed, change the Automated Operation Process as described in 2.9 Changing the Number of Virtual Servers Targeted for an Operation.

The operation components shown below are positioned in the Automated Operation Process.

Table 2.28 Operation component placement

Name	Operation component name	Purpose
Restart virtual server 1-2	Restart virtual server	Restarting virtual servers
Completion notification 1-2	Send emails	Notifying results of restarting virtual servers

2.8.6.2 Changing Input Values Set in the Automated Operation Process

The following settings are required for the Automated Operation Process:

- User-defined attributes

- Operation component input information

User-defined attributes

Values must be set in the user-defined attributes of the Automated Operation Process. Enter values as shown below.

Table 2.29 Automated Operation Process user-defined attributes

User-defined attribute name	Input value	Use
smtp_server	Host name or IP address of the mail send (SMTP) server	Used as the hostname parameter value of the operation component that sends mail
from_address	Error mail send source address	Used as the fromaddress parameter value of the operation component that sends mail

Operation component input information

If required, set a parameter value as input information for the following operation component positioned in the Automated Operation Process:

- **Completion notification** 1-2

Enter parameters as shown below.

Table 2.30 Operation component input information

Operation component name	Parameter name	Input value
Completion notification 1-2	smtpusername (*1)	User name for SMTP authentication to the host of the mail send (SMTP) server
	smtppassword (*1)	User password for SMTP authentication to the host of the mail send (SMTP) server

*1:
Set this parameter in environments that require authentication to the SMTP server when mail is sent.

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Refer to the *Systemwalker Runbook Automation Studio User's Guide* for details on how to change Automated Operation Processes.
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2.8.6.3 Information Entered in Screens

Use the following screen to enter the values required for operations when the operations are performed by the Automated Operation Process:

- **Enter the restart information** screen
  Enter the values when executing the Automated Operation Process.

Information entered in the Enter the restart information screen

Enter the information below in the **Enter the restart information** screen.

Table 2.31 Information entered in the Enter the restart information screen

Input item	Mandatory	Input content	Automated Operation Process user-defined attribute for which input value is being set
Recipient address of the completion notification mail	Mandatory	Send destination address for completion notification mail and error notification mail	toaddress
Server 1 information Virtual server name	Mandatory	Specify the name of the virtual server being restarted.	servername1
Server 2 information Virtual server name	Mandatory	Specify the name of the virtual server being restarted.	servername2

2.8.7 Creating System Snapshots

This section describes the items below concerning the system snapshot creation Automated Operation Process provided by the operation template for virtual environments.

- Processing overview

- Changing input values set in the Automated Operation Process

- Information entered in screens

2.8.7.1 Processing Overview

The Automated Operation Process that creates a system snapshot performs processing in the following sequence to create a snapshot of a virtual server:

1. Stopping the virtual server

2. Creating the virtual server snapshot

3. Starting the virtual server

4. Sending completion notification by mail

Change the Automated Operation Process to suit your operations.

- Changing the number of virtual servers targeted for operations

  The Automated Operation Process is formed such that each process performs operations in parallel for two virtual servers.
  To change the number of servers for which the operation is performed, change the Automated Operation Process as described in 2.9 Changing the Number of Virtual Servers Targeted for an Operation.

The operation components shown below are positioned in the Automated Operation Process.

Table 2.32 Operation component placement

Name	Operation component name	Purpose
Stop virtual server 1-2	Stop virtual server	Stopping virtual servers
Create snapshot of virtual server 1-2	Create virtual server snapshot	Creating snapshots of virtual servers
Start virtual server 1-2	Start virtual server	Starting virtual servers

Name	Operation component name	Purpose
Completion notification 1-2	Send emails	Notifying completion of a virtual server system change
Error notification 1-2	Send emails	Notifying of an error occurrence in a virtual server system change

2.8.7.2 Changing Input Values Set in the Automated Operation Process

The following settings are required for the Automated Operation Process:

- User-defined attributes

- Operation component input information

User-defined attributes

Values must be set in the user-defined attributes of the Automated Operation Process. Enter values as shown below.

Table 2.33 Automated Operation Process user-defined attributes

User-defined attribute name	Input value	Use
smtp_server	Host name or IP address of the mail send (SMTP) server	Used as the hostname parameter value of the operation component that sends mail
from_address	Error mail send source address	Used as the fromaddress parameter value of the operation component that sends mail

Operation component input information

If required, set a parameter value as input information for the following operation components positioned in the Automated Operation Process:

- **Completion notification** 1-2

- **Error notification** 1-2

Enter parameters as shown below.

Table 2.34 Operation component input information

Operation component name	Parameter name	Input value
Completion notification 1-2 **Error notification** 1-2	smtpusername (*1)	User name for SMTP authentication to the host of the mail send (SMTP) server
	smtppassword (*1)	User password for SMTP authentication to the host of the mail send (SMTP) server

*1:
Set this parameter in environments that require authentication to the SMTP server when mail is sent.

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Refer to the *Systemwalker Runbook Automation Studio User's Guide* for details on how to change Automated Operation Processes.
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2.8.7.3 Information Entered in Screens

Use the following screen to enter the values required for operations when the operations are performed by the Automated Operation Process:

- **Enter the snapshot creation information** screen
  Enter the values when executing the Automated Operation Process.

Information entered in the Enter the snapshot creation information screen

Enter the information below in the **Enter the snapshot creation information** screen.

Table 2.35 Information entered in the Enter the snapshot creation information screen

Input item	Mandatory	Input content	Automated Operation Process user-defined attribute for which input value is being set
Recipient address of the completion notification mail	Mandatory	Send destination address for completion notification mail and error notification mail	toaddress
Server 1 information Virtual server name	Mandatory	Specify the name of the virtual server for which a snapshot is being created.	servername1
Server 2 information Virtual server name	Mandatory	Specify the name of the virtual server for which a snapshot is being created	servername2

2.8.8 Restoring System Snapshots

This section describes the items below concerning the system snapshot restoration Automated Operation Process provided by the operation template for virtual environments.

- Processing overview

- Changing input values set in the Automated Operation Process

- Information entered in screens

2.8.8.1 Processing Overview

The Automated Operation Process that restores a system snapshot performs processing in the following sequence to restore a snapshot of a virtual server:
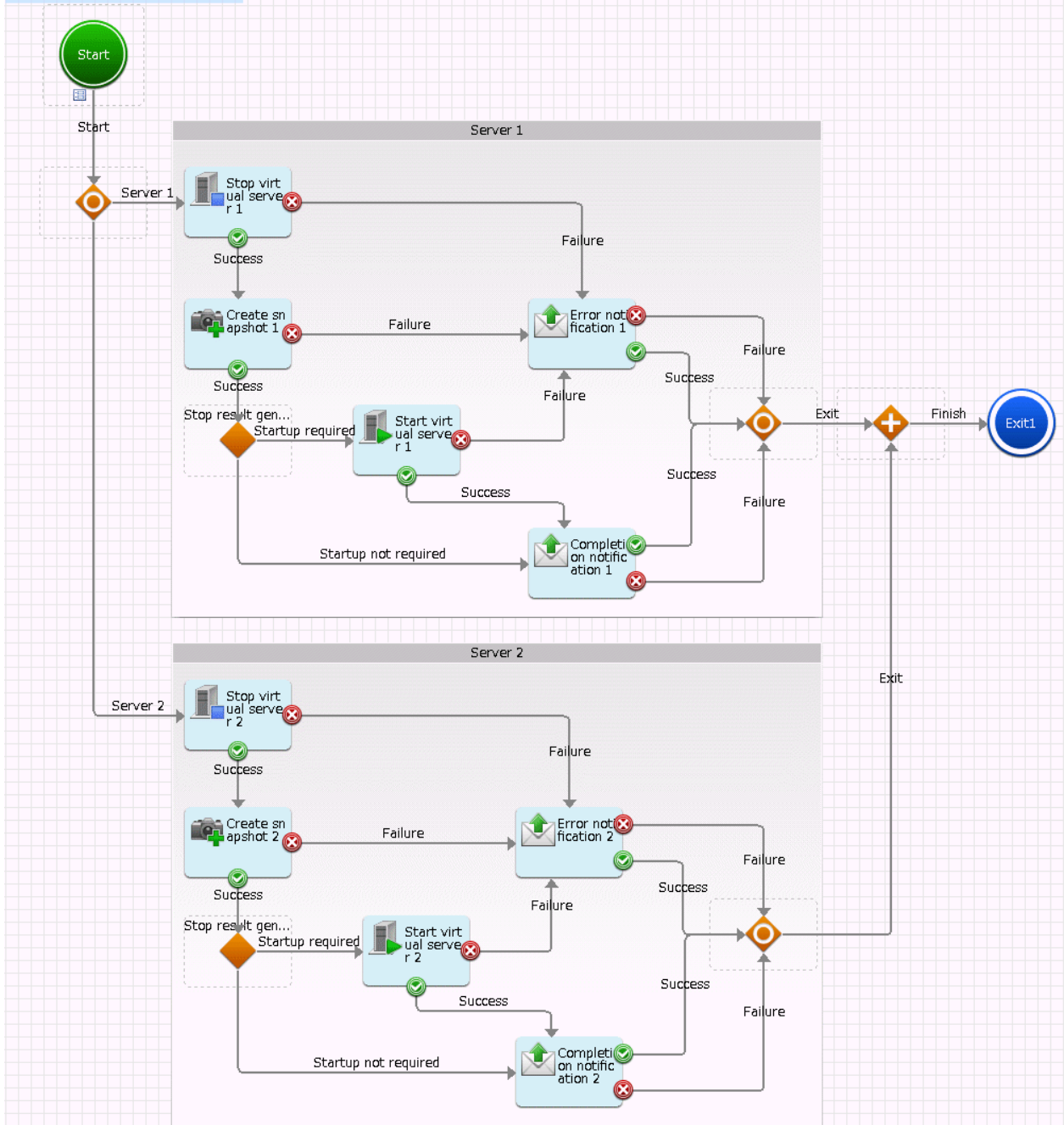
1. Stopping the virtual server

2. Restoring the snapshot of the virtual server

3. Starting the virtual server

4. Sending completion notification by mail

Change the Automated Operation Process to suit your operations.

- Changing the number of virtual servers targeted for operations

    The Automated Operation Process is formed such that each process performs operations in parallel for two virtual servers.
    To change the number of servers for which the operation is performed, change the Automated Operation Process as described in 2.9 Changing the Number of Virtual Servers Targeted for an Operation.

swrba_template_vserver_putsnapshot

The operation components shown below are positioned in the Automated Operation Process.

Table 2.36 Operation component placement

Name	Operation component name	Purpose
Stop virtual server 1-2	Stop virtual server	Stopping virtual servers
Restore snapshot of virtual server 1-2	Restore virtual server snapshot	Restoring snapshots of virtual servers
Start virtual server 1-2	Start virtual server	Starting virtual servers
Completion notification 1-2	Send emails	Notifying completion of a virtual server system change

Name	Operation component name	Purpose
Error notification 1-2	Send emails	Notifying of an error occurrence in a virtual server system change

2.8.8.2 Changing Input Values Set in the Automated Operation Process

The following settings are required for the Automated Operation Process:

- User-defined attributes

- Operation component input information

User-defined attributes

Values must be set in the user-defined attributes of the Automated Operation Process. Enter values as shown below.

Table 2.37 Automated Operation Process user-defined attributes

User-defined attribute name	Input value	Use
smtp_server	Host name or IP address of the mail send (SMTP) server	Used as the hostname parameter value of the operation component that sends mail
from_address	Error mail send source address	Used as the fromaddress parameter value of the operation component that sends mail

Operation component input information

If required, set a parameter value as input information for the following operation components positioned in the Automated Operation Process:

- **Completion notification** 1-2

- **Error notification** 1-2

Enter parameters as shown below.

Table 2.38 Operation component input information

Operation component name	Parameter name	Input value
Completion notification 1-2 **Error notification** 1-2	smtpusername (*1)	User name for SMTP authentication to the host of the mail send (SMTP) server
	smtppassword (*1)	User password for SMTP authentication to the host of the mail send (SMTP) server

Note 1:
Set this parameter in environments that require authentication to the SMTP server when mail is sent.

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Refer to the *Systemwalker Runbook Automation Studio User's Guide* for details on how to change Automated Operation Processes.
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2.8.8.3 Information Entered in Screens

Use the following screen to enter the values required for operations when the operations are performed by the Automated Operation Process:

- **Enter the snapshot restoration information** screen
  Enter the values when executing the Automated Operation Process.

Information entered in the Enter the snapshot restoration information screen

Enter the information below in the **Enter the snapshot restoration information** screen.

Table 2.39 Information entered in the Enter the snapshot restoration information screen

Input item	Mandatory	Input content	Automated Operation Process user-defined attribute for which input value is being set
Recipient address of the completion notification mail	Mandatory	Send destination address for completion notification mail and error notification mail	toaddress
Server 1 information Virtual server name	Mandatory	Specify the name of the virtual server for which a snapshot is being restored	servername1
Server 2 information Virtual server name	Mandatory	Specify the name of the virtual server for which a snapshot is being restored	servername2

2.8.9 Deploying systems and registering them in CMDB

This section explains the following Automated Operation Process items which are registered in CMDB after the systems provided in the virtual environment operations template are deployed.

- Processing overview

- Changing the input values set in the Automated Operation Process

- Information entered in the window

2.8.9.1 Processing overview

In the Automated Operation Process used for deploying systems and registering them in CMDB, since the virtual server system is built and then registered in CMDB, operations are processed in the following order.

1. The virtual server is built.

2. The virtual server is started.

3. A check is made to ensure that the virtual server has started.

4. The virtual server information is registered in CMDB.

5. The network for the virtual server is set.

6. The software is installed on the virtual server.

7. The information that was set in the virtual server is registered in CMDB.

8. The virtual server is restarted.

9. A check is made to ensure that the virtual server is running normally.

10. The completion notification email is sent.
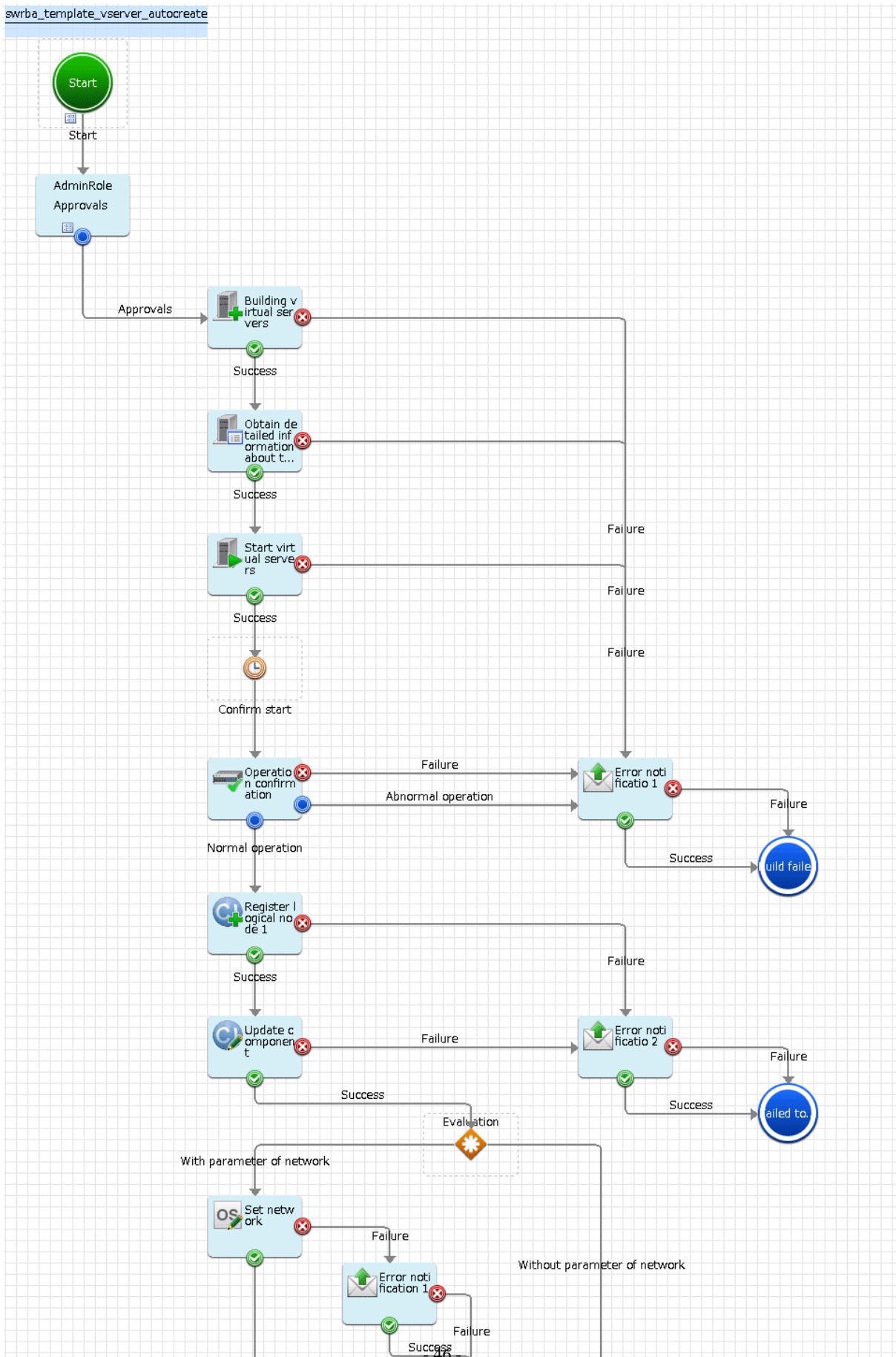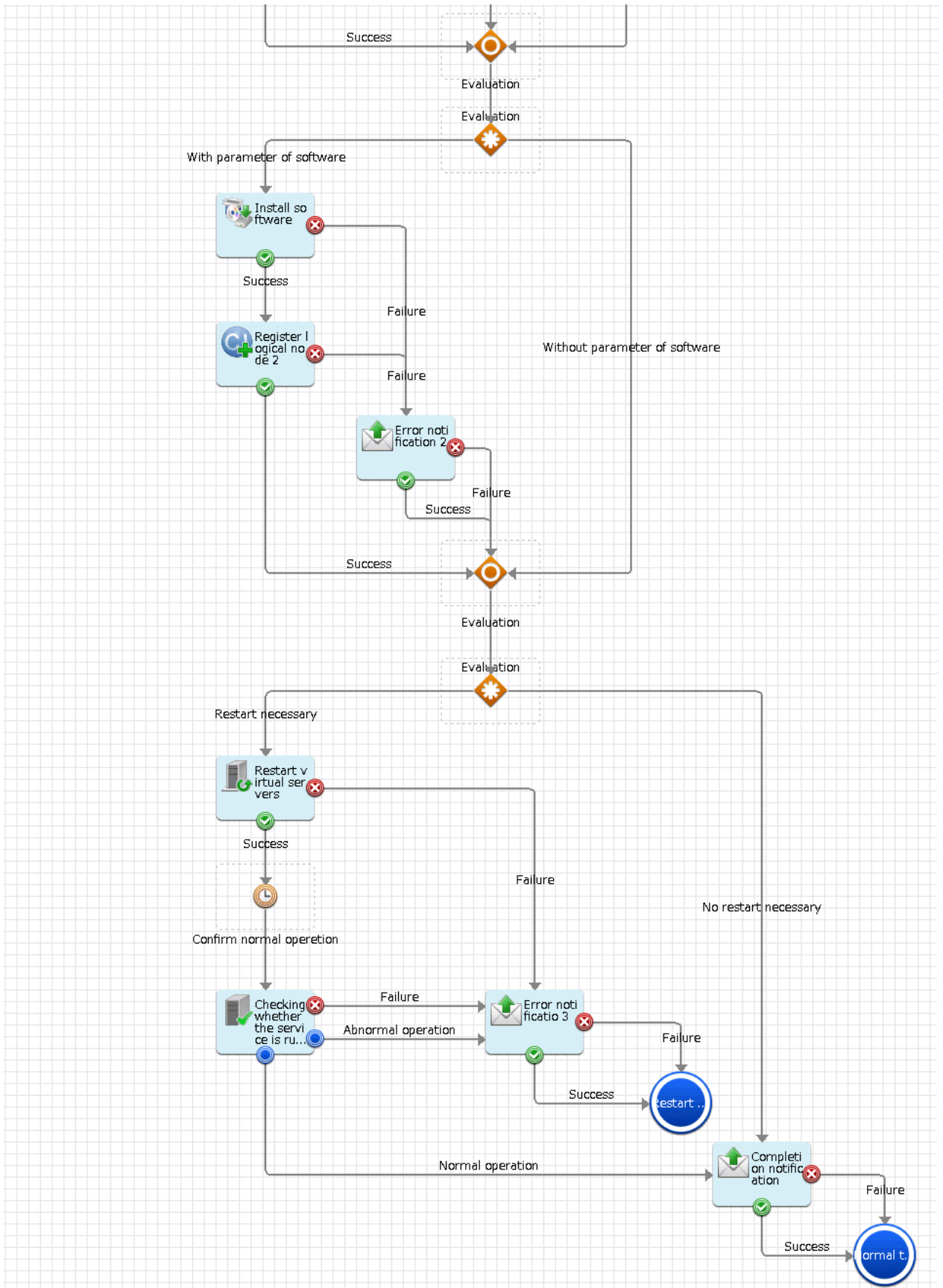
The operation components shown below are deployed to the Automated Operation Process.

Table 2.40 Operation component deployment

Name	Name of operation component used	Objective
Build virtual server	Build virtual server	Build the virtual server.
Get virtual server details	Get detailed virtual server information	Get the IP address assigned to the virtual server that was built.
Start virtual server	Start virtual server	Start the virtual server.
Check operational status	Check operational status of node	Check that virtual server has started.
Register logical node 1	Register logical node	Register the information about the virtual server that was built in CMDB.
Update configuration item	Update configuration item	Update the virtual server information to the operation rules set in CMDB.
Set network	Set OS network	Set the virtual server network information.
Install software	Install software	Install the software on the virtual server.
Register logical node 2	Register logical node	Register the information of installed software
Restart virtual server	Restart virtual server	Restart the virtual server.
Check whether the server is running normally	Check server running normally	Check the virtual server operational status.
Completion notification	Send emails	Notify the virtual server build results.
Error notification 1-3	Send emails	Notify that an error has occurred in the virtual server build.
Error notification 1-2	Send emails	Notify that an error has occurred in the network settings, or while registering information to the CMDB when the software was being installed.

2.8.9.2 Changing the input values set in the Automated Operation Process

The following Automated Operation Process settings are required.

- User defined attributes

- Operation component input information

User defined attributes

The following values must be set for the Automated Operation Process user defined attributes. Enter the value according to the content shown below.

Table 2.41 Automated Operation Process user defined attributes

User defined attribute name	Input value	Usage
smtp_server	Host name or IP address of the (SMTP) server sending emails	Used as the hostname parameter value of the operation component that sends the email
from_address	Error email sender's address	Used as the fromaddress parameter value of the operation component that sends the email

Operation component input information

A value must be set in the parameter for the following operation component input information that is deployed to the Automated Operation Process.

- Build virtual server

Additionally, set a value in the parameter for the following operation component input information if necessary.

- Completion notification

- Error notification 1-3

- Abend notification 1-2

Enter the parameter value according to the content shown below.

Table 2.42 Operation component input information

Operation component name	Parameter name	Input Value
Build virtual server	serverpassword	Same value as the administrator password set for the image used in the virtual server build (Note 1)
Completion notification	smtpusername (*2)	User name of the user that executes SMTP authentication to the host of the (SMTP) server sending emails
Error notification 1-3 Abend notification 1-2	smtppassword (*2)	Password of the user that executes SMTP authentication to the host of the (SMTP) server sending emails

*1:

A common administrator password is used for all the images that are used.

To use a different password for an image, enter the password using the **Applications** window. Additionally, change the parameter names for the server.

*2:

Set this for an environment in which SMTP server authentication is required when the email is sent.

 See
. . . .

Refer to the *Systemwalker Runbook Automation Studio User's Guide* for information on how to change the Automated Operation Process.
. . . .

2.8.9.3 Information entered in the window

At the time of the operation that uses the Automated Operation Process, enter the values required for the operation in the following windows.

- **Enter the Modification Information** window
  Enter these values when the Automated Operation Process is executed. This window is comprised of the following four windows.

  - The setting window of Basic Information

  - The setting window of **Server information**

  - The setting window of **Network information**

  - The setting window of **Software information that will be installed on servers**

Information entered in the Enter the build information window (Basic Information)

Enter the following information in the **Enter the build information** window **(Basic Information).**

Table 2.43 Information entered in the Enter the build information window (Basic Information)

Input Item	Requirement	Input content	User defined attribute of the Automated Operation Process which defines the input value
Completion notification mail recipient address	Required	Specifies the completion notification email and error notification email recipient address.	to_address
Name of group to be confirmed	Required	Specifies the group name that is registered to confirm whether the server is operating. To confirm the operating status, specify the group name which is registered in the CMDB.	Groupname

Information entered in the Enter the build information window (Server Information)

Enter the following information in the **Enter the build information** window (Server Information).

Table 2.44 Information entered in the Enter the build information window (Server Information)

Input Item	Requirement	Input content	User defined attribute of the Automated Operation Process which defines the input value
Virtual environment Management Server IP address	Required	Specifies the IP address of the Management Server for the management products in the virtual environment.	managerserver

Input Item	Requirement	Input content	User defined attribute of the Automated Operation Process which defines the input value
Applied template name	Required	Specifies the template name that will be applied to the virtual server that is built.	templatename
Applied image name	Required	Specifies the image name that will be applied to the virtual server that is built. Specify image which Systemwalker Runbook Automation agent is installed.	imagename
Name assigned to virtual server	Required	Specifies the name that will be assigned to the virtual server that is built.	servername
Assigned network resource name	Required	Specifies the network resource name that will be assigned to the virtual server that is built.	network
Assigned IP address	Optional	Specifies the IP address that will be assigned to the virtual server that is built.	serveripaddress
Product key	Optional	Specifies the product key that will be assigned to the virtual server that is built.	productkey
CPU number	Optional	If the template information CPU number is changed, specifies the CPU number after this change is made.	numofprocessor
CPU performance	Optional	If the template information CPU performance is changed, specifies the CPU performance after this change is made. The GHz unit can be specified in the range from 0.1 to 8 (but only up to one decimal place). Note that you do not have to specify the unit (GHz) itself.	processorspeed
Memory size	Optional	If the template information memory size is changed, specifies the memory size after this change is made. The GByte unit can be specified in the range from 0.1 to 255 (but only up to one decimal place). Note that you do not have to specify the unit (GByte) itself.	memorysize

Information entered in the Enter the build information window (Network information)

Enter the following information in the **Enter the build information** window (Network information).

If a value is not entered for the input item, the operating system network settings will not be configured.

Table 2.45 Information entered in the Enter the build information window (Network information)

Input Item	Requirement	Input content	User defined attribute of the Automated Operation Process which defines the input value
Domain name	Optional	Specifies the domain name for the operating system network information. When multiple items are specified, put a comma (",") between each item to separate them.	domain_name
Name of the user that will participate in the domain	Optional	Specifies the name of the user that will participate in the domain, when there is participation in the domain.	domain_username
Password of the user that will participate in the domain	Optional	Specifies the password of the user that will participate in the domain, when there is participation in the domain.	domain_password

Input Item	Requirement	Input content	User defined attribute of the Automated Operation Process which defines the input value
Workgroup	Optional	Specifies the workgroup for the operating system network information.	workgroup
Network interface	Optional	Specifies the network interface which defines the DNS Server address and WINS address.	interface_name
DNS server address	Optional	Specifies the DNS server address for the operating system network information. When multiple items are specified, put a comma (",") between each item to separate them.	dns
WINS address	Optional	Specifies the WINS address for the operating system network information. When multiple items are specified, put a comma (",") between each item to separate them.	wins

Information entered in the Enter the build information window (Software information that will be installed on servers)

Enter the following information in the **Enter the build information** window (Software information that will be installed on servers).

Note that the behavior will depend on the input item settings. The behavior is as follows.

- When no value is entered for any of the input items
  The software will not be installed.

- When a value is set for the installed command name only
  The installation files will not be transferred The files stored on the host that will be installed are used for the installation.

- When a value is set for all input items
  If the installation files were transferred according to the input content, the installation will be executed.

- In all other cases
  An error will occur.

Table 2.46 Information entered in the Enter the build information window (Software information that will be installed on servers)

Input Item	Requirement	Input content	User defined attribute of the Automated Operation Process which defines the input value
Host name of the installation files source	Optional	Specifies the host name of the machine on which the installed software is archived.	source_hostname
Name of the installation command	Optional	Specifies the command name and arguments that will execute the installed software.	command_line
Name of the installation file	Optional	Specifies the installed software file name or folder name (absolute path).	source_file
Name of the installation destination installation file	Optional	Specifies the transfer destination file name or folder name (absolute path) when the installed software file is transferred to the virtual server.	destination_file

2.8.9.4 consideration of using this template

Image for using construction of virtual server

For the communication with virtual server which built by this template, it assumed that it is used file transfer foundation.Because of this, for image with using construction of virtual server, use image installed Systemwalker Runbook Automation Agent.

Registering information in CMDB

After building virtual server, the command has been executed to register built server information in CMDB. If you create new automated operation process with using this template, do not delete the following operation components and node.

- Obtain detail information (Operation components: "Get detailed virtual server information")
  The virtual server IP address and operating system type that are required when the information is registered in CMDB are obtained.

- Start virtual server (Operation components : "Start virtual server")
  It is necessary to start virtual server to collect information registered in CMDB.

- Register logical node 1-2 (Operation component: "Register logical node")
  It has waited for finishing to register information in CMDB

- Update configuration information (Operation components : Obtain configuration information)
  Register registered group name to check server operation in CMDB.

2.8.10 Changing systems and registering them in CMDB

This section explains the following Automated Operation Process items which are registered in CMDB after the systems provided in the virtual environment operations template are changed.

- Processing overview

- Changing the input values set in the Automated Operation Process

- Information entered in the window

2.8.10.1 Processing overview

In the Automated Operation Process used for changing systems and registering them in CMDB, operations are processed in the following order.

1. The system change is authorized.

2. There is a wait until the specified time is reached.

3. The virtual server is stopped.

4. The virtual server system is changed.

5. The virtual server is started.

6. A check is made to ensure that the virtual server has started.

7. The virtual server information is registered in CMDB.

8. The virtual server host name is changed.

9. The virtual server is restarted.

10. A check is made to ensure that the virtual server has started.

11. A check is made to ensure that the virtual server is running normally.

12. The completion notification email is sent.
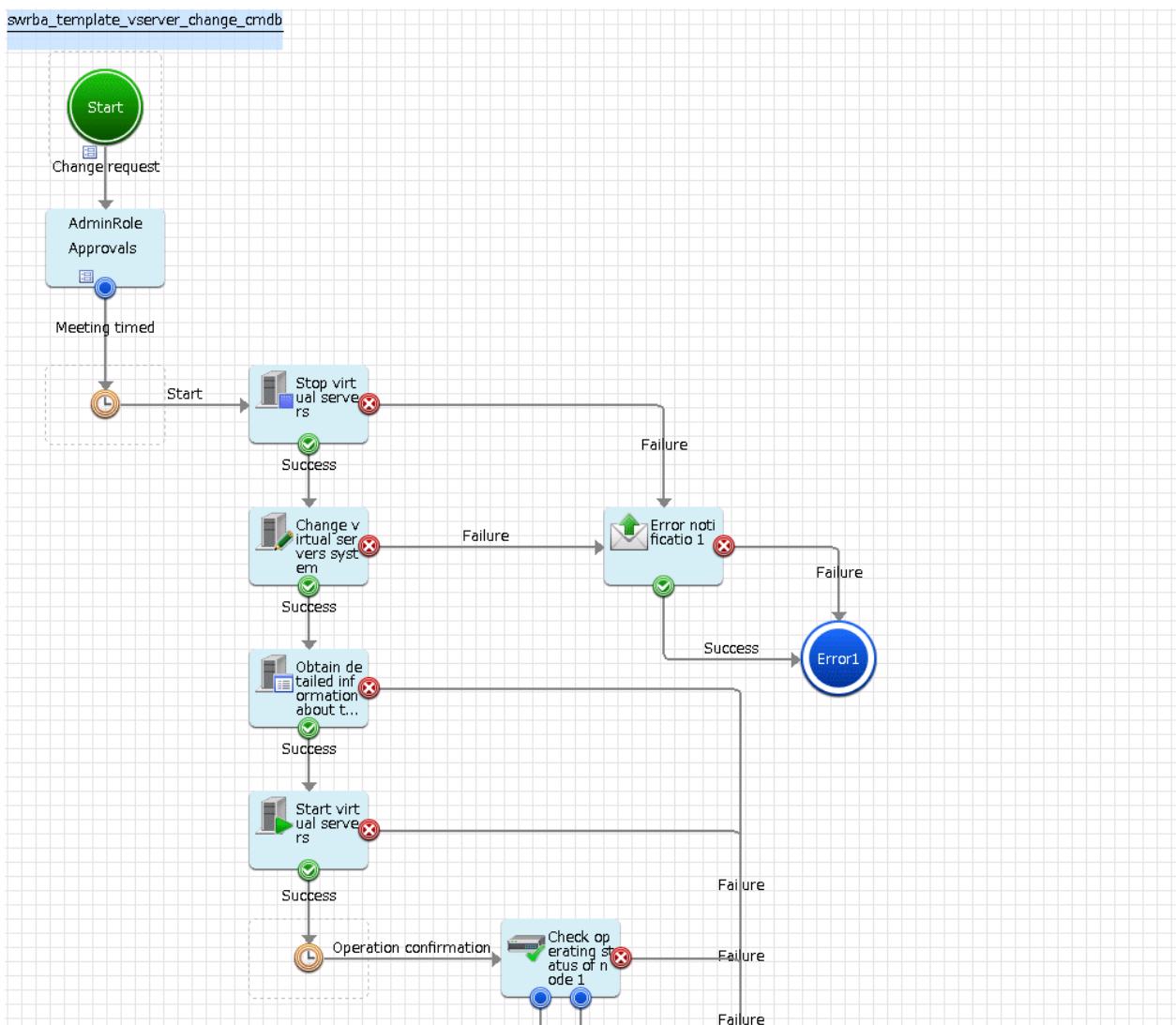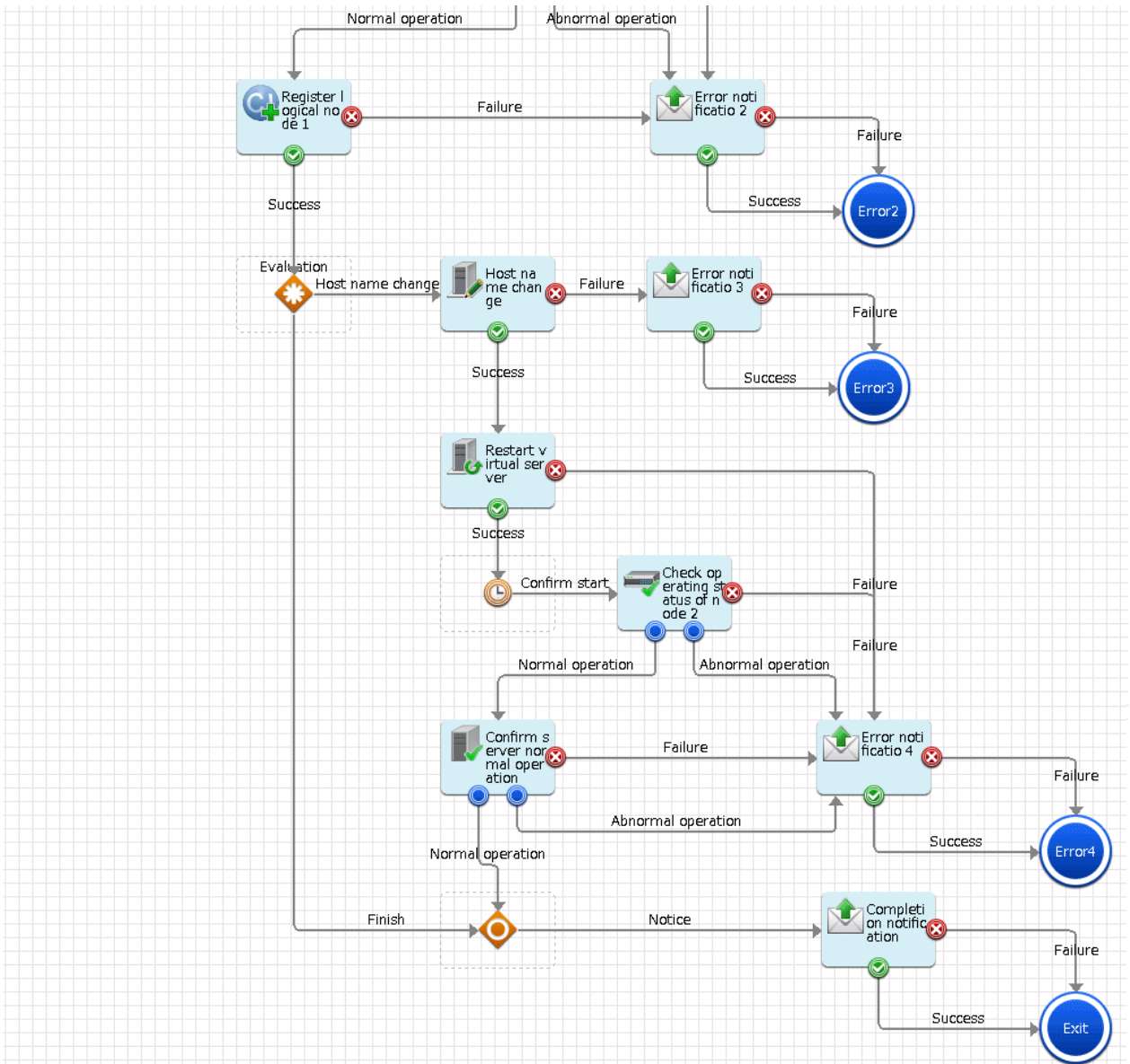
The operation components shown below are deployed to the Automated Operation Process.

Table 2.47 Operation component deployment

Name	Name of operation component used	Objective
Stop virtual server	Stop virtual server	Stop the virtual server.
Change virtual server system	Change virtual server system	Change the virtual server system.
Get virtual server details	Get detailed virtual server information	Get the virtual server details.
Start virtual server	Start virtual server	Start the virtual server.
Check operating status of node 1-2	Check operational status of node	Check that virtual server has started.
Register logical node	Register logical node	Register the information about the virtual server that was built in CMDB.
Change host name	Change host name	Change the virtual server host name.

Name	Name of operation component used	Objective
Restart virtual server	Restart virtual server	Restart the virtual server.
Confirm server running normally	Check server running normally	Check that the virtual server service is running, and check the port connection.
Completion notification	Send emails	Notify the completion of the change to the virtual server system.
Error notification 1-4	Send emails	Notify that an error has occurred in the changing of the virtual server system.

2.8.10.2 Changing the input values set in the Automated Operation Process

The following Automated Operation Process settings are required.

- User defined attributes

- Operation component input information

User defined attributes

The following values must be set for the Automated Operation Process user defined attributes. Enter the value according to the content shown below.

Table 2.48 Automated Operation Process user defined attributes

User defined attribute name	Input Value	Usage
smtp_server	Host name or IP address of the (SMTP) server sending emails	Used as the hostname parameter value of the operation component that sends the email
from_address	Error email sender's address	Used as the fromaddress parameter value of the operation component that sends the email

Operation component input information

If necessary, set a value in the parameter for the following operation component input information that is deployed to the Automated Operation Process.

- Completion notification

- Error notification 1-4

Enter the parameter value according to the content shown below.

Table 2.49 Operation component input information

Operation component name	Parameter name	Input Value
Completion notification	smtpusername (Note 1)	User name of the user that executes SMTP authentication to the host of the (SMTP) server sending emails
Error notification 1-4	smtppassword (Note 1)	Password of the user that executes SMTP authentication to the host of the (SMTP) server sending emails

Note 1:
Set this for an environment in which SMTP server authentication is required when the email is sent.

See

. . . .

Refer to the *Systemwalker Runbook Automation Studio User's Guide* for information on how to change the Automated Operation Process.

. . . .

2.8.10.3 Information entered in the window

At the time of the operation that uses the Automated Operation Process, enter the values required for the operation in the following windows.

- Enter the **modification information** window
  Enter these values when the Automated Operation Process is executed. This window is comprised of the following windows.

  - The setting window of Basic Information

  - The setting window of **Modification information of server**

Information entered in the Enter the modification information window (Basic Information)

Enter the following information in the **Enter the modification information** window (**Basic Information**).

Table 2.50 Information entered in the Enter the modification information window (Basic Information)

Input Item	Requirement	Input content	User defined attribute of the Automated Operation Process which defines the input value
		- 60 -	
Time at which the change will start	Optional	Specifies the time at which the change to the system will start in the format "YYYY/MM/DD hh:mm:ss". YYYY: Specifies the year in 4-digit format. MM: Specifies the month in 2-digit format. DD: Specifies the date in 2-digit format. hh: Specifies the hours in 2-digit format. mm: Specifies the minutes in 2-digit format. ss: Specifies the seconds in 2-digit format. The date and time that was set for the 'starttime' user defined attribute will be displayed as the default. The date can be entered using a calendar.	starttime
Completion notification mail recipient address	Required	Specifies the completion notification email and error notification email recipient address.	toaddress

Information entered in the Enter the modification information window (Modification information of server)

Enter the following information in the **Enter the modification information** window (Modification information of server)

Table 2.51 Information entered in the [Enter the modification information] window (Modification information of server)

Input Item	Requirement	Input content	User defined attribute of the Automated Operation Process which defines the input value
Name of modified virtual server	Required	Specifies the name of the virtual server that will be modified.	servername
Name of new virtual server	Optional	If the virtual server name is changed, specifies the virtual server name after this change is made.	newservername

Input Item	Requirement	Input content	User defined attribute of the Automated Operation Process which defines the input value
CPU number	Optional	If the CPU number is changed, specifies the CPU number after this change is made.	numofprocessor
CPU performance	Optional	If the CPU performance is changed, specifies the CPU performance after this change is made. The GHz unit can be specified in the range from 0.1 to 8 (but only up to one decimal place). Note that you do not have to specify the unit (GHz) itself.	processorspeed
Memory size	Optional	If the memory size is changed, specifies the memory size after this change is made. The GByte unit can be specified in the range from 0.1 to 255 (but only up to one decimal place). Note that you do not have to specify the unit (GByte) itself.	memorysize
Added disk space	Optional	Specifies the additional disk size, when increasing the number of disks. The GByte unit can be specified in the range from 0.1 to 2048 (but only up to one decimal place). Note that you do not have to specify the unit (GByte) itself.	additionaldisksize
Domain user name	Optional	Specifies the name of the user that connects to the domain, when the virtual server name is changed and the virtual server participates in the domain.	domainusername
Domain password	Optional	Specifies the password of the user that connects to the domain, when the virtual server name is changed and the virtual server participates in the domain.	domainpassword

2.8.10.4 Usage note of this template

Registering information in CMDB

After changing virtual server, the command has been executed to register changed server information in CMDB. If you create new automated operation process with using this template, do not delete the following operation components and node.

- Obtain detail information (Operation components: "Get detailed virtual server information")
  IP address and OS type which needed for executing command to register information in CMDB.

- Start virtual server (Operation components : "Start virtual server")
  It is necessary to start virtual server to collect information registered in CMDB.

- Register logical node (Operation component: "Register logical node")
  Register the updated information about the virtual server in CMDB.

2.9 Changing the Number of Virtual Servers Targeted for an Operation

Each of the Automated Operation Processes performs operations in parallel for two virtual servers. An Automated Operation Process must be changed to change the number of servers for which an operation is performed.

Adding targeted servers

The procedure for adding targeted servers is described below.

1. Processing of each of the Automated Operation Processes of the operation template for virtual environments is split into server units by swim lanes. To add a targeted server, copy and paste the swim lane and all the operation components, nodes, and arrows in that swim lane.

    For example, the following operation components and nodes are targeted by the "Discarding systems" Automated Operation Process:

    - Operation component that stops virtual servers

    - Operation component that deletes virtual servers

    - Operation component that notifies of completion

    - Operation component that notifies of errors

    - OR node used when the arrow is inserted from the operation component that executes the completion notification and the operation component that executes the error notification
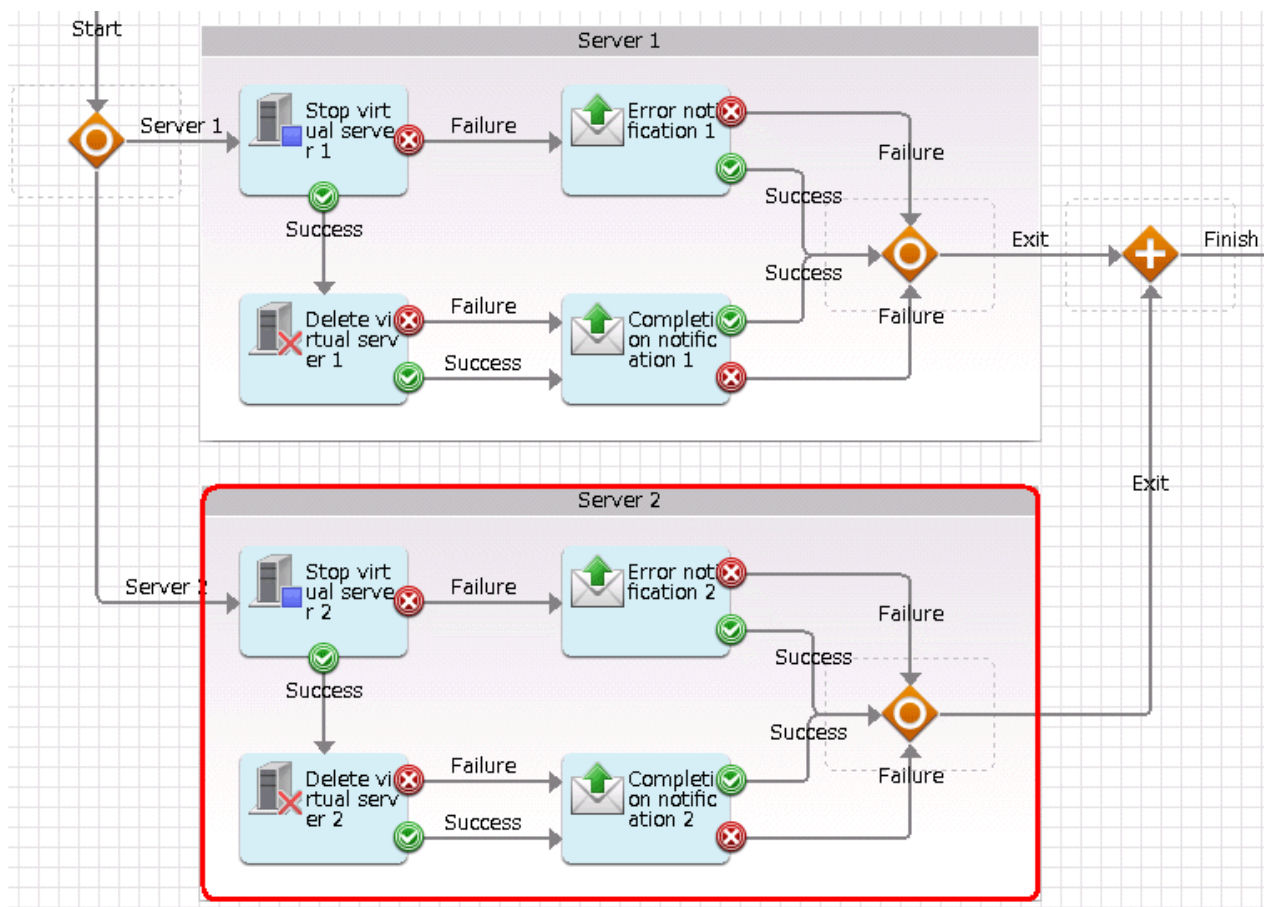
2. User-defined attributes, like the "servername1" and "servername2" user-defined attributes in which the name ends with a numeric, must be prepared for each server. Create these user-defined attributes for the added server. For example, to add Server 3 processing, add "servername3" to the user-defined attributes.

3. In the added user-defined attributes defined in the parameters of each operation component and node, change the numeric part in the user-defined attributes like the "servername1" and "servername2" in which the name ends with a numeric. For example, if Server 3 processing is being added, change it to "servername3".

    User-defined attributes other than those in which the name ends with a numeric are values common to all servers. The names of these user-defined attributes do not need to be changed.

    Check the input information and output information for operation components. For the Complex Conditional node, check the condition expression of the decision-making rule.

    Additionally, there are locations in the operation component input information that reference the execution results of other operation components. In this case, change the operation components that are referenced in these execution results.

4. Add items for the added server in the information input screen form.
   The templates below have separate forms for each server. Copy an existing server form to create the form for the added server. Add the additional form to the start node.

   - Building systems

   - Changing systems

5. Save the Automated Operation Processes.

🗐 See

. . . .
Refer to the *Systemwalker Runbook Automation Studio User's Guide* for details on how to change Automated Operation Processes.
. . . .

Deleting targeted servers

The procedure for deleting targeted servers is described below.

1. Processing of each of the Automated Operation Processes of the operation template for virtual environments is split into server units by swim lanes. To delete a targeted server, delete the swim lane and all the operation components, nodes, and arrows in that swim lane. For example, the following operation components and nodes are targeted by the "Discarding systems" Automated Operation Process:

   - Operation component that stops virtual servers

   - Operation component that deletes virtual servers

   - Operation component that notifies of completion

   - Operation component that notifies of errors

   - OR node used when the arrow is inserted from the operation component that executes the completion notification and the operation component that executes the error notification
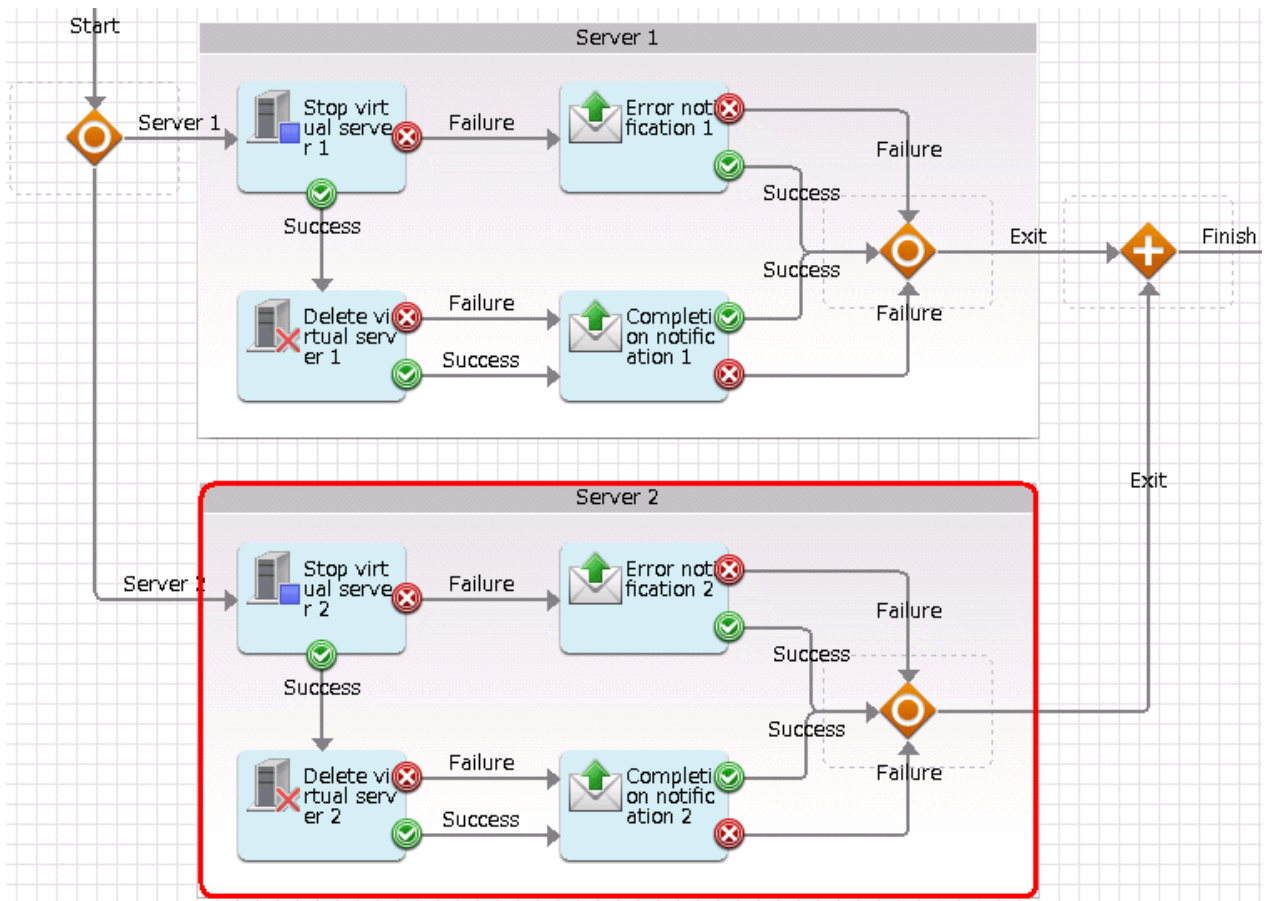
2. Delete items for the deleted server from the information input screen form.
   The templates below have separate forms for each server. Delete from the start node the form for the server being deleted. Also, delete the form for the server being deleted.

   - Building systems

   - Changing systems

3. Save the Automated Operation Processes.

See

. . . .

Refer to the *Systemwalker Runbook Automation Studio User's Guide* for details on how to change Automated Operation Processes.

. . . .

Chapter 3 Operation Confirmation Template

3.1 What is the Operation Confirmation Template?

The daily data center operations work includes tasks that are repeated at fixed times and in a fixed form.
One such task is server and service start confirmation when work operations start, followed by periodic confirmation of the server and service operating status.

The operation confirmation template performs the status checks below at fixed times, with the fixed time periods for confirming operations having three classifications, namely work start (morning), during work operations (afternoon), and before work ends (evening), thereby confirming that managed servers are operating without problems.

- Occurrence circumstances of events related to work start, such as work service start messages, etc.

- Server power supply status

- Server operating status

3.2 Installation Configuration

This section describes the installation configuration for using the operation confirmation template.
The figure below shows an overview of the installation configuration of Systemwalker Runbook Automation and the operation confirmation template.

Figure 3.1 Overview of installation configuration
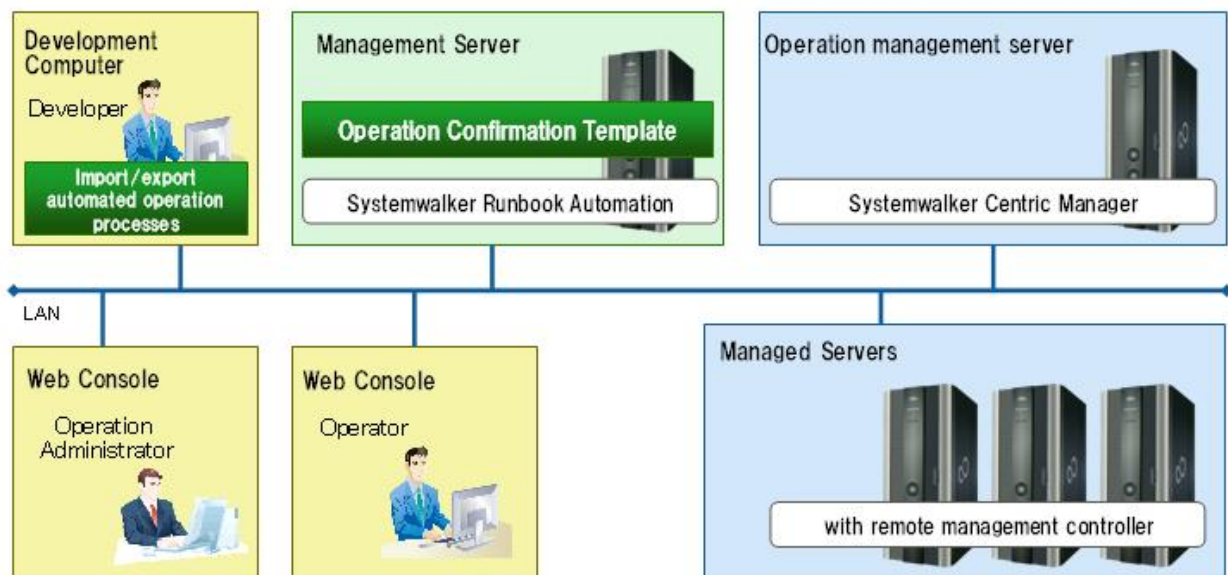
3.3 Operation Overview

This section gives an overview of operation.

Figure 3.2 Operation overview
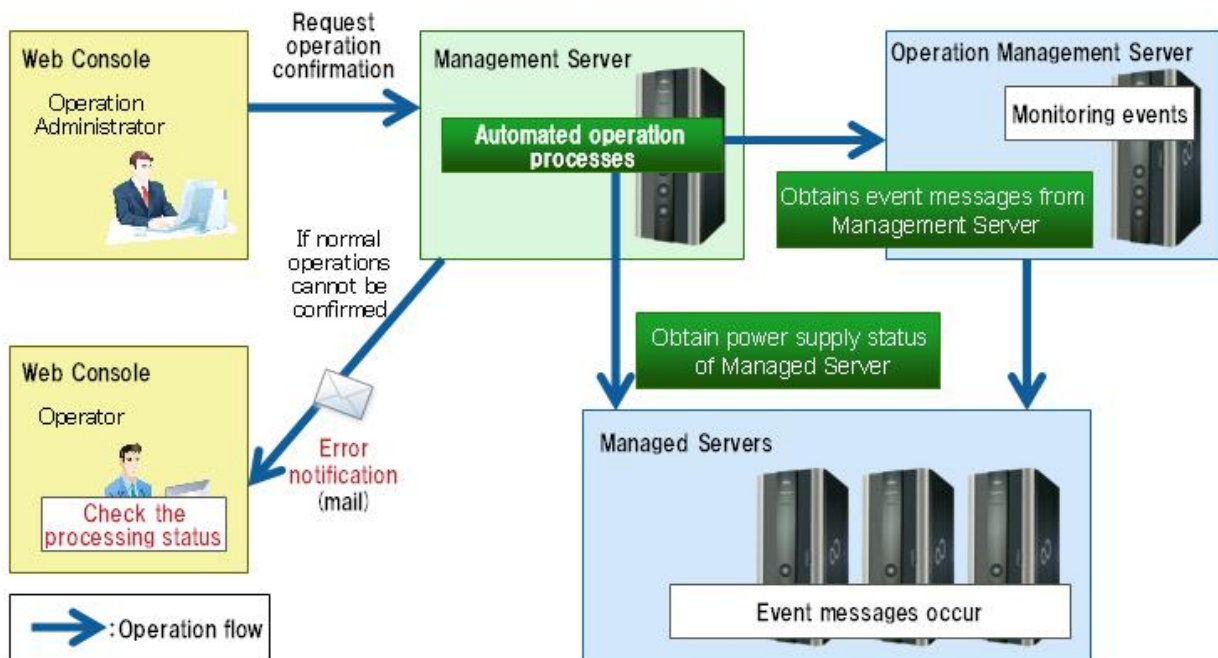
This template regularly and automatically judges event messages indicating normal operations and the power supply status of managed servers.

If event messages indicating normal operations cannot be confirmed, or if the power supply of a managed server is off, an error notification mail is sent to the operator.

3.4 Hardware Conditions

The following conditions must be met:

[Managed servers]

- Hardware equipped with a remote management controller that supports IPMI V2.0

3.5 Software Conditions

The software shown below must be installed in order to use the operation confirmation template.

[Operation management server]

- Operation management server functions of Systemwalker Centric Manager V13.0 or later

[Managed servers]

- IPMI V2.0

3.6 File Configuration

The file configuration for the operation confirmation template is shown below.

Systemwalker Runbook Automation Studio

The process definitions and forms that comprise the automatic operation process are stored in the [swrba_template_operation_confirm] project of Systemwalker Runbook Automation Studio.

```
[swrba_template_operation_confirm]
[Process Definitions]
```

```
   Process definitions
[web]
  Forms
```

Table 3.1 List of process definitions for the operation confirmation template

Process definition	Automatic operation process used
swrba_template_operation_confirm.xpdl	System operation confirmation

Table 3.2 List of forms for the operation confirmation template

Form	Automatic operation process used
begin_swrba_template_operation_confirm.jsp	System operation confirmation
result_swrba_template_operation_confirm.jsp	

Systemwalker Runbook Automation DVD-ROM media

The configuration of files stored on the Systemwalker Runbook Automation DVD-ROM media is shown below.

```
[templates] folder
  [swrba_template_operation_confirm folder]
    swrba_template_operation_confirm.bar    (1)
    readme.txt                              (2)
```

Table 3.3 Configuration of the operation confirmation template

	Type	Content
(1)	Automatic operation process	Automatic operation process that performs operation confirmation
(2)	Usage explanation	Explanations of usage

3.7 Overview of Automatic Operation Process

This section describes the items below concerning the automatic operation process provided by the operation confirmation template.

- Processing overview

- Changing input values set in the automatic operation process

- Information displayed in confirmation screens

3.7.1 Processing Overview

The operation confirmation template performs processing in the following sequence to confirm normal operation of managed servers:

1. Waiting until the morning confirmation time arrives

2. Confirming the power supply status of managed servers

3. Confirming the operating status of managed servers

4. Confirming the presence or absence of normal events

5. If a managed server is not operating normally, sending an error notification mail

6. Waiting until the afternoon confirmation time arrives

7. Confirming the power supply status of managed servers

8. Confirming the operating status of managed servers

9. If a managed server is not operating normally, sending an error notification mail

10. Waiting until the evening confirmation time arrives

11. Confirming the power supply status of managed servers

12. Confirming the operating status of managed servers

13. If a managed server is not operating normally, sending an error notification mail

14. Reporting completion of operation confirmation

Change the automatic operation process to suit your operations.

- Changing confirmation times

- Adding confirmation items, such as service start confirmation, etc.

swrba_template_operation_confirm

Start → **Start** → Obtain current date

Success
Failure

Operation to start at 9 a.m.

9:00 → Obtain server power status 1

Power ON

Check operating status of node 1

Normal operation

Check occurrence of event 1

Failure / Event not occurred → Error mail is sent 1

Failure / Power OFF
Failure / Abnormal operation

Event occurred

Success
Failure

Operation to start at noon

12:00 → Obtain server power status 2

Power ON

Check operating status of node 2

Failure
Abnormal operation → Error mail is sent 2

Failure / Power OFF

Normal operation

Success
Failure

Operation to start at 6 p.m.

18:00 → Obtain server power status 3

Power ON

Check operating status of node 3

Failure
Abnormal operation → Error mail is sent 3

Failure / Power OFF

Normal operation

Success
Failure

AdminRole
Operation check

Exit

Exit1

The operation parts shown below are positioned in the automatic operation process.

Table 3.4 Operation part placement

Name	Name of operation part to be used	Purpose
Obtain current time	**Obtain current date**	Obtaining the start time of the automatic operation process because this is used for event confirmation
Obtain power supply status 1-3	**Get server power status**	Confirming the power supply status of the servers targeted for operation confirmation
Confirm operation status 1-3	**Check operational status of node**	Confirming the operating status of the servers targeted for operation confirmation
Confirm event issue1	**Check whether an event has occurred in the monitored product**	Confirming normal events of the servers targeted for operation confirmation
Send error mail 1-3	**Send emails**	If the servers targeted for operation confirmation are not operating normally, sending error mail

3.7.2 Changing Input Values Set in the Automatic Operation Process

The following settings are required for the automatic operation process:

- User-defined attributes

- Operation part input information

- Delay node timer value

User-defined attributes

Values must be set in the user-defined attributes of the automatic operation process. Enter values as shown below.

Table 3.5 Automatic operation process user-defined attributes

User-defined attribute name	Input value	Use
smtp_server	Host name or IP address of the mail send (SMTP) server	Used as the hostname parameter value of the operation part that sends error mail
from_address	Error mail send source address	Used as the fromaddress parameter value of the operation part that sends error mail
to_address	Error mail send destination address	Used as the toaddress parameter value of the operation part that sends error mail
hostname	Host name or IP address of the server targeted for operation confirmation	Used as the hostname parameter value of the operation part that confirms the power supply status and the operation part that confirms the operating status
event_manager	Host name or IP address of the operation management server	Used as the hostname parameter value of the operation part that confirms event issue
event_message	Event message character string used to confirm that the system is operating normally	Used as the eventmessage parameter value of the operation part that confirms event issue
manager_server	Web console URL host name to be coded in the mail text to be sent	Used to code the Web console URL in the text parameter value of the operation part that sends error mail

Operation part input information

If required, set a parameter value as input information for the following operation part:

- Send error mail 1-3

Enter parameter values as shown below.

Table 3.6 Operation part input information

Operation part name	Parameter name	Input value
Send error mail 1-3	smtpusername (*1)	User name for SMTP authentication to the host of the mail send (SMTP) server
	smtppassword (*1)	User password for SMTP authentication to the host of the mail send (SMTP) server

*1:
Set this parameter in environments that require authentication to the SMTP server when mail is sent.

Delay node timer value

Set times for the delay node timers, as required. The settings contents are shown below.

Table 3.7 Timer settings information

Name	Timer name	Settings value
Delay_morning	morningtimer	The time when operation confirmation is to be performed. "09:00" is set as the default.
Delay_afternoon	afternoontimer	The time when operation confirmation is to be performed. "12:00" is set as the default.
Delay_evning	eveningtimer	The time when operation confirmation is to be performed. "18:00" is set as the default.

 See
....

Refer to the *Systemwalker Runbook Automation Studio User's Guide* for the method for changing automatic operation processes.
....

3.7.3 Information Displayed in Confirmation Screen

When operations are performed by the automatic operation process, the screen below is used to display information.

- Operation confirmation results screen
  The confirmation results are displayed when the automatic operation process ends.

Information displayed in the operation confirmation results screen

Form

result_swrba_tem

Check operation result indication

Host name   webserver

Power check message   ON

Operation check message   Run

Morning

Event check result   567,"NORMALMSG","Trouble","Application","
23/01/2012 11:22:08","
server1/Home Section/10.xx.xxx.0","
Operation Management Server","server1","
INFO: 00001: File Transfer library has started."

Event check message   The operation component was successful.

The user-defined attributes shown below are displayed in the operation confirmation results screen.

Table 3.8 Information displayed in the operation results screen

Display item		Displayed Content	Automatic operation process user-defined attribute used for display
Host name		The host name or IP address of the server targeted for operation confirmation is output.	hostname
Morning	**Power supply status**	The server power supply status is output: "ON": When the power supply is on "OFF": When the power supply is off	power_state_morning
	Operating status confirmation message	The server operating status is output: "Run": When the server is running "Stop": When the server is not running	confirmcheck_err_morning
	Event confirmation results	If an event is issued and event issue confirmation results are issued, an event message is output.	eventcheck_msg_morning
	Event confirmation message	If the confirmation of the event occurrence succeeded, the following message will be output: The operation component was successful. If the confirmation of the event occurrence failed, error content will be output.	eventcheck_err_morning
Afternoon	**Power supply confirmation message**	The server power supply status is output: "ON": When the power supply is on "OFF": When the power supply is off.	powercheck_err_afternoon

Display item		Displayed Content	Automatic operation process user-defined attribute used for display
	Operating status confirmation message	The server operating status is output: "Run": When the server is running "Stop": When the server is not running	confirmcheck_err_afternoon
Evening	**Power supply confirmation message**	The server power supply status is output: "ON": When the power supply is on "OFF": When the power supply is off	powercheck_err_evening
	Operating status confirmation message	The server operating status is output: "Run": When the server is running "Stop": When the server is not running	confirmcheck_err_evening

Chapter 4 Web 3-Tier System Start and Stop Template

4.1 What is the Web 3-tier System Start and Stop Template?

Periodic reboot tasks, periodic maintenance of IT machines, the legal requirement for equipment inspections, and so on, are an essential part of the data center operations work that maintains stable operation of business systems and involve repeated business system start and stop tasks. At business systems comprised of numerous servers and load balancers, operation tasks must conform to set procedures that guarantee safe system start and stop, and confirmation tasks are required. Such tasks are time-consuming and involve the risk of mistakes.

The Web 3-tier system start and stop template targets Web 3-tier systems, including load balancers, and defines the procedures to safely start and stop an entire business system, and defines an automatic notification process for when errors are detected.
Automation of the start and stop tasks that are performed repeatedly in a business system can reduce the operator workload and prevent operation and confirmation mistakes.
The Web 3-tier system start and stop template performs the following operations:

- Starting Web 3-tier systems

- Stopping Web 3-tier systems

4.2 Installation Configuration

This section describes the installation configuration for using the Web 3-tier system start and stop template.

The figure below shows an overview of the installation configuration of Systemwalker Runbook Automation and the Web 3-tier system start and stop template.

Figure 4.1 Overview of installation configuration
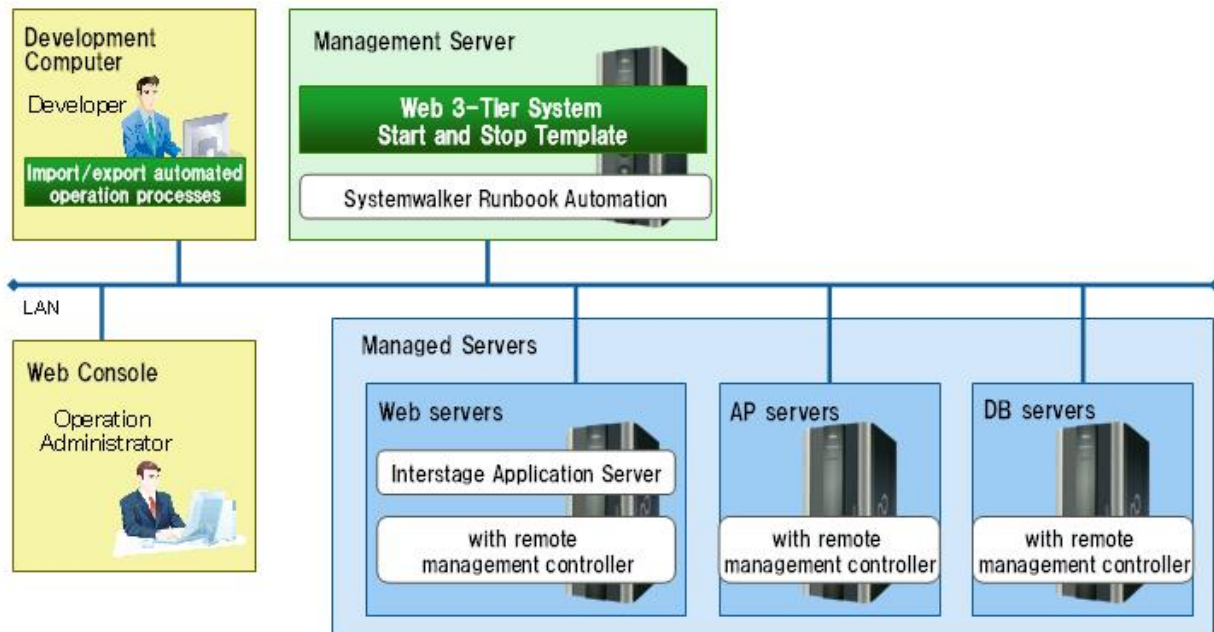
4.3 Overview of Operation Procedures

This section gives an overview of operation.

Figure 4.2 Operation
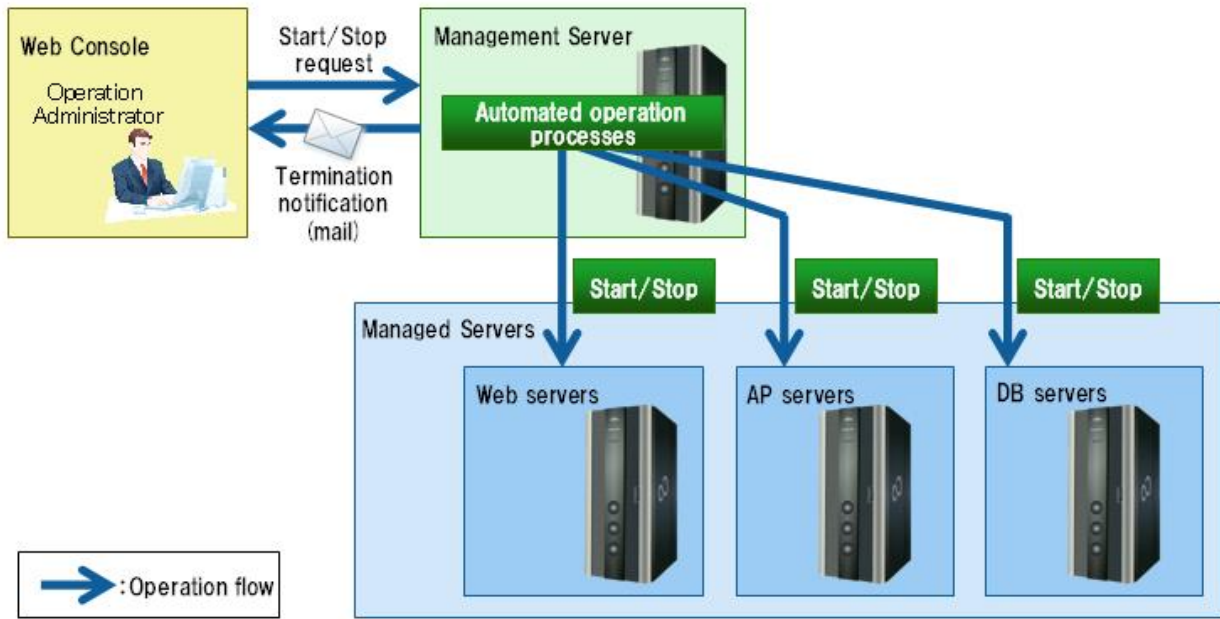
The person in charge of system operations uses the Web console to set at the Management Server the operations to be performed and to start the template. As a result, automatic operation processes are run and the Web 3-tier system start and stop operations are executed.

4.4 Hardware Conditions

The following conditions must be met:

[Web servers, AP servers, and DB servers]

  - Hardware equipped with a remote management controller that supports IPMI V2.0

4.5 Software Conditions

The software shown below must be installed in order to use the Web 3-tier system start and stop template.

[Web servers, AP servers, and DB servers]

  - IPMI V2.0

[Web servers]

  - Interstage Application Server, Interstage Business Application Server, Interstage Web Server, or Interstage Web Server Express

4.6 File Configuration

The file configuration for the Web 3-tier system start and stop template is shown below.

Systemwalker Runbook Automation Studio

The process definitions and forms that comprise the automatic operation processes are stored in the [swrba_template_server] project of Systemwalker Runbook Automation Studio.

```
[swrba_template_server]
[Process Definitions]
  Process definitions
[web]
  Forms
```

Table 4.1 List of process definitions for the Web 3-tier system start and stop template

Process definition	Automatic operation process used
swrba_template_server_start.xpdl	Starting a Web 3-tier system
swrba_template_server_stop.xpdl	Stopping a Web 3-tier system

Table 4.2 List of forms for the Web 3-tier system start and stop template

Form	Automatic operation process used
begin_start_swrba_template_server.jsp	Starting a Web 3-tier system
begin_stop_swrba_template_server.jsp	Stopping a Web 3-tier system

Systemwalker Runbook Automation DVD-ROM media

The configuration of files stored on the Systemwalker Runbook Automation DVD-ROM media is shown below.

```
[templates] folder
  [swrba_template_server folder]
    swrba_template_server.bar        (1)
    readme.txt                       (2)
```

Table 4.3 Configuration of the Web 3-tier system start and stop template

	Type	Content
(1)	Automatic operation process	Automatic operation processes that start and stop Web 3-tier systems
(2)	Usage explanation	Explanations of usage

4.7 Overview of Automatic Operation Processes

4.7.1 Starting a Web 3-tier System

This section describes the items below concerning the Web 3-tier system start automatic operation process provided by the Web 3-tier system start and stop template.

- Processing overview

- Changing input values set in the automatic operation process

4.7.1.1 Processing Overview

The Web 3-tier system start template performs processing in the following sequence to start a system:

1. Starting DB servers

2. If DB server startup fails, sending error notification mail and then ending startup

3. Waiting for DB server operation confirmation

4. Confirming DB server operation

5. If a DB server is not running or if operation confirmation fails, sending error notification mail and then ending startup

6. Starting AP servers

7. If AP server startup fails, sending error notification mail and then ending startup

8. Waiting for AP server operation confirmation

9. Confirming AP server operation

10. If an AP server is not running or if operation confirmation fails, sending error notification mail and then ending startup

11. Starting Web servers

12. If Web server startup fails, sending error notification mail and then ending startup

13. Waiting for Web server operation confirmation

14. Confirming Web server operation

15. If a Web server is not running or if operation confirmation fails, sending error notification mail and then ending startup

16. Confirming Interstage service of Web Server start. If Interstage service is not starting or if Interstage service fails to start, sending error notification mail and then ending startup.

17. Web servers are incorporated in load balancers. If incorporation fails, sending error notification mail and then ending startup

18. Sending start completion notification by mail

Change the automatic operation process to suit your operations.

- Operation confirmation wait time

- Adding AP servers or DB servers as operation targets
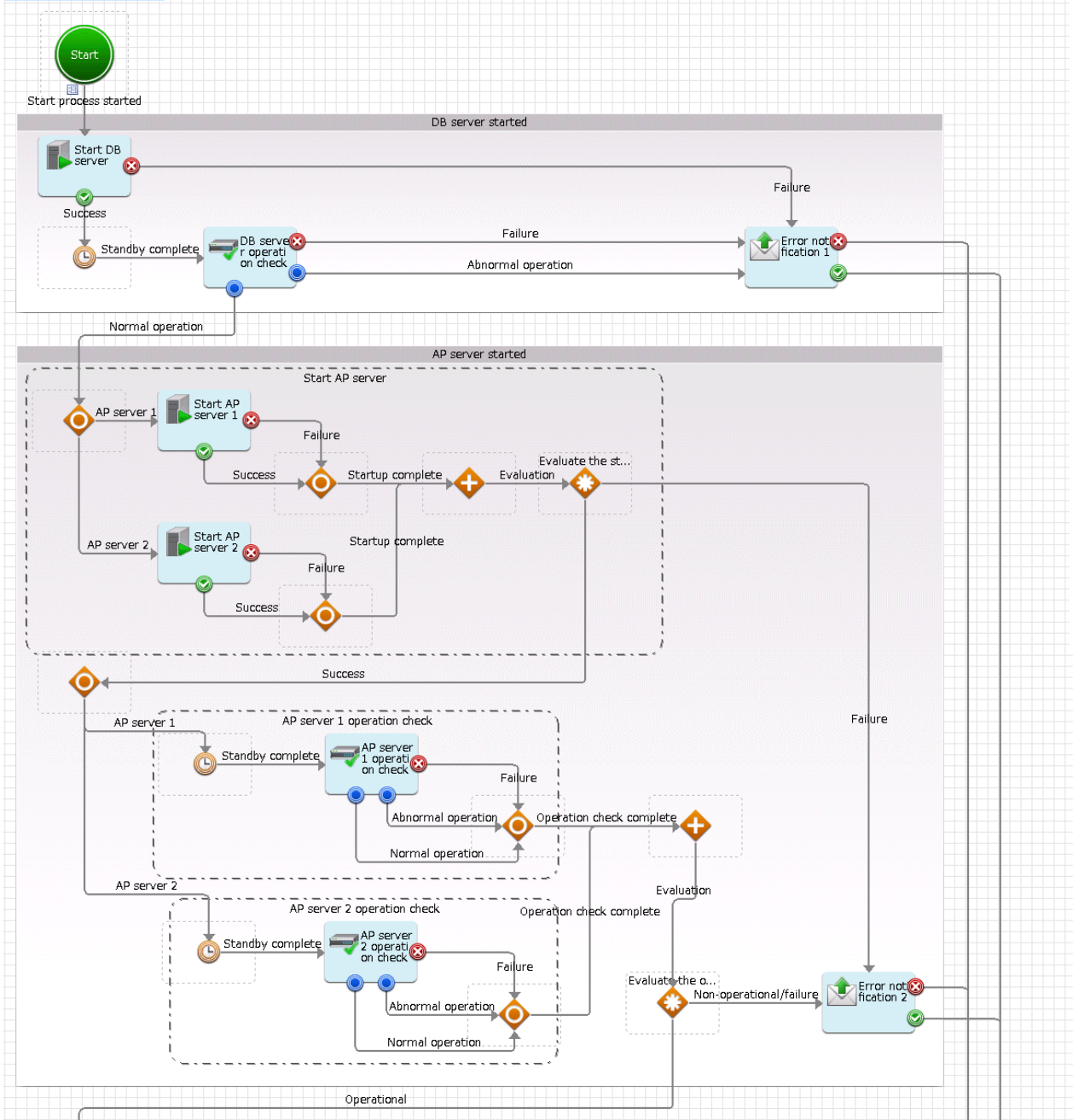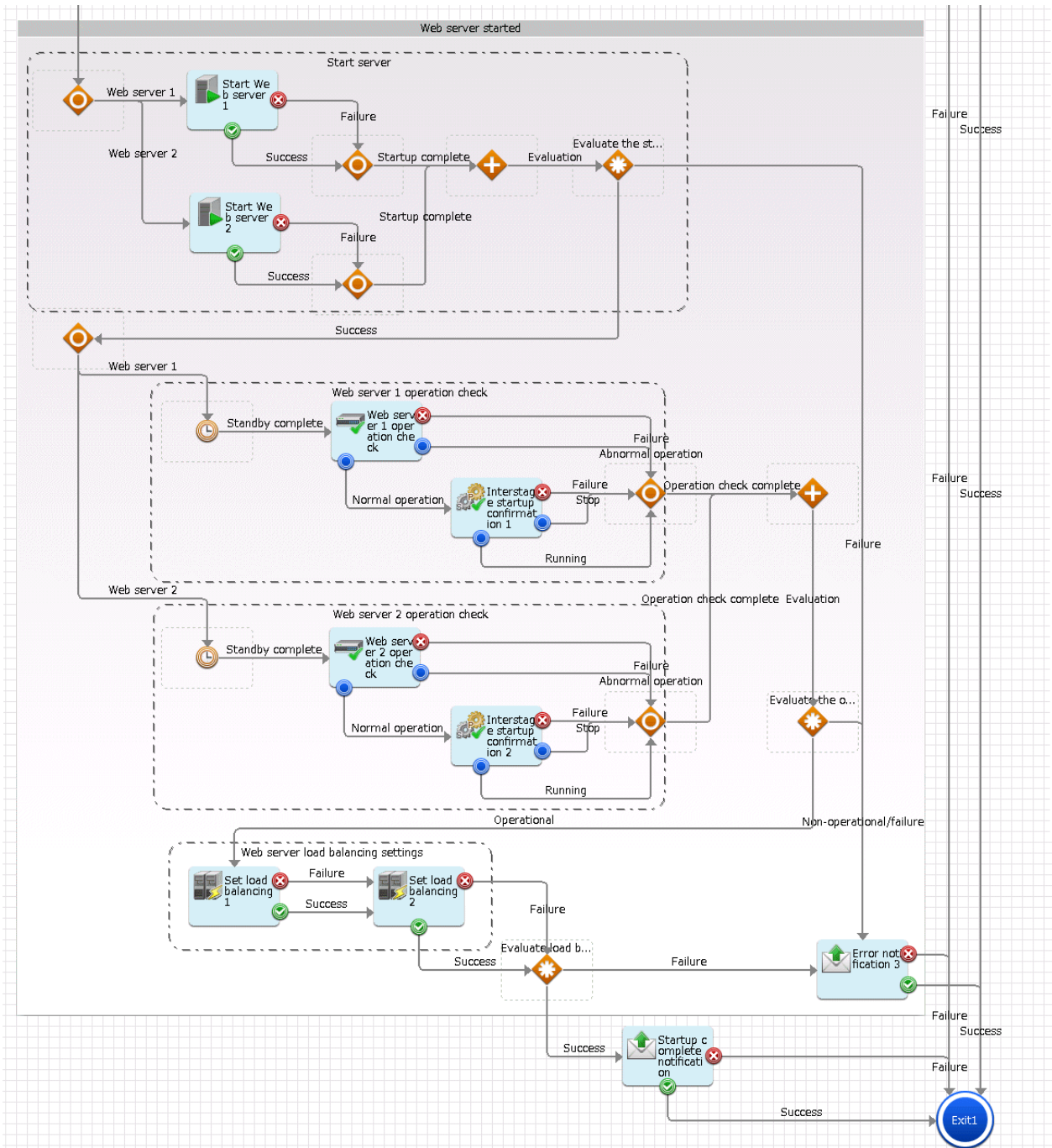
swrba_template_server_start

The operation parts shown below are positioned in the automatic operation process.

Table 4.4 Operation part placement

Name	Name of operation part to be used	Purpose
DB server start	Start the server	Starting DB servers
DB server operation check	Check operational status of node	Confirming DB server operating status
Start AP server *n* (*n*=1-2)	Start the server	Starting AP servers

Name	Name of operation part to be used	Purpose
AP server *n* operation check (*n*=1-2)	**Check operational status of node**	Confirming AP server operating status
Start Web server *n* (n=1-2)	**Start the server**	Starting Web servers
Web server *n* operation check (*n*=1-2)	**Check operational status of node**	Confirming Web server operating status
Interstage Start check 1-2	**Check that service/process has started**	Confirming Interstage service of Web Server start
Set load balancing 1-2	**Include as load balancing target**	Incorporating Web servers in load balancer targets
Startup complete notification	**Send emails**	Sending mail notifying of server startup completion
Error notification 1-3		Sending mail notifying of server startup errors

4.7.1.2 Changing Input Values Set in the Automatic Operation Process

The following settings are required for the automatic operation process:

- User-defined attributes

- Operation part input information

- Delay node timer value

User-defined attributes

Values must be set in the user-defined attributes of the automatic operation process. Enter values as shown below.

Table 4.5 Automatic operation process user-defined attributes

User-defined attribute name	Input value	Use
dbserver_hostname	Host name or IP address of the DB server	Used as the hostname parameter value in the operation parts that confirm DB server startup and operating status
apserver1_hostname apserver2_hostname	Host name or IP address of the AP server	Used as the hostname parameter value in the operation parts that confirm AP server startup and operating status
webserver1_hostname webserver2_hostname	Host name or IP address of the Web server	Used as the following value. - The hostname parameter value in the operation parts that confirm Web server startup - The lbhostname parameter value in the operation part that sets load balancer settings - The hostname parameter value in the operation part that confirm start Interstage service.
isa_servicename	Service name of Interstage service of Wdb server	Used as the service parameter value in the operation part that confirm Interstage service start

User-defined attribute name	Input value	Use
	"FJapache" is set as the default. As necessary,change it	
isa_processname	Process name of Interstage service of Web server "ihsrlog" is set as the default. As necessary,change it.	Used as the process parameter value in the operation part that confirm Interstage service start
ipcom_hostname	Host name or IP address set in the operation management network of the IPCOM that performs load balancing	Used as the hostname parameter value in the operation part that sets load balancer settings
smtp_server	Host name or IP address of the mail send (SMTP) server	Used as the hostname parameter value of the operation part that sends mail to notify of start completion and errors
from_address	Start completion notification and error notification mail send source address	Used as the fromaddress parameter value of the operation part that sends mail to notify of start completion and errors
to_address	Start completion notification and error notification mail send destination address	Used as the toaddress parameter value of the operation part that sends mail to notify of start completion and errors
manager_server	Web console URL host name to be coded in the text of the mail to be sent	Used as the Web console URL coding in the text parameter value of the operation part that sends mails notifying of startup completion and errors

Operation part input information

If required, set a parameter value as input information for the following operation parts:

- **Startup complete notification**

- **Error notification** 1-3

Enter parameter values as shown below.

Table 4.6 Operation part input information

Operation part name	Parameter name	Input value
Startup complete notification	smtpusername (*1)	User name for SMTP authentication to the host of the mail send (SMTP) server
	smtppassword (*1)	User password for SMTP authentication to the host of the mail send (SMTP) server
Error notification 1-3	smtpusername (*1)	User name for SMTP authentication to the host of the mail send (SMTP) server
	smtppassword (*1)	User password for SMTP authentication to the host of the mail send (SMTP) server

*1:
Set this parameter in environments that require authentication to the SMTP server when mail is sent.

Delay node timer value

Set wait times for the delay node timers, as required. The settings contents are shown below.

Table 4.7 Timer settings information

Name	Timer name	Settings value
Standby for DB server operation check	wait_db_server	After a server starts, the wait time until server operation is confirmed. 5 minutes is set as the default.
Standby for AP server operation check	wait_ap1_server	
	wait_ap2_server	
Standby for Web server operation check	wait_web1_server	
	wait_web2_server	

See
....
Refer to the *Systemwalker Runbook Automation Studio User's Guide* for details on how to change automatic operation processes.
....

4.7.2 Stopping a Web 3-tier System

This section describes the items below concerning the Web 3-tier system stop automatic operation process provided by the Web 3-tier system start and stop template.

- Processing overview

- Changing input values set in the automatic operation process

4.7.2.1 Processing Overview

The Web 3-tier system stop template performs processing in the following sequence to stop a system:

1. Releasing Web server load balancer. If load balancer release fails, sending error notification mail and then ending stop processing.

2. Stopping the Web server Interstage service. If the service fails to stop, sending error notification mail and then ending stop processing.

3. Stopping Web servers

4. If Web server stop processing fails, sending error notification mail and then ending the stop processing

5. Waiting for Web server stop confirmation

6. Fetching Web server power supply status

7. If a Web server power supply is on, or if fetching the power supply status fails, sending error notification mail and then ending stop processing

8. Stopping AP servers

9. If AP server stop processing fails, sending error notification mail and then ending the stop processing

10. Waiting for AP server stop confirmation

11. Fetching AP server power supply status

12. If a AP server power supply is on, or if fetching the power supply status fails, sending error notification mail and then ending stop processing

13. Stopping DB servers

14. If DB server stop processing fails, sending error notification mail and then ending the stop processing

15. Waiting for DB server stop confirmation

16. Fetching DB server power supply status

17. If a DB server power supply is on, or if fetching the power supply status fails, sending error notification mail and then ending stop processing

18. Sending stop completion notification by mail

Change the automatic operation process to suit your operations.

- Wait time for fetching power supply status

- Adding AP servers or Web servers as operation targets

swrba_template_server_stop

Start

Stop process started

Web server stopped

Disable Web server load balancing

Disable load balancing 1

Success → Disable load balancing 2

Success

Stop service

Stops Interstage 1

Success → Stops Interstage 2

Success

Stop server

Web server 1 → Stop Web server 1

Failure

Web server 2 → Success → Stop complete → Evaluation → Evaluate the st...

Failure

Failure

Stop Web server 2 → Stop complete

Failure

Success

Failure

Failure

Success

Web server 1

Obtain of Web server 1 power status

Standby complete → Obtain Web server 1 power status

Failure

Power ON → Obtaining of status complete

Power OFF

Web server 2

Obtain of Web server 2 power status

Standby complete → Obtain Web server 2 power status

Failure

Failure

Obtaining of status complete

Evaluation

Power ON → Evaluate serve... → Abnormal status/failure → Error notification 1

Power OFF

Stop successful

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The operation parts shown below are positioned in the automatic operation process.

Table 4.8 Operation part placement

Name	Name of operation part to be used	Purpose
Load balancer release 1-2	**Remove as load balancing target**	Removing Web servers from load balancer targets
Stops Interstage 1-2	**Stop service**	Stopping the Web server Interstage service
Web server *n* **stop** (*n*=1-2)	**Stop OS**	Stopping Web servers
Obtain Web server *n* **power status** (*n*=1-2)	**Get server power status**	Fetching Web server power supply status
Stop AP server *n* (*n*=1-2)	**Stop OS**	Stopping AP servers
Obtain AP server *n* **power status** (*n*=1-2)	**Get server power status**	Fetching AP server power supply status
DB server stopped	**Stop OS**	Stopping DB servers
Obtain DB server power status	**Get server power status**	Fetching DB server power supply status
Stop complete notification	**Send emails**	Sending mail notifying of server stop processing completion
Error notification 1-3		Sending mail notifying of server stop processing errors

4.7.2.2 Changing Input Values Set in the Automatic Operation Process

The following settings are required for the automatic operation process:

- User-defined attributes

- Operation part input information

- Delay node timer value

User-defined attributes

Values must be set in the user-defined attributes of the automatic operation process. Enter values as shown below.

Table 4.9 Automatic operation process user-defined attributes

User-defined attribute name	Input value	Use
webserver1_hostname webserver2_hostname	Host name or IP address of the Web server	Used as the following values: - lbhostname parameter of the operation part that performs load balancer release - hostname parameter of the operation part that stops Interstage service - hostname parameter of the operation part that stops Web servers - hostname parameter of the operation part that fetches Web server power supply status

User-defined attribute name	Input value	Use
apserver1_hostname apserver2_hostname	Host name or IP address of the AP server	Used as the hostname parameter value in the operation part that stops AP servers, and as the hostname parameter value in the operation part that fetches AP server power supply status
dbserver_hostname	Host name or IP address of the DB server	Used as the hostname parameter value in the operation part that stops DB servers, and as the hostname parameter value in the operation part that fetches DB server power supply status
ipcom_hostname	Host name or IP address set in the operation management network of the IPCOM that performs load balancing	Used as the hostname parameter value in the operation part that performs load balancer release
isa_servicename	Service name of the Interstage service to be stopped at the Web server	Used as the service parameter value in the operation part that stops Interstage service
smtp_server	Host name or IP address of the mail send (SMTP) server	Used as the hostname parameter value of the operation part that sends mail to notify of stop completion and errors
from_address	Stop completion notification and error notification mail send source address	Used as the fromaddress parameter value of the operation part that sends mail to notify of stop completion and errors
to_address	Stop completion notification and error notification mail send destination address	Used as the toaddress parameter value of the operation part that sends mail to notify of stop completion and errors
manager_server	Web console URL host name to be coded in the text of the mail to be sent	Used as the Web console URL coding in the text parameter value of the operation part that sends mails notifying of stop processing completion and errors

Operation part input information

If required, set a parameter value as input information for the following operation parts:

- **Stop complete notification**

- **Error notification** 1-3

Enter parameter values as shown below.

Table 4.10 Operation part input information

Operation part name	Parameter name	Input value
Stop complete notification	smtpusername (*1)	User name for SMTP authentication to the host of the mail send (SMTP) server
	smtppassword (*1)	User password for SMTP authentication to the host of the mail send (SMTP) server
Error notification 1-3	smtpusername (*1)	User name for SMTP authentication to the host of the mail send (SMTP) server
	smtppassword (*1)	User password for SMTP authentication to the host of the mail send (SMTP) server

*1:
Set this parameter in environments that require authentication to the SMTP server when mail is sent.

Delay node timer value

Set wait times for the delay node timers, as required. The settings contents are shown below.

Table 4.11 Timer settings information

Name	Timer name	Settings value
Web server stop confirmation wait	wait_web1_server	After a server stops, the wait time until the server power supply status is fetched. 5 minutes is set as the default.
	wait_web2_server	
Standby for AP server stop check	wait_ap1_server	
	wait_ap2_server	
Standby for check that DB server has stopped.	wait_db_server	

 See
. . . .

Refer to the *Systemwalker Runbook Automation Studio User's Guide* for details on how to change automatic operation processes.
. . . .

Chapter 5 Problem Occurrence First Response Template

5.1 What is the Problem Occurrence First Response Template?

Various events occur for business systems in the day-to-day operation work of a data center, and prompt and appropriate responses are required, particularly in response to alarms. Generally, when problems arise, first response tasks are performed manually while referring to response procedure documentation. This is very time-consuming and involves the risk of mistakes being made.

Manual first response tasks include isolation tasks, such as checking the event content and occurrence location, and checking whether or not the event is a known problem event that has established response procedures. There are also reporting tasks and, if it is a known problem event, performing first response tasks in accordance with the response procedures.

The problem occurrence first response template defines isolation tasks in accordance with the issued event, reporting tasks, and the series of first response task processes as actual examples of operation processes.

5.2 Installation Configuration

This section describes the installation configuration for using the problem occurrence first response template.
The figure below shows an overview of the installation configuration of Systemwalker Runbook Automation and the problem occurrence first response template.

Figure 5.1 Overview of installation configuration
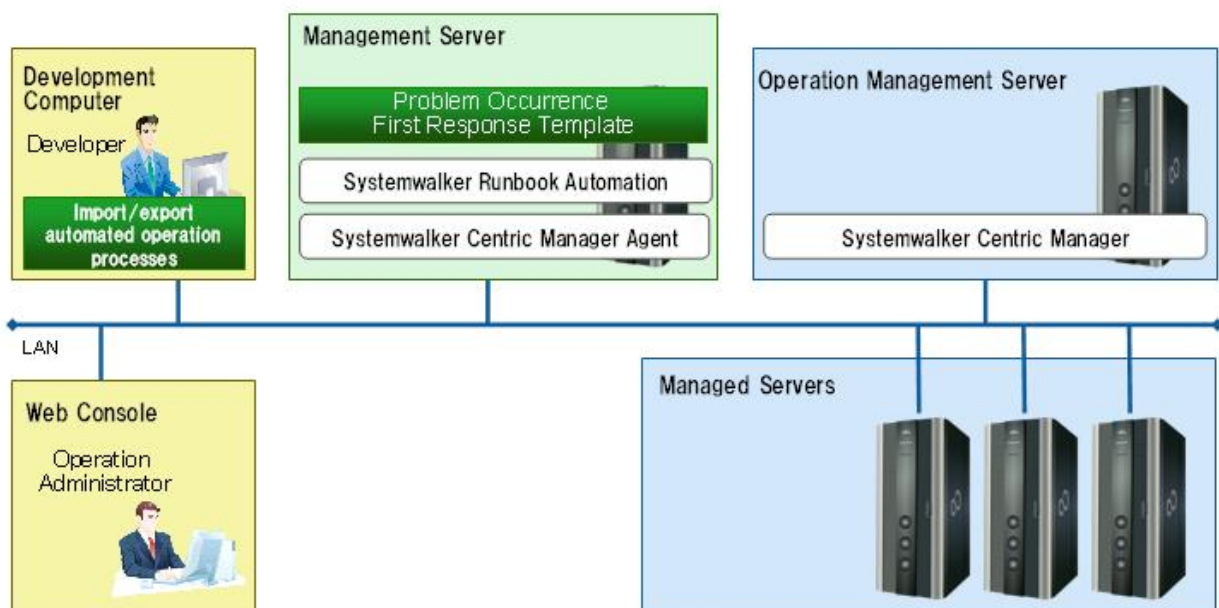
5.3 Operation Overview

This section gives an overview of operation.

Figure 5.2 Operation overview

The problem occurrence first response template is automatically started as an operation process in response to issued events in accordance with action definitions set in advance to deal with events detected by Systemwalker Centric Manager.

This automatically started template performs isolation tasks automatically and automatically sends mail to the person in charge of operations to notify of the problem content, problem occurrence location, and isolation results. Also, if it is a known problem with established first response procedures, the template requests approval to perform first response actions. Chec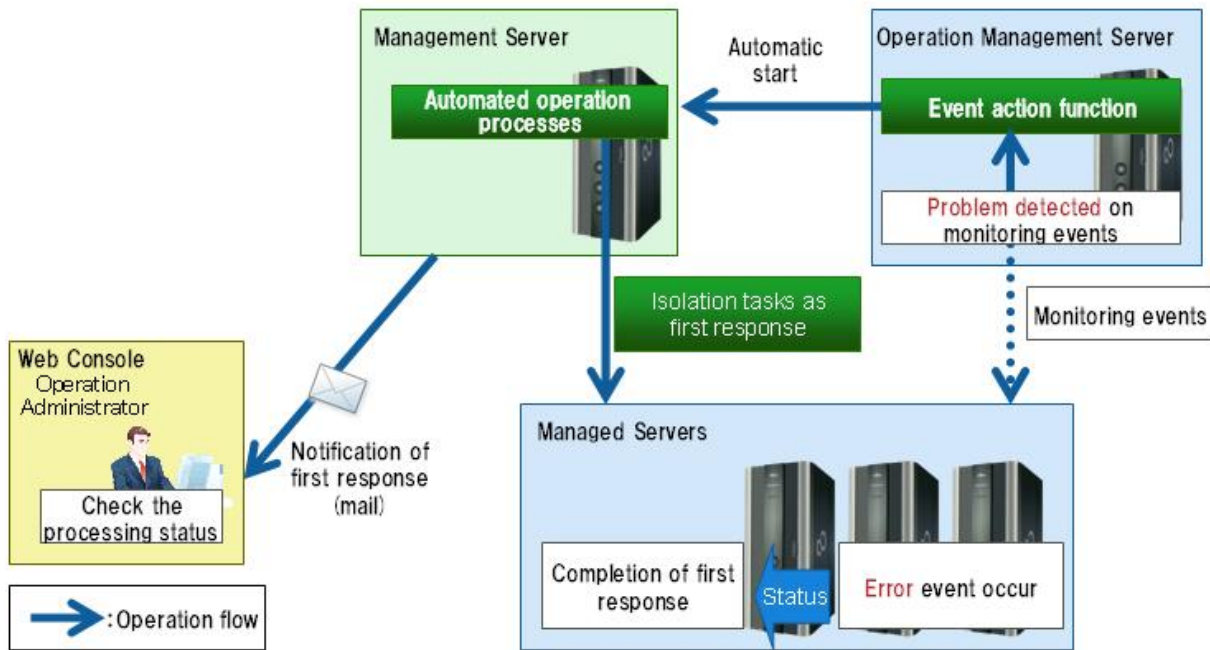k the notified content and select whether or not to approve the first response actions. If approval is selected, the first response is performed automatically and the first response results are notified by mail.

5.4 Hardware Conditions

None

5.5 Software Conditions

The software shown below must be installed in order to use the problem occurrence first response template.

[Management server]

- Agent functions of Systemwalker Centric Manager V13.0 or later

[Operation management server]

- Operation management server functions of Systemwalker Centric Manager V13.0 or later

5.6 File Configuration

The file configuration for the problem occurrence first response template is shown below.

Systemwalker Runbook Automation Studio

The process definitions and forms that comprise the automatic operation process are stored in the [swrba_template_detected_event] project of Systemwalker Runbook Automation Studio.

```
[swrba_template_detected_event]
[Process Definitions]
```

```
    Process definitions
[web]
  Forms
```

Table 5.1 List of process definitions for the problem occurrence first response template

Process definition	Automatic operation process used
swrba_template_detected_event.xpdl	Problem occurrence first response

Table 5.2 List of forms for the problem occurrence first response template

Form	Automatic operation process used
begin_swrba_template_detected_event.jsp	Problem occurrence first response
os_reboot_check_swrba_template_detected_event.jsp	
fill_in_book_swrba_template_detected_event.jsp	
approval_swrba_template_detected_event.jsp	

Systemwalker Runbook Automation DVD-ROM media

The configuration of files stored on the Systemwalker Runbook Automation DVD-ROM media is shown below.

```
[templates] folder
  [swrba_template_detected_event folder]
    swrba_template_detected_event.bar (1)
    readme.txt                        (2)
```

Table 5.3 Configuration of the problem occurrence first response template

	Type	Content
(1)	Automatic operation process	Automatic operation process that performs the error action first responses
(2)	Usage explanation	Explanations of usage

5.7 Preparation Tasks Specific to this Template

When Systemwalker Centric Manager detects an event, the Systemwalker Centric Manager action definitions are used to issue a start request for the automatic operation process of this template. The Systemwalker Runbook Automation event notification command, swrba_notifyevent, is used to issue the automatic operation process start request.

Register the automatic operation process of this template at the Management Server, and then set the Systemwalker Centric Manager action definitions. Refer to "5.9 Detailed Procedures for Preparatory Tasks Specific to this Template" for details on settings.

5.8 Overview of Automatic Operation Process

This section describes the items below concerning the automatic operation process provided by the problem occurrence first response template.

- Processing overview

- Changing input values set in the automatic operation process

- Information displayed in confirmation screens

5.8.1 Processing Overview

In a business system with a Web 3-tier configuration built using Interstage, this template becomes an operation process definition that is started when an Interstage event is issued. It defines tasks that isolate whether or not an event is a specific event for which a first response action is possible and defines actual examples of first response tasks as operation processes.
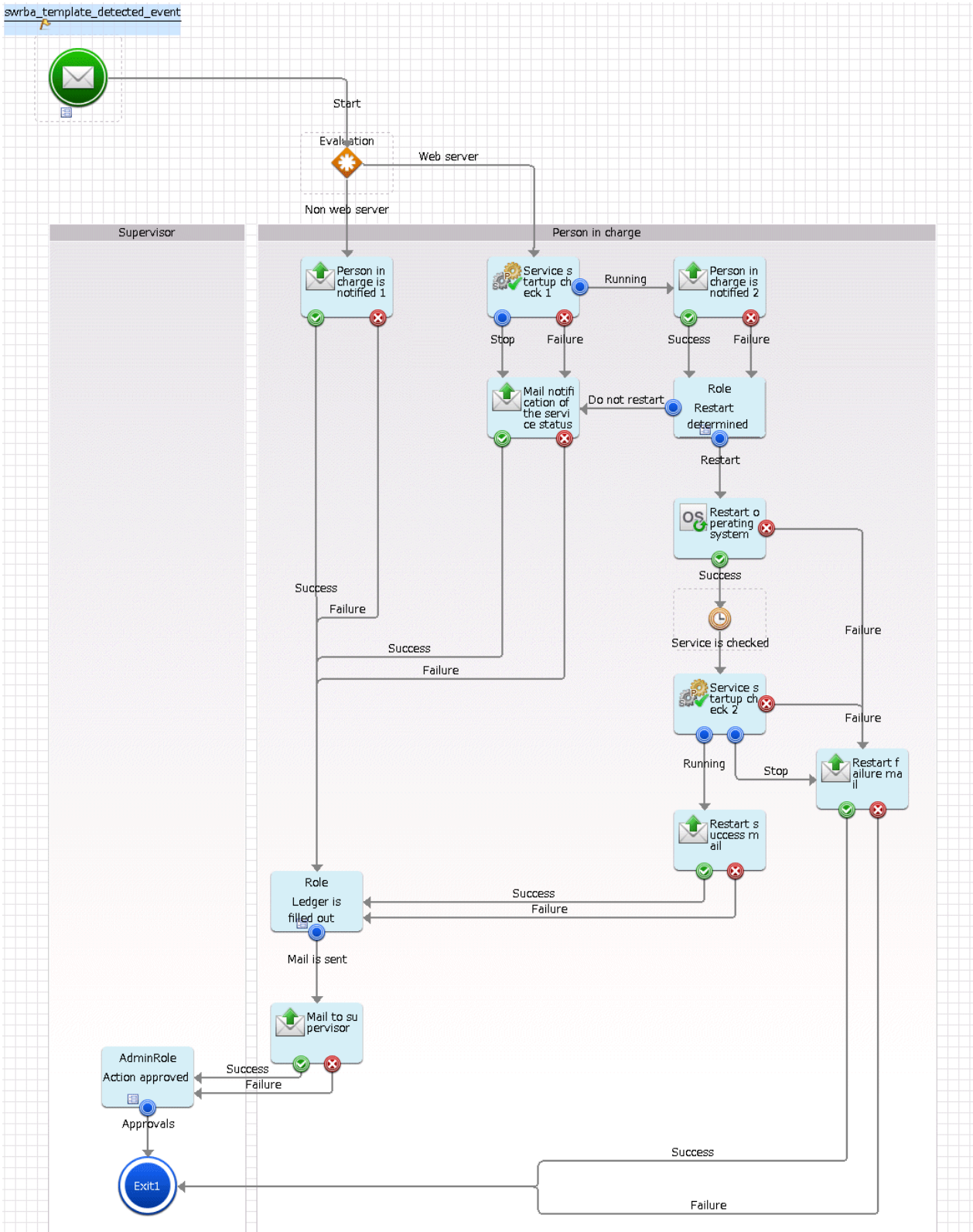
If "InterstageAPS" is specified as the message ID character string in the -msgID option of the Systemwalker Runbook Automation event notification command, swrba_notifyevent, this template is started automatically.

The flow of operation processes defined in this template is as follows:

1. Checking the server type of the server that issued the event, and isolating whether it is a Web server or a server other than a Web server

2. If a Web server, checking the Interstage Web service status and, if it has stopped, sending a mail notification accompanied by that information

3. If the Interstage Web service status is running, requesting approval from the operator to execute the server restart operation as a first response

4. When the server restart operation is approved, restarting the server. Then, checking whether or not the Interstage Web service has started and notifying the operator of the result by mail.

5. If the server was judged to be a server other than a Web server in Step 1 above, sending the operator mail notifying that the server that issued the event is a server other than a Web server

6. Outputting an instruction prompting the operator to make an entry in the problem management register

7. After Step 6 above is completed, sending a request to the person responsible for system operations for task completion approval

Change the automatic operation process to suit your operations.

- Mail text for mail notifications

- Addition of services subject to status confirmation

swrba_template_detected_event

Start

Evaluation

Web server

Non web server

Supervisor

Person in charge

Person in charge is notified 1

Service startup check 1 — Running — Person in charge is notified 2

Stop

Failure

Success

Failure

Mail notification of the service status — Do not restart — Role Restart determined

Restart

Restart operating system

Success

Service is checked

Failure

Service startup check 2

Failure

Running

Stop

Restart failure mail

Restart success mail

Success

Failure

Role Ledger is filled out

Success
Failure

Mail is sent

Mail to supervisor

Success
Failure

AdminRole Action approved

Success
Failure

Approvals

Exit1

Success

Failure

The operation parts shown below are positioned in the automatic operation process.

Table 5.4 Operation part placement

Name	Name of operation part to be used	Purpose
Notification 1 to person in charge	**Send emails**	Notifying the operator that the server that issued the event is a server other than a Web server

Name	Name of operation part to be used	Purpose
Service startup check 1-2	**Check that the service/process has started**	Checking whether the Web service is running on the Web server
Notification 2 to person in charge	**Send emails**	Notifying the operator that a Web server issued the event and that the Web service is running, and requesting a decision on restarting the OS
Mail notification of the service status	**Send emails**	Notifying the operator that a Web server issued the event and that the Web service is stopped
Restart OS	**Restart OS**	Restarting the Web server OS
OS Restart failure mail	**Send emails**	Notifying the operator that the Web service failed to start after the Web server restart
OS Restart success mail	**Send emails**	Notifying the operator that the Web service started successfully after the Web server restart
Mail to person responsible	**Send emails**	Notifying the person responsible for system operations that the event first response is completed

5.8.2 Changing Input Values Set in the Automatic Operation Process

The following settings are required for the automatic operation process:

- User-defined attributes

- Operation part input information

- Determination rule of Complex Conditional node

User-defined attributes

Values must be set in the user-defined attributes of the automatic operation process. Enter values as shown below.

Table 5.5 Automatic operation process user-defined attributes

User-defined attribute name	Input value	Use
smtp_server	Host name or IP address of the mail send (SMTP) server	Used as the hostname parameter value of the operation part (*1) that sends mail
from_address	Mail send source address	Used as the fromaddress parameter value of the operation part (*1) that sends mail
to_admin_address	Mail address of the person responsible for system operations	Used as the toaddress parameter value of the operation part (*1) that sends mail
to_operator_address	Mail address of the operator	Used as the toaddress parameter value of the operation part (*1) that sends mail
manager_server	Web console URL host name or IP address to be coded in the text of the mail to be sent	Used as the Web console URL coding in the text parameter value of the operation part (*1) that sends mails

*1:
The following operation parts in this template:
- **Notification 1 to person in charge**
- **Notification 2 to person in charge**
- **Mail notification of the service status**
- **OS Restart success mail**
- **OS Restart failure mail**

Operation part input information

A parameter value must be set as input information for the following operation parts positioned in the automatic operation process:

- **Notification 1 to person in charge**

- **Notification 2 to person in charge**

- **Mail notification of the service status**

- **OS Restart success mail**

- **OS Restart failure mail**

Enter parameter values as shown below.

Table 5.6 Operation part input information

Operation part name	Parameter name	Input value
Notification 1 to person in charge Notification 2 to person in charge Mail notification of the service status OS Restart success mail OS Restart failure mail	smtpusername (*1)	User name for SMTP authentication to the host of the mail send (SMTP) server
	smtppassword (*1)	User password for SMTP authentication to the host of the mail send (SMTP) server

*1:
Set this parameter in environments that require authentication to the SMTP server when mail is sent.

Determination rule of Complex Conditional node

In Complex Conditional node located next Start node, check if event occurred on Web server with searching information of occurrence event.
Change condition of Determination rule for this Complex Conditional node. Change the following "webserver" to Web server hostname.

Condition	Selected Arrow	
uda.get("msgtext").indexOf("webserver") != -1	Web server(default)	
uda.get("msgtext").indexOf("webserver") == -1	Non web server	

 See
....

Refer to the *Systemwalker Runbook Automation Studio User's Guide* for details on how to change automatic operation processes.
....

5.8.3 Information Displayed in Confirmation Screens

Information is displayed in the screens below when operations are performed by the automatic operation process:

- **OS restart judgment** screen
  Displayed if the Web service status is running

- **Management ledger is filled out** screen
  Displayed when the first response by the automatic operation process ends

- **Action approved** screen
  Displayed when the automatic operation process ends

Information displayed in the OS restart judgment screen

The user-defined attributes shown below are displayed in the OS restart judgment screen.

Table 5.7 Information displayed in the OS restart judgment screen

Display item	Displayed Content	Automatic operation process user-defined attribute used for display
Host Name detected Event	Outputs the host name or IP address of the server targeted for restart (*1)	host
Detected Event Message	Outputs the event message detected by Systemwalker Centric Manager (*1)	msgtext

Note 1:
Displays information fetched from Systemwalker Centric Manager

Information displayed in the Management ledger is filled out screen

The user-defined attributes shown below are displayed in the **Management ledger is filled out** screen.

Table 5.8 Information displayed in the Management ledger is filled out screen

Display item	Displayed Content	Automatic operation process user-defined attribute used for display
Host name detected event	Outputs the host name or IP address of the server that issued the event (*1)	host
Detected Event Message	Outputs the event message detected by Systemwalker Centric Manager (*1)	msgtext

*1:
Displays information fetched from Systemwalker Centric Manager

Information displayed in the Action approved screen

The user-defined attributes shown below are displayed in the **Action approved** screen.

Table 5.9 Information displayed in the Action approved screen

Display item	Displayed Content	Automatic operation process user-defined attribute used for display
Host name detected event	Outputs the host name or IP address of the server that issued the event (*1)	host
Detected Event Message	Outputs the event message detected by Systemwalker Centric Manager (*1)	msgtext

*1:
Displays information fetched from Systemwalker Centric Manager

5.9 Detailed Procedures for Preparatory Tasks Specific to this Template

In Systemwalker Centric Manager, set the commands to be executed when events occur.
Set "Remote commands" under "Action definitions" as shown below.

Table 5.10 Command detailed settings content

Item name	Settings content
Issue destination	Specify the host name of the Management Server.
Command	Specify the swrba_notifyevent command. For Linux: /opt/FJSVswrbam/bin/swrba_notifyevent For Windows: [Systemwalker Runbook Automation install directory]\bin\swrba_notifyevent * Default: C:\Fujitsu\Systemwalker\SWRBAM\bin\swrba_notifyevent
Parameters	Set the swrba_notifyevent command parameters. -msgID *message ID* -host *host name* -comment *comment* -key *access key*

Set the content shown below for each of the parameters of the swrba_notifyevent command.

Table 5.11 Parameter settings content

Parameter name	Settings content
msgID	Specify "InterstageAPS".
host	Specifies the host name that issued the event. Specify "%HOST".
comment	Specifies the event message. Specify "%MSG".
key	Specify the automatic operation process access key of this template.

A parameter coding example is shown below.

```
-msgID InterstageAPS -host %HOST -comment %MSG -key "**BEGIN_KEY-{{ezsGjLOinOSrgm8Zz1+ud+AjI7S+/
x3miEUDPLSo7inZcwklnqkhL6s2Ack55mqs5Kgb6veXpzCwVMOPQQxQdAy26jd+bCCq39k4GOa8CJWfGBvT656PiLx
+zc3ira+
sfHcbidtukTLPWoWQnV68mym/9bfkz5bUtpVywa3vFhFBkbIjiKt9e0hX/ALoiY0O}}--END_KEY**"
```

📖 See
. . . .
Refer to the *Systemwalker Runbook Automation Studio Operations Guide* for details on how to check access keys.
. . . .

Chapter 6 VMware HA Operation Management Template

6.1 What is the VMware HA Operation Management Template?

If using VMware in an HA cluster configuration, after stopping the virtual server and switching it to maintenance mode, it is necessary to shut down the ESX Server.

However, there is a possibility of system complications if there is a power outage, as this operation cannot be performed.

As an example of the system complications, the ESX Server cannot be managed, the VMware HA configuration is corrupted and has to be restarted etc., and the length of time it takes to return to operation increases.

If using the VMware HA operation management template in Systemwalker Runbook Automation, it automatically shuts down the virtual server if there is a power outage, and switches it to maintenance mode, and the ESX Server can be shut down. By this means, it is possible to avoid a VMware HA configuration crash.

The purpose of the VMware HA operation management template is to shut down the ESX Server in an appropriate order in an environment that has introduced Systemwalker Runbook Automation and is using VMware in an HA Cluster configuration.

6.2 Installation Format

This section describes the installation format for using the VMware HA operation management template.

A schematic diagram of the Systemwalker Runbook Automation and VMware HA operation management template installation format is shown below.
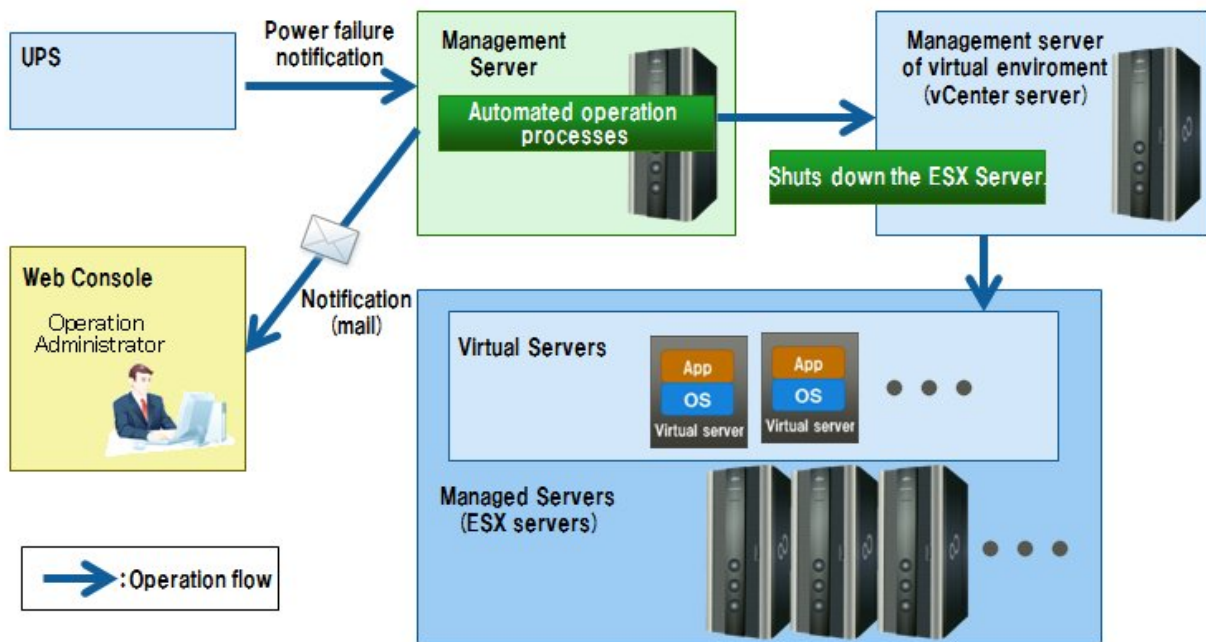
Figure 6.1 Schematic Diagram of the Installation Format
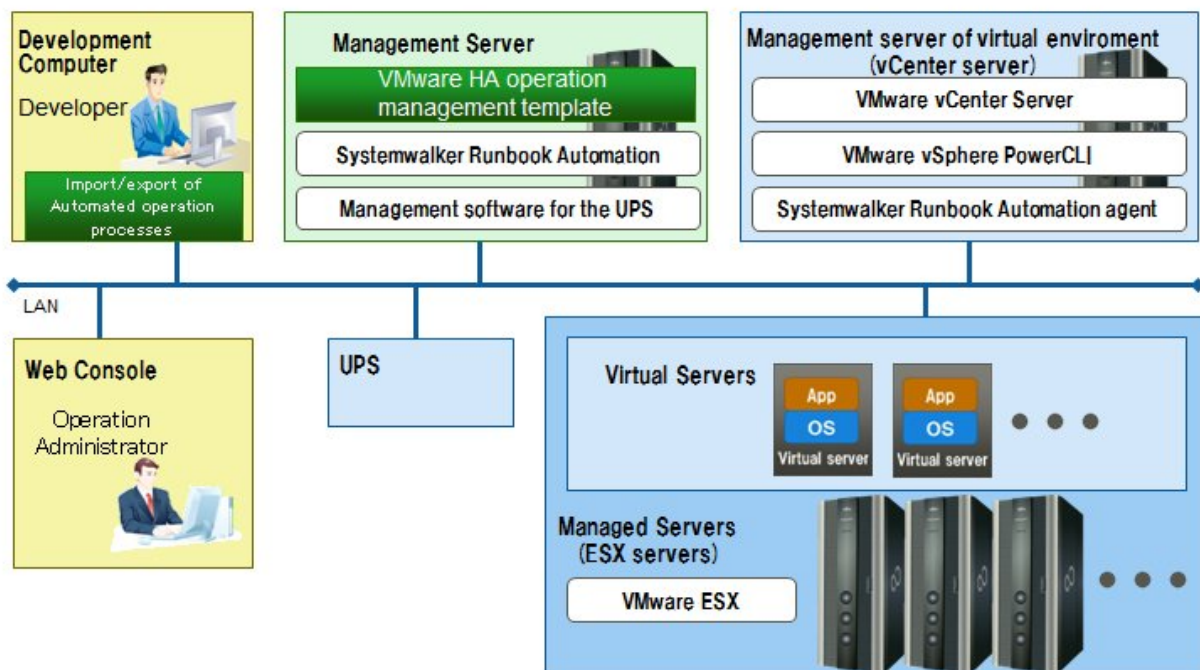
6.3 Overview of Operations

This section gives an overview of operations.

Figure 6.2 Operations

If a power outage is detected, notification is sent from the UPS device to the ESX Server, and the Automated Operation Process starts. The vCenter Server is connected via the automatically started Automated Operation Process and the ESX Server stop process is performed.

🅿 Point
....

Usable UPS devices

The UPS device needs to be able to execute the Management Server command if a power outage is detected.

For example, if using the UPS device below, by using the management software "PowerChute Network Shutdown Standard v2.2.4/v2.2.5", it is possible to execute the Management Server command when a power outage is detected. For details, see documentation for the UPS devices and management software you are using.

- Smart-UPS C500J

- Smart-UPS 750J

- Smart-UPS 1500J

- Smart-UPS 1500RMJ

- Smart-UPS 3000RMJ

- Smart-UPS RT 5000

- Smart-UPS RT 10000VA
....

6.4 Hardware Requirements

UPS Devices

The following requirements need to be fulfilled.

- The Management Server command is executable when a power outage is detected.

6.5 Software Requirements

The following must be installed when using the VMware HA operation management template.

vCenter Server

- VMware vCenter Server that is a component of VMware vSphere 4.0, 4.1, 5.0, or 5.1.

- Windows PowerShell 1.0 or later (*1)

- VMware vSphere PowerCLI 4.0, 4.1, 5.0, or 5.1.

- Systemwalker Runbook Automation Agent

ESX Server

- VMware ESX that is a component of VMware vSphere4.0 or 4.1 (*2)

Alternatively:

- VMware ESXi that is a component of VMware vSphere 4.0, 4.1, 5.0, or 5.1 (*2) (*3)

Note

*1: In Windows Server 2008 R2 and subsequent Windows Server versions, Windows PowerShell is installed by default. If the OS is Windows Server 2008 R2 or later, there is no need to reinstall it.

*2: It is assumed that VMware HA is being used. However, do not combine with the following functions:

- VMware Fault Tolerance

- VMware DRS(Distributed Resource Scheduler)

*3: With regard to the following operation components provided by this template, only environments where the virtual environment is not managed by ServerView Resource Orchestrator are the subject of VMware ESXi support.

- Start virtual server

- Stop virtual server

6.5.1 Port Numbers

Pay attention to the following points when setting up Systemwalker Runbook Automation if treating Management Server and vCenter Server as the same server.

- Set a value for the LDAP connection port number that will not overlap with the LDAP port number used by VMware vCenter Server.

6.6 File Configuration

The file configuration of the VMware HA operation management template is displayed below.

Systemwalker Runbook Automation Studio

The process definition and form that configure the Automated Operation Process are stored in the Systemwalker Runbook Automation Studio "swrba_template_vmware" project.

```
[swrba_template_vmware]
  [Process Definitions]
    Process definitions
  [web]
    Form
```

Table 6.1 List of VMware HA operation component template process definitions

Process definitions	Automated Operation Process used
swrba_template_vmware_shutdown.xpdl	Shut down the HA configuration ESX Server

Table 6.2 List of VMware HA operation component template forms

Form	Automated Operation Process used
swrba_template_vmware.jsp	Shut down the HA configuration ESX Server

Systemwalker Runbook Automation DVD-ROM media

Storage is in the following file configurations in the Systemwalker Runbook Automation DVD-ROM media.

```
[templates] folder
  [swrba_template_vmware folder]
    swrba_template_vmware.bar          (1)
    readme.txt                         (2)
```

Table 6.3 Configuration of VMware HA operation component templates

	Type	Description
(1)	Automated Operation Process	This is the Automated Operation Process that will shut down the HA configuration ESX Server
(2)	User Manual	This is the user manual

6.7 Advance Preparation Tasks Specific to this Template

If a power outage is detected, the Automated Operation Process of this template requests to be started up from the UPS device.

Register the Automated Operation Process of this template in the Management Server and then configure the settings in the UPS device. Refer to "6.9 Detailed Procedures for Advance Preparation Tasks Specific to this Template" for information on configuring the settings.

6.8 Automated Operation Process Overview

This section describes the following items about the Automated Operation Process provided with VMware HA operation component templates.

- Processing overview

- Modification of input values set for Automated Operation Processes

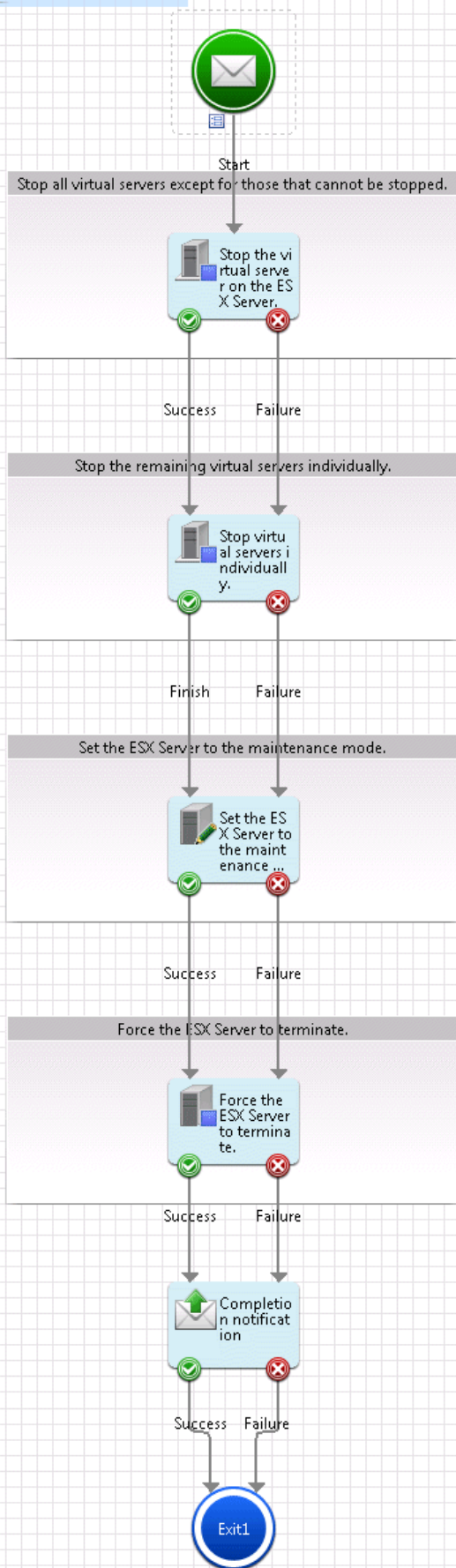- Modification of Automated Operation Process trigger definitions

6.8.1 Processing Overview

In order to safely shut down the ESX Server in HA configuration, the VMware HA operation management template processes in the following order:

1. Excluding specific virtual servers, it stops all virtual servers existing under one or multiple specified ESX Servers.

2. It stops specific virtual servers.

3. It sets one or multiple specified ESX Servers to maintenance mode.

4. It forces one or multiple specified ESX Servers to terminate.

5. It sends an execution result notification email.

Modify the Automated Operation Process as required.

- Adding virtual servers that need to be aware of the order of stopping.

swrba_template_vmware_shutdown

Start

Stop all virtual servers except for those that cannot be stopped.

Stop the virtual server on the ESX Server.

Success   Failure

Stop the remaining virtual servers individually.

Stop virtual servers individually.

Finish   Failure

Set the ESX Server to the maintenance mode.

Set the ESX Server to the maintenance ...

Success   Failure

Force the ESX Server to terminate.

Force the ESX Server to terminate.

Success   Failure

Completion notification

Success   Failure

Exit1

The following operation components are deployed within the Automated Operation Process

Table 6.4 Deployment of operation components

Name	Name of operation component used	Purpose
Stop the virtual server on the ESX Server.	Stop the virtual server on the VM host	Stop virtual server operating on ESX Server
Stop virtual servers individually.	Stop virtual server	Stops the virtual servers running on the ESX Server, which need to have an awareness of the stop sequence.
Set the ESX Server to the maintenance mode.	Set the maintenance mode of the VM host	In order to make it possible to stop the ESX Server, change it to maintenance mode.
Force the ESX Server to terminate.	Stop the VM host forcibly	Stops ESX Server.
Notify completion	Send emails	Sends result of the operation by email.

P Point

One of the objectives of the Automated Operation Process of the VMware HA operation management template is to reliably stop the ESX Server when there is a power outage. Consequently, there is no process to check the execution results of the operation component. If using this template to stop the ESX Server at times other than when there is a power outage, modify the Automated Operation Processes, such as adding a process to check the execution results of each operation component.

6.8.2 Modification of Input Values Set for Automated Operation Processes

The following settings are required for Automated Operation Processes.

- User defined attributes

- Input information of operation components

User defined attributes

It is necessary to set the value of User-defined attributes for Automated Operation Processes. Enter the values in accordance with the following:

Table 6.5 User-defined attributes for Automated Operation Processes

User-defined attributes	Input value	Purpose
vCenter_name	Enter the vCenter Server host name	Use as host name option for the operation components below: - Stop the virtual server on the VM host - Set the maintenance mode of the VM host - Stop the VM host forcibly
vmhost_name	Enter ESX Server name A maximum of 100 can be specified by separating with (,) commas. (*1)	Use as vmhost host option value for the operation components below. - Stop the virtual server on the VM host

User-defined attributes	Input value	Purpose
		- Set the maintenance mode of the VM host - Stop the VM host forcibly
stop_delay_name	Input the names of the virtual servers that will be stopped individually. A maximum of 100 can be specified by separating with (,) commas. (*2)	Use as value for the notarget option of the operation component "Stop the virtual server on the VM host".

*1: If specifying two or more ESX Server to this template, either specify the ESX Server names by separating them with a comma (,) or add an operation component that deploys them to an Automated Operation Process.

*2: Stop the virtual servers that had their names specified here by using the operation component "Stop virtual server". If specifying multiple virtual server names, either specify the virtual server names in the servername option of the operation component "Stop virtual server" by separating with commas (,) or add the operation component "Stop virtual server" that deploys them to an Automated Operation Process.

Input information of operation components

It is necessary to set the value of the options for the input information of the operation components below that are deployed to Automated Operation Processes.

- Stop virtual servers individually

- Notify completion

Enter the parameter value according to the content shown below:

Table 6.6 Input information of operation components

Operation component name	Parameter name	Input value
Stop virtual servers individually	servername	Name of the virtual server to be stopped individually
Completion notification	hostname	Host name or IP address of the send mail (SMTP) server
	fromaddress	Address of the completion notification email sender
	toaddress	Address of the completion notification email recipient
	smtpusername (*1)	Name of the user that is to perform SMTP authentication on the host of the outgoing mail (SMTP) server
	smtppassword (*1)	Password of the user that is to perform SMTP authentication on the host of the outgoing mail (SMTP) server

*1: Set this for an environment in which SMTP server authentication is required when the email is sent.

 See
. . . .
Refer to *Systemwalker Runbook Automation Studio User's Guide* for information on how to modify Automated Operation Processes.
. . . .

6.8.3 Modification of Automated Operation Process Trigger Definitions

The Automated Operation Process of this template is executed using the command swrba_notifyevent. If changing the value to be specified for the msgID option of the swrba_notifyevent command from "ESXShutdown" to another value, it is necessary to modify the trigger definition of the Automated Operation Process.
Modifications of trigger definitions are executed in the following order:

1. To show the properties of the process definitions, click the empty spaces in the Process Definition Editor.

2. Select the **Triggers** tab.

3. Select the sub-tab **Event** in the **Trigger Details** working area.

4. Rewrite the JavaScript character string "ESXShutdown" specified in the **Event filter** field to the value you want to modify.

Event Filter:

```
eventData.getXMLData("RBAEvent/MessageKey/text()") == "ESXShutdown"
```

6.9 Detailed Procedures for Advance Preparation Tasks Specific to this Template

Configure the commands to be executed for the UPS device in the event that a power outage is detected.

Use the swrba_notifyevent command to execute the Automated Operation Process. Configure the swrba_notifyevent command in accordance with the UPS device or management software specifications so that it is called in the event that a power outage is detected.

```
swrba_notifyevent -msgID ESXShutdown -host hostname -comment comment -key access key
```

Configure the following settings for each of the swrba_notifyevent command parameters.

Table 6.7 Parameter settings

Parameter name	Setting
msgID	Specify "ESXShutdown". The Automated Operation Process must be changed in order to change the specified value. Refer to Section 6.8.3, "6.8.3 Modification of Automated Operation Process Trigger Definitions" for information on how to change this value.
host	The specified value is arbitrary.
comment	The specified value is arbitrary.
key	Specify the access key for the Automated Operation Process of this template.

A specification example of the parameters is shown below.

```
-msgID ESXShutdown -host Server -comment "a power outage has been detected"
-key "**BEGIN_KEY-{{ezsGjLOinOSrgm8Zz1+ud+AjI7S+/
x3miEUDPLSo7inZcwklnqkhL6s2Ack55mqs5Kgb6veXpzCwVMOPQQxQdAy26jd+bCCq39k4GOa8CJWfGBvT656PiLx+zc3ira+
sfHcbidtukTLPWoWQnV68mym/9bfkz5bUtpVywa3vFhFBkbIjiKt9e0hX/ALoiY0O}}--END_KEY**"
```

📑 See
. . . .
Refer to the *Systemwalker Runbook Automation Operation Guide* for information on checking the access key.
. . . .

6.10 Operation when a Power Outage has been Detected

When a power outage has been detected, the registered Automated Operation Process automatically starts, switches to maintenance mode after the virtual server has stopped, and then shuts down the ESX Server.

Start the ESX Server after the restoration of power has been confirmed.

![Note icon] **Note**

. . . .

As maintenance mode is the current mode at the time of the shutdown, when the ESX Server is started it starts in maintenance mode. Therefore, after starting ESX Server, cancel maintenance mode. Before canceling maintenance mode, confirm that the vCenter Server and the Management Server are started.

. . . .

6.10.1 If the Power is Disconnected while Modifying an Automated Operation Process

If a power outage is detected while modifying an Automated Operation Process that uses VMware HA operation management template on the Management Server, the Automated Operation Process does not operate normally, as it is engaged in modification. For this reason, it is recommended that Automated Operation Processes using the VMware HA operation management template on the Management Server are not modified while they are running.

Chapter 7 Release Automation Template

7.1 What is the Release Automation Template?

One of the tasks of center operational services is the release of applications that configure the business system provided to the end user. As the procedures in release tasks are numerous and wide ranging, they can lead to high expenses. And when release tasks are performed as manual operations not only does this give rise to operational errors, there is also the problem of operational errors having an impact on the business.

In order to resolve these problems, Systemwalker Runbook Automation provides an application release automation template that makes the automation of release tasks easy.

With the release automation template, steps which are normally performed manually by operators become an automated process, from obtaining release packages from the developers to applying them to the Business Server Also, by collecting a fingerprint of the release package (referred to in the diagram as FP) it is possible to confirm whether the appropriate release task was performed, and to use it as evidence.

Figure 7.1 Release automation template
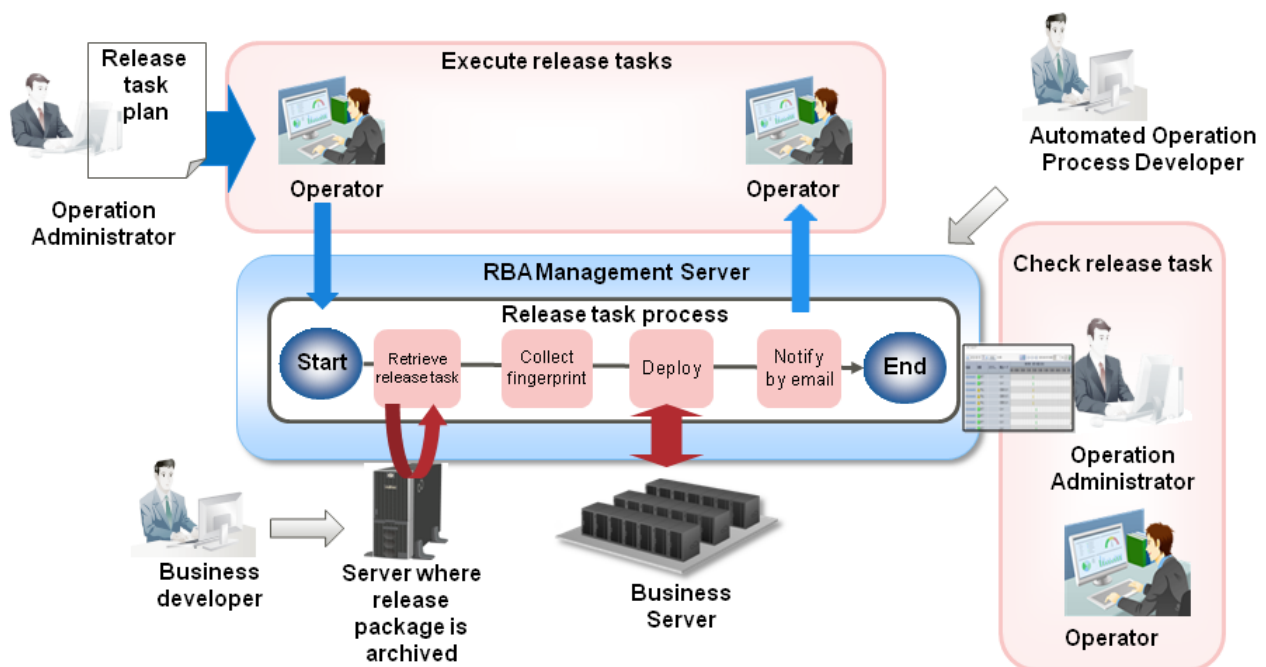
By using this template, the following results can be gained:

- Eradicating human error by basing operations on automated processes

- Lightening of the burden on operators by automation of the release tasks

- Increased efficiency of center operations via visualization of the release tasks and budget and results management

7.2 Installation Format

This section explains the installation format required to use the release automation template.

A complete schematic of the Systemwalker Runbook Automation and release automation template installation format is shown below.
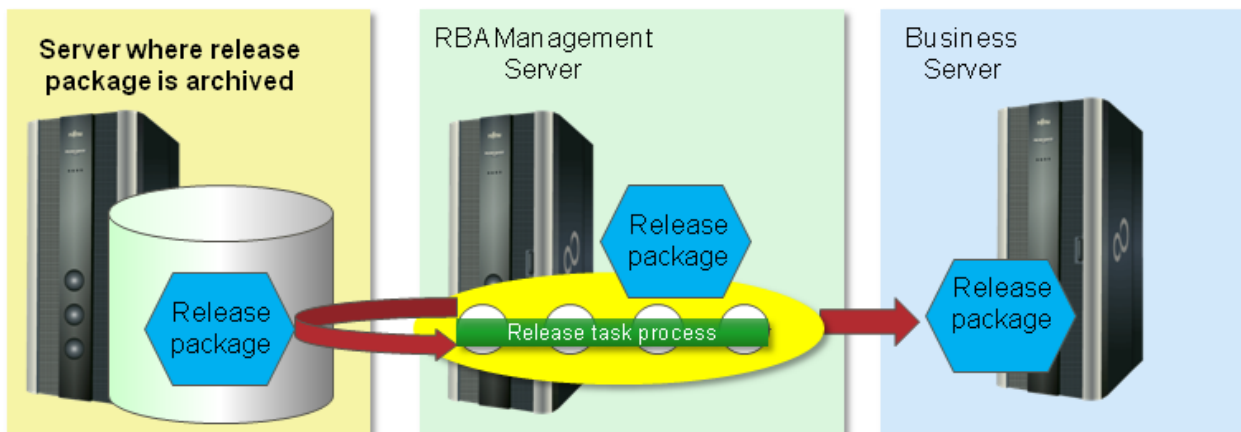
Figure 7.2 Schematic Diagram of the Installation Format
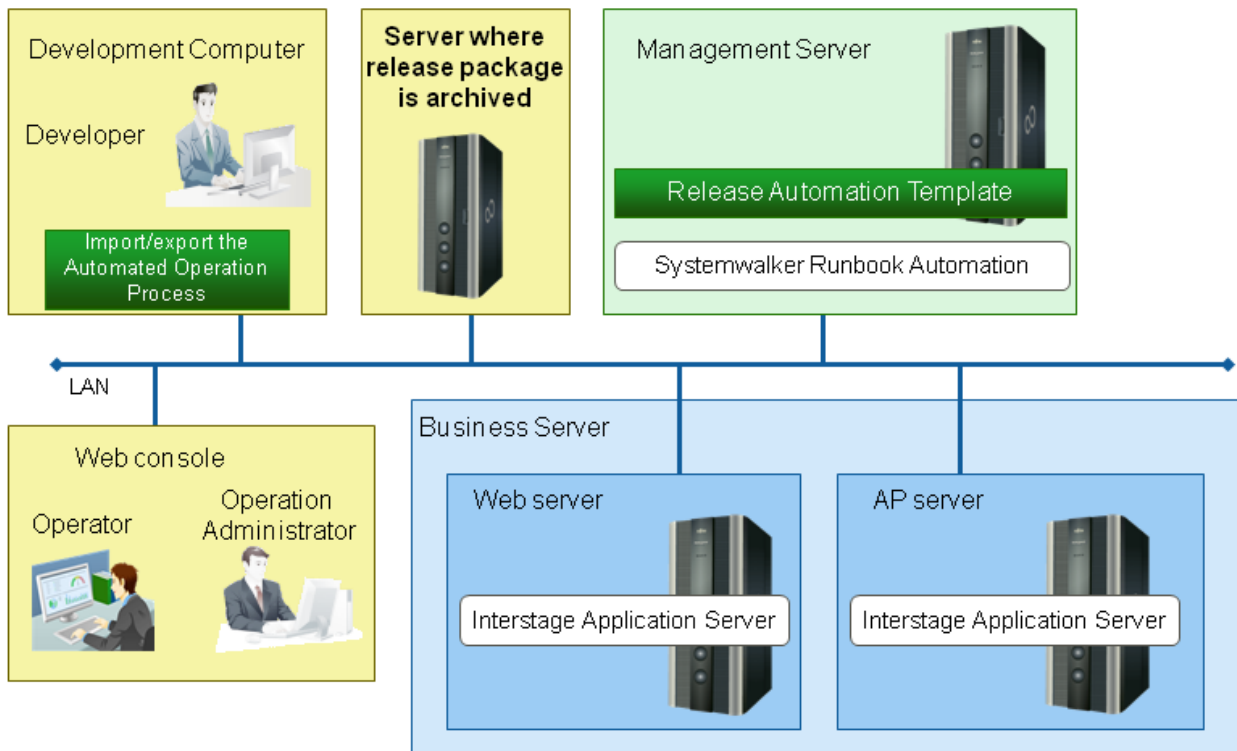
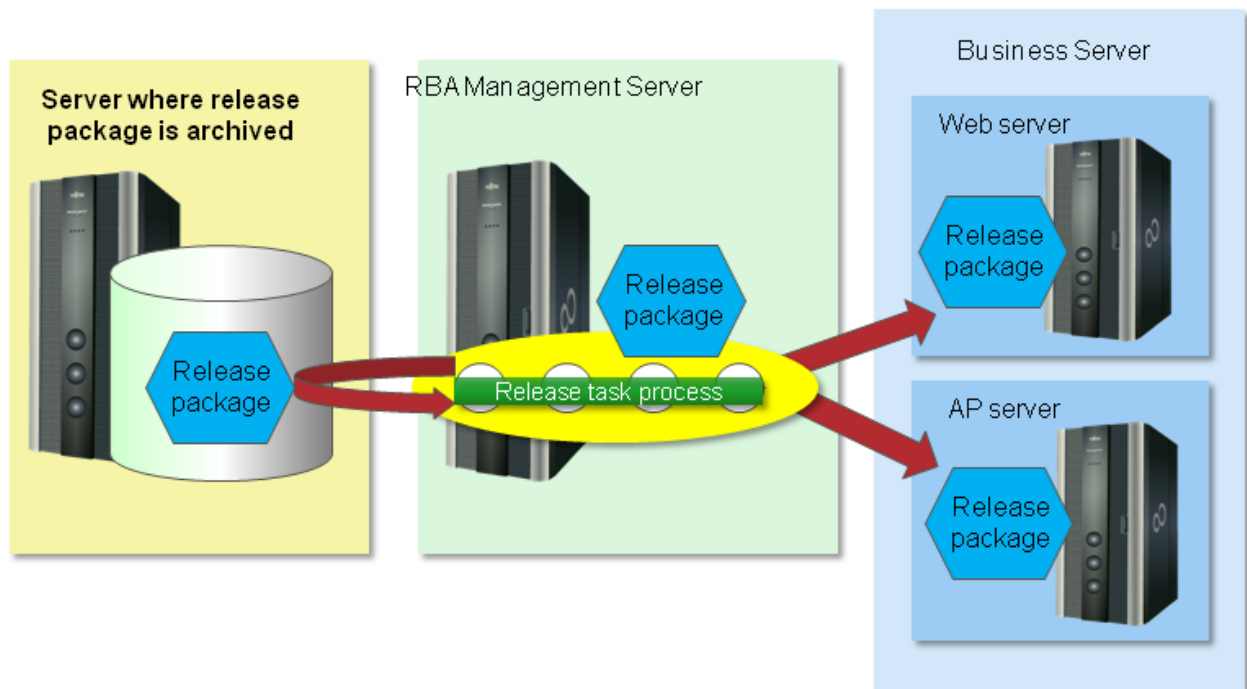**Units that perform release tasks**

The release automation template is defined to deploy the release package to one Managed Server.

Figure 7.3 Units that perform release tasks

By customizing the release automation template it is possible to release the release package to multiple release targeted servers.

Figure 7.4 (Multiple) units that perform release tasks

Refer to "7.8.1.3 Releasing a Release Package to Multiple Release Targeted Server" for information on how to customize.

Business Server configuration

The use of the release automation template assumes a release package is being deployed to a business system configured as shown below. It will be possible to automatically deploy each type of application and definition file that runs on the business system via instructions from the operator or the administrator.

Figure 7.5 Release of Java EE application
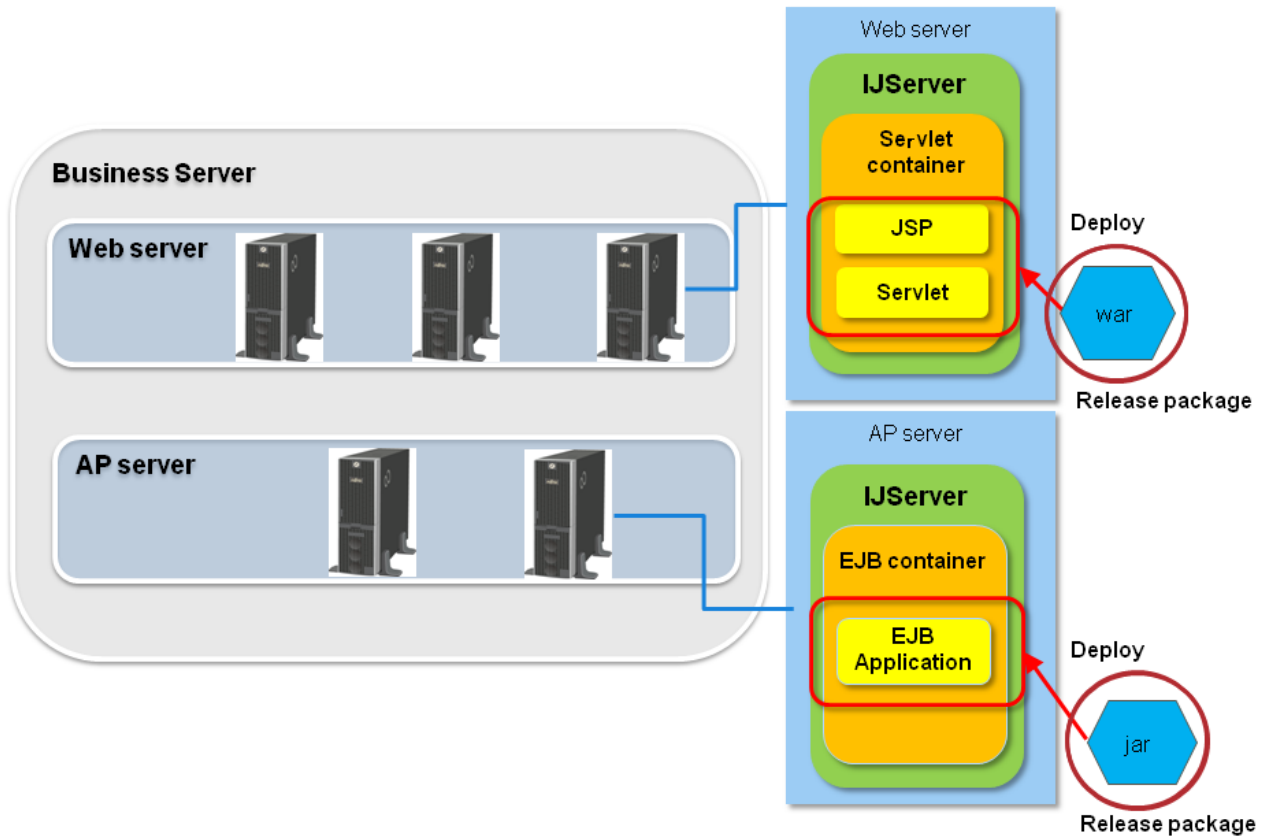
Figure 7.6 Release of J2EE application
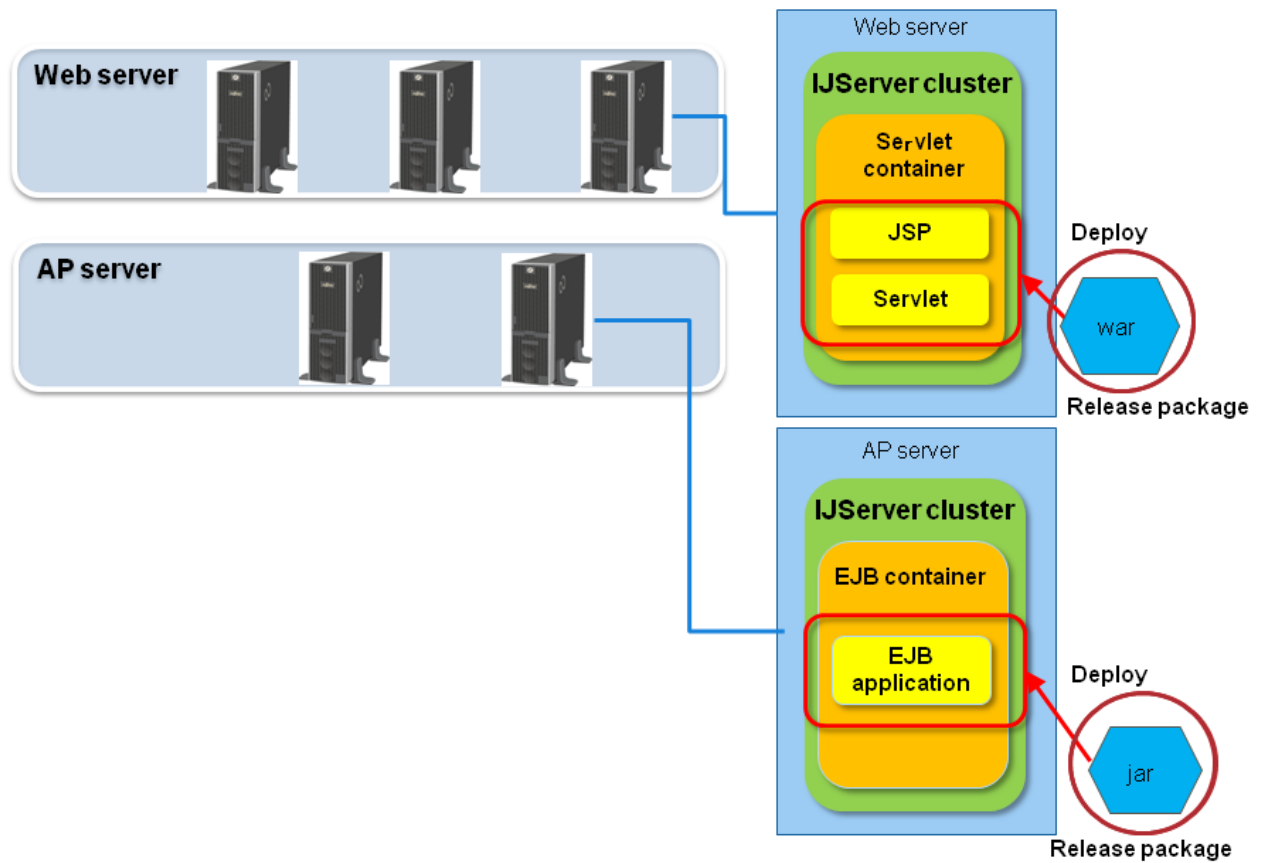
Figure 7.7 Release of other applications
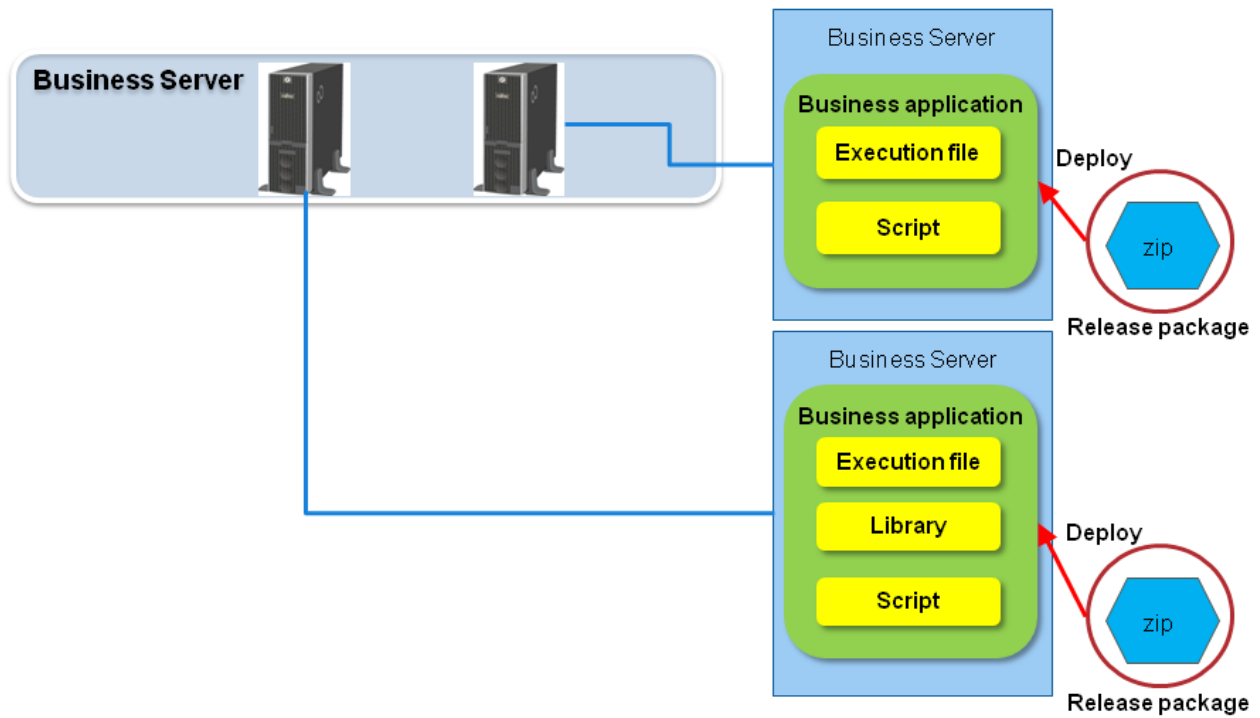
Release automation template configuration

The release automation template is a process definition that deploys release packages to the release targeted servers. The following three types of release package are provided:

- Template for the release of the Interstage Application Server Java EE application

  Supports the following Java EE applications packaged through methods that are compliant with the Java EE conventions:

    - jar files

    - WAR files

    - EAR files

    - RAR files

- Template for use with Interstage Application Server J2EE application

  Supports the following J2EE applications packaged through methods that are compliant with the J2EE Version 1.3 conventions:

    - jar files

    - WAR files
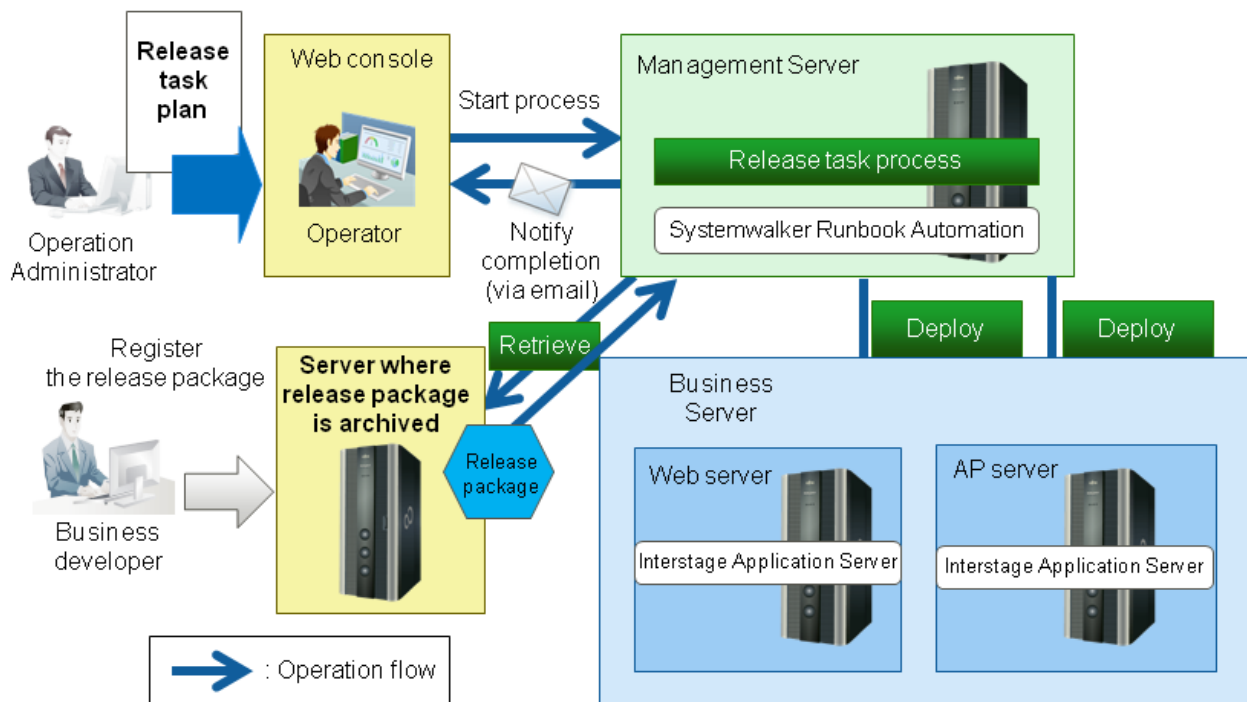
    - EAR files

    - RAR files

- Template for use with other applications

  No restrictions apply to file types. Configure deployment methods as required.

7.3 Overview of Operation Procedure

This section gives an overview of operations.

Figure 7.8 Overview of operations

Release tasks progress in the following order:

Preparations

The following preparations are required before performing a release task:

1. The business developer creates a release package.

2. The business developer, under the Operation Administrator's instructions, stores the release package in the release package storage server.

3. The Operation Administrator prepares a release task plan.

Release task

1. Operation Administrator executes a request to the operator based on the release task plan.

2. Operator sets required conditions according to the release task plan, and starts the release task process.

3. Release task process obtains the release package specified in step 2.

4. Release task process deploys the release package obtained in step 3 to the Business Server.

5. When the release is completed, release task process sends a completion notification email to the operator.

6. Operator checks the result of the release task process from the Systemwalker Runbook Automation Web console.

7.4 Hardware Requirements

None.

7.5 Software Requirements

The following must be installed when using the release automation template to release Java EE applications and J2EE applications:

[Web server, AP server]

- Interstage Application Server Enterprise Edition V10.0

7.6 File Configuration

File configuration for the release automation template is shown below:

Systemwalker Runbook Automation Studio

The process definitions and the form that configure the Automated Operation Process are stored in the Systemwalker Runbook Automation Studio "swrba_template_release" project.

```
[swrba_template_release]
  [Process Definitions]
    Process definitions
  [web]
    Form
```

Table 7.1 Process definition list for the release automation template

Process definitions	Automated Operation Process in use
swrba_template_release_for_javaee.xpdl	Process definition to release the Java EE applications
swrba_template_release_for_j2ee.xpdl	Process definition to release the J2EE applications
swrba_template_release_for_legacy.xpdl	Process definition to release other applications

Table 7.2 List of forms for the release automation template

Form	Automated Operation Process in use
begin_start_swrba_release_for_javaee.jsp	Form to set the release conditions for Java EE applications
begin_start_swrba_release_for_j2ee.jsp	Form to set the release conditions for J2EE applications
begin_start_swrba_release_for_legacy.jsp	Form to set the release conditions for other applications

Systemwalker Runbook Automation DVD-ROM media

Default templates are stored in the following file configurations in the Systemwalker Runbook Automation DVD-ROM media. Use this to restore a customized template to the original status.

```
[templates] folder
  [swrba_app_release folder]
    swrba_release.bar          (1)
    readme.txt                 (2)
```

Table 7.3 Release automation template configuration

	Type	Description
(1)	Automated Operation Process	This is the Automated Operation Process that performs release automation.
(2)	User manual	This is the user manual

7.7 Automated Operation Process Overview

7.7.1 Performing Release Tasks

An explanation is provided below for the following items of the Automated Operation Processes that are provided with the release automation template.

- Processing overview

- Modification of input values set for Automated Operation Processes

7.7.1.1 Processing Overview

The release automation template performs its operations in the following order:

1. Operator sets required conditions according to the release task plan, and starts the release task process.

2. Check whether release targeted server is running.

3. Release task process obtains release package in accordance with the conditions set in step 1.

4. Collects a fingerprint of the release package acquired in step 3.

5. Release package is transferred to the Business Server.

6. Collects a fingerprint of the release package after transfer.

7. Compares the fingerprints.

8. Deploys release package to the release targeted server.

9. Deletes the temporary file on the Management Server.

10. Deletes the release package on the release targeted server.

11. Sends a completion notification email.

Figure 7.9 Release automation template example
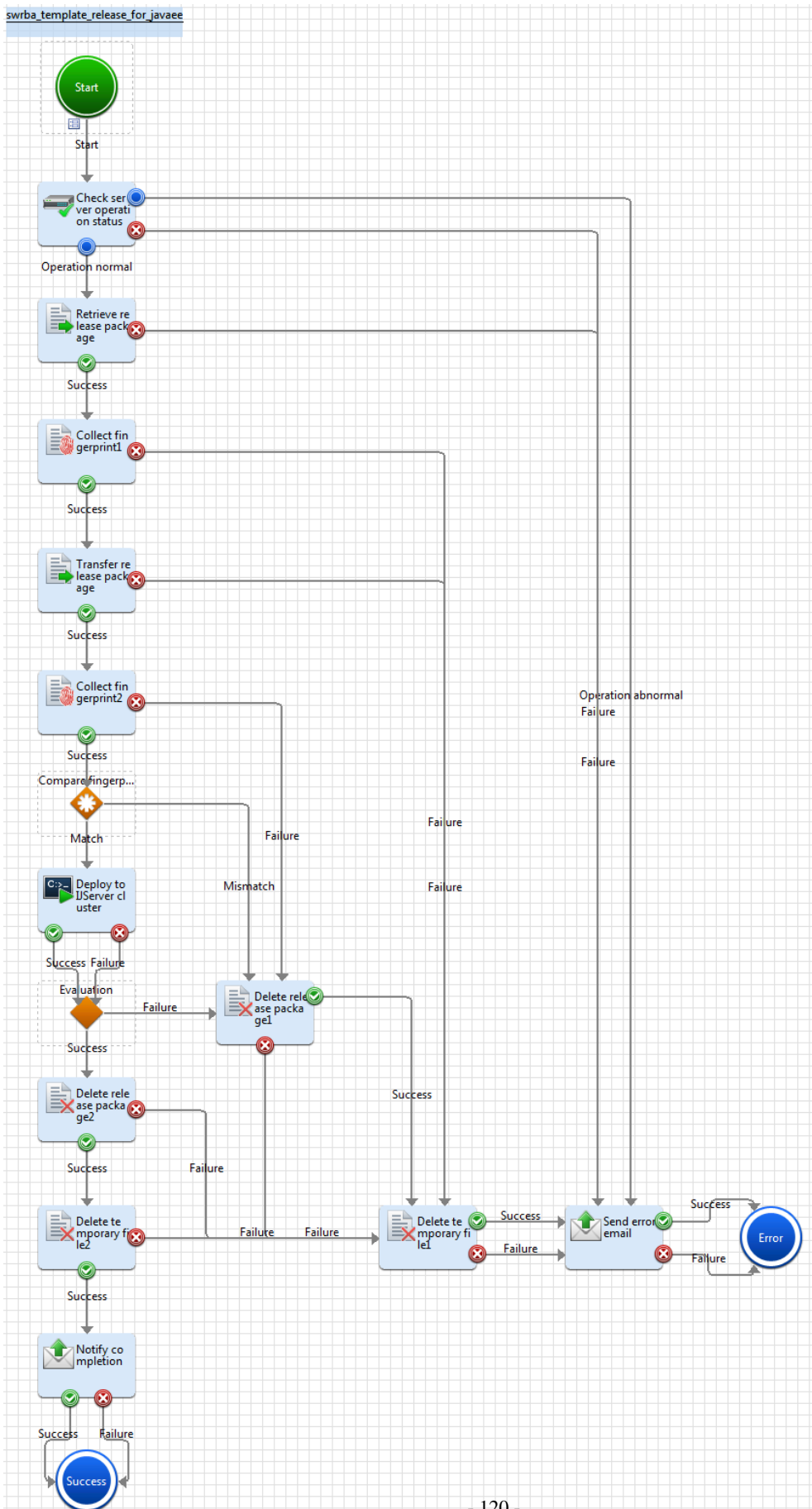
The following operation components are deployed within the release automation template.

Table 7.4 Deployment of operation component (for Java EE application release)

Name	Names of operation components and nodes used	Purpose
Check server operation status	Check operating status of node	Checks the running status of the server where the release package is to be applied.
Retrieve release package	Transfer files	Obtains the release package specified.
Collect fingerprint 1-2	Collect fingerprint	Used to check whether the correct release package has been deployed, by collecting a fingerprint of the release package.
Transfer release package	Transfer files	Transfers the release package to the release targeted server.
Compare fingerprints	Complex Conditional node	Compares the collected fingerprints.
Deploy to IJServer cluster	Execute arbitrary command	Deploys release package to IJServer cluster.
Determine deployment result	Conditional node	Determines deployment results.
Delete temporary file1-2	Delete files	Deletes the temporary file deployed to the Management Server.
Delete release package1-2	Delete files	Deletes the release package on the release targeted server.
Notify completion	Send emails	Notifies completion of the release task by email.
Send error email	Send emails	Notifies if an error has occurred in the release task.

Table 7.5 Deployment of operation component (for J2EE application release)

Name	Names of operation components and nodes used	Purpose
Check server operation status	Check operating status of node	Checks the running status of the server where the release package is to be applied.
Retrieve release package	Transfer files	Obtains the release package specified.
Collect fingerprint 1-2	Collect fingerprint	Used to check whether the correct release package has been deployed, by collecting a fingerprint of the release package.
Transfer release package	Transfer files	Transfers the release package to the release targeted server.
Compare fingerprints	Complex Conditional node	Compares the collected fingerprints.
Deploy to IJServer	Execute arbitrary command	Deploys release package to IJServer.
Determine deployment result	Conditional node	Determines deployment results.
Delete temporary file 1-2	Delete files	Deletes the temporary file deployed to the Management Server.
Delete release package 1-2	Delete files	Deletes the release package deployed to the release targeted server.
Notify completion	Send emails	Notifies completion of the release task by email.

Name	Names of operation components and nodes used	Purpose
Send error email	Send emails	Notifies if an error has occurred in the release task.

Table 7.6 Deployment of operation components (for other Application releases)

Name	Names of operation components and nodes used	Purpose
Check server operation status	Check operating status of node	Checks the running status of the server where the release package is to be applied.
Retrieve release package	Transfer files	Obtains the release package specified.
Collect fingerprint 1-2	Collect fingerprint	Used to check whether the correct release package has been deployed, by collecting a fingerprint of the release package.
Transfer release package	Transfer files	Transfers the release package to the release targeted server.
Compare fingerprints	Complex Conditional node	Compares the collected fingerprints.
Deploy release package	Execute arbitrary command	Deploys the release package to the installation destination of the application.
Determine deployment result	Conditional node	Determines deployment results.
Delete temporary file 1-2	Delete files	Deletes the temporary file deployed to the Management Server.
Delete release package 1-2	Delete files	Deletes the release package deployed to the release targeted server.
Notify completion	Send emails	Notifies completion of the release task by email.
Send error email	Send emails	Notifies if an error has occurred in the release task.

7.7.1.2 Modification of Input Values Set for Automated Operation Processes

The following settings are required for Automated Operation Processes.

- User defined attributes

- Input information of operation components

User defined attributes

It is necessary to set the values of user defined attributes for Automated Operation Processes. Input the values in accordance with the following:

Table 7.7 User defined attributes for Automated Operation Processes (for Java EE Application release)

User defined attributes	Input value	Purpose
release_hostname	Host name or IP address of the release targeted server	Use in the following operations on the release targeted server: - Use as the value of the "Check operating status of node" operation component hostname parameter when checking the running status of the server - Use when sending a release package as the value of the

User defined attributes	Input value	Purpose
		"Transfer files" operation component hostname parameter
		- Use as the value of the "Execute arbitrary command" operation component hostname parameter when deploying to the IJServer cluster or IJServer, or when deploying a release package
		- Use when executing file deletion as the value of the "Delete files" operation component hostname parameter
		- Use as the value of "Collect fingerprint" operation component hostname parameter when collecting fingerprints
stored_server	Specify the server which is the release package stoarge server.	Use as the value of the "Transfer files" operation component sourcehostname parameter when retrieving release packages
master_release_package_file_name	Input the release package file name as a full path.	Use as the value of the sourcefile parameter of the "Transfer files" operation component when obtaining a release package
manage_server	Enter the IP address or host name of the Management Server.	Use in the following operations on the Management Server:
		- Use as the value of the hostname parameter of the "Transfer files" operation component when obtaining a release package
		- Also, use as the value of the sourcehostname parameter of the "Transfer files" operation component when sending a release package
		- Use as the value of the "Delete files" operation component hostname parameter when executing file deletion
		- Use as the value of "Collect fingerprint" operation component hostname parameter when collecting fingerprints
temporary_file_name	Input the temporary file name of the obtained release package file as a full path.	- Use as the value of the destinationfile parameter of the "Transfer files" operation component when obtaining a release package
		- Use as the value of the sourcefile parameter of the "Transfer files"

User defined attributes	Input value	Purpose
		operation component when obtaining a release package - Use as the value of the filename parameter of the "Delete files" operation component when executing file deletion - Use as the value of "Collect fingerprint" operation component filename parameter when collecting fingerprints
deplyment_release_package_file_name	Input the name of the file on the release targeted server that sends the release package as a full path.	- Use as the value of the destinationfile parameter of the "Transfer files" operation component when sending a release package - Use as the value of the filename parameter of the "Delete files" operation component when executing file deletion - Use as the value of "Collect fingerprint" operation component filename parameter when collecting fingerprints
ijserver_cluster_name	Input the IJServer cluster name.	Specify the IJServer cluster that will be the target of deployment
smtp_server	Host name or IP address of the mail (SMTP) server that issues the completion notification email or the error notification email.	Use as the value of the hostname parameter of the "Send emails" operation component
from_address	Specify the "from address of" the completion notification email and the Error notification email.	Use as the values of the "Send emails" operation component fromaddress parameter.
to_address	Specify the "to address" of the completion notification email and the Error notification email.	Use as the values of the "Send emails" operation component toaddress parameter.
before_fingerprint	Fingerprint value of the release package file before transfer	- Use as the output information of the "Collect fingerprint" operation component when collecting fingerprints - Use as the comparative string of the "Compare fingerprint" operation component when comparing fingerprint
after_fingerprint	Fingerprint value of the release package file after transfer	- Use as the output information of the "Collect fingerprint" operation component when collecting fingerprints

User defined attributes	Input value	Purpose
		- Use as the comparative string of the "Compare fingerprint" operation component when comparing fingerprints
deploy_result	Results of deployment to the IJServer cluster	Use to determine the results of deployment to the IJServer cluster

Table 7.8 User defined attributes for Automated Operation Processes (for J2EE Application release)

User defined attributes	Input value	Purpose
release_hostname	Host name or IP address of the release targeted server	Use in the following operations on the release targeted server?: - Use as the value of the "Check operating status of node" operation component hostname parameter. - Use when sending a release package as the value of the "Transfer files" operation component hostname parameter. - Use as the value of the "Execute arbitrary command" operation component hostname parameter when deploying to the IJServer cluster or IJServer, or when deploying a release package - Use when executing file deletion as the value of the "Delete files" operation component hostname parameter. - Use as the value of "Collect fingerprint" operation component hostname parameter when collecting fingerprints
stored_server	Specify the server which is the release package storage server.	Use as the value of the "Transfer files" operation component sourcehostname parameter when retrieving release packages
master_release_package_file_name	Input the release package file name as a full path.	Use as the value of the sourcefile parameter of the "Transfer files" operation component.
manage_server	Input the IP address or host name of the Management Server.	Use in the following operations on the Management Server: - Use as the value of the hostname parameter of the "Transfer files" operation component when obtaining a release package. - Also, use as the value of the sourcehostname parameter of the "Transfer files" operation component when sending a release package.

User defined attributes	Input value	Purpose
		- Use when executing file deletion as the value of the "Delete files" operation component hostname parameter. - Use as the value of "Collect fingerprint" operation component hostname parameter when collecting fingerprints
temporary_file_name	Input the temporary file name of the obtained release package file as a full path.	- Use as the value of the destinationfile parameter of the "Transfer files" operation component when obtaining a release package. - Use as the value of the sourcefile parameter of the "Transfer files" operation component when obtaining a release package. - Use as the value of the filename parameter of the "Delete files" operation component when executing file deletion. - Use as the value of "Collect fingerprint" operation component filename parameter when collecting fingerprints
deplyment_release_package_file_name	Specify the name of the file on the release targeted server that sends the release package as a full path.	- Use as the value of the destinationfile parameter of the "Transfer files" operation component when sending a release package. - Use as the value of the filename parameter of the "Delete files" operation component when executing file deletion. - Use as the value of "Collect fingerprint" operation component filename parameter when collecting fingerprints
ijserver_name	Input the IJServer name.	Designates the IJServer that will be the target of the deployment.
smtp_server	Host name or IP address of the mail (SMTP) server that issues the completion notification email or the error notification email.	Use as the value of the hostname parameter of the "Send emails" operation component.
from_address	Specify the "from address" of the completion notification email and the error notification email.	Use as the values of the "Send emails" operation component fromaddress parameter.

User defined attributes	Input value	Purpose
to_address	Specify the "to address" of the completion notification email and the Error notification email.	Use as the values of the "Send emails" operation component toaddress parameter.
before_fingerprint	Fingerprint value of the release package file before transfer	- Use as the output information of the "Collect fingerprint" operation component when collecting fingerprints - Use as the comparative string of the "Compare fingerprint" operation component when comparing fingerprints
after_fingerprint	Fingerprint value of the release package file after transfer	- Use as the output information of the "Collect fingerprint" operation component when collecting fingerprints - Use as the comparative string of the "Compare fingerprint" operation component when comparing fingerprints
deploy_result	Results of deployment to the IJServer	Use to determine the results of deployment to the IJServer

Table 7.9 User defined attributes for Automated Operation Processes (for other application releases)

User defined attributes	Input Value	Purpose
release_hostname	Host name or IP address of the release targeted server	Use in the following operations on the release targeted server: - Use as the value of the "Check operating status of node" operation component hostname parameter. - Use when sending a release package as the value of the "Transfer files" operation component hostname parameter. - Use as the value of the "Execute arbitrary command" operation component hostname parameter when deploying to the IJServer cluster or IJServer, or when deploying a release package - Use when executing file deletion as the value of the "Delete files" operation component hostname parameter. - Use as the value of "Collect fingerprint" operation component hostname parameter when collecting fingerprints
stored_server	Specify the server which is the release package server.	Use as the value of the "Transfer files" operation component sourcehostname

User defined attributes	Input Value	Purpose
		parameter when retrieving release packages
master_release_package_file_name	Input the release package file name as a full path.	Use as the value of the sourcefile parameter of the "Transfer files" operation component when obtaining a release package.
manage_server	Input the IP address or host name of the Management Server.	Use in the following operations on the Management Server: - Use as the value of the hostname parameter of the "Transfer files" operation component when obtaining a release package. - Also, use as the value of the sourcehostname parameter of the "Transfer files" operation component when sending a release package. - Use when executing file deletion as the value of the "Delete files" operation component hostname parameter. - Use as the value of "Collect fingerprint" operation component hostname parameter when collecting fingerprints
temporary_file_name	Input the temporary file name of the obtained release package file as a full path.	- Use as the value of the destinationfile parameter of the "Transfer files" operation component when obtaining a release package. - Use as the value of the sourcefile parameter of the "Transfer files" operation component when obtaining a release package. - Use as the value of the filename parameter of the "Delete files" operation component when executing file deletion. - Use as the value of "Collect fingerprint" operation component filename parameter when collecting fingerprints
deplyment_release_package_file_name	Input the name of the file on the release targeted server that sends the release package as a full path.	- Use as the value of the destinationfile parameter of the "Transfer files" operation component when sending a release package. - Use as the value of the filename parameter of the "Delete files"

User defined attributes	Input Value	Purpose
		operation component when executing file deletion. - Use as the value of "Collect fingerprint" operation component filename parameter when collecting fingerprints
smtp_server	Host name or IP address of the mail (SMTP) server that issues the completion notification email or the error notification email.	Use as the value of the hostname parameter of the "Send emails" operation component.
from_address	Specify the "from address" of the completion notification email and the Error notification email.	Use as the values of the "Send emails" operation component fromaddress parameter.
to_address	Specify the "to address" of the completion notification email and the Error notification email.	Use as the values of the "Send emails" operation component toaddress parameter.
before_fingerprint	Fingerprint value of the release package file before transfer	- Use as the output information of the "Collect fingerprint" operation component when collecting fingerprints - Use as the comparative string of the "Compare fingerprint" operation component when comparing fingerprints
after_fingerprint	Fingerprint value of the release package file after transfer	- Use as the output information of the "Collect fingerprint" operation component when collecting fingerprints - Use as the comparative string of the "Compare fingerprint" operation component when comparing fingerprints
deploy_result	Release package deployment results	Use to determine results of release package deployment

Input information of operation components

It is necessary to set values for the parameter of the input information of the operation components deployed to Automated Operation Processes below:

Deployment of operation components (for Java EE application release)

- Retrieve release package

- Transfer release package

- Deploy to IJServer cluster

- Notify completion

- Send error email

Enter the parameter value according to the content shown below.

Table 7.10 Input Information of operation components

Operation component names	Parameter name	Input Value
Retrieve release package	username (*1)	Name of the user that connects to the file transfer destination host using either SSH or FTP
	password (*1)	Password of the user that connects to the file transfer destination host using either SSH or FTP
Transfer release package	username (*1)	Name of the user that connects to the file transfer destination host using either SSH or FTP
	password (*1)	Password of the user that connects to the file transfer destination host using either SSH or FTP
Deploy to IJServer cluster	commandline	The asadmin command of Interstage Application Server has been set to deploy release package to IJServer cluster. Modify to specify the sadmin command with absolute path according to the environment of release target server, and so on.
Notify completion	smtpusername (*2)	Name of the user that is to perform SMTP authentication on the host of the outgoing mail (SMTP) server
	smtppassword (*2)	Password of the user that is to perform SMTP authentication on the host of the outgoing mail (SMTP) server
Send error email	smtpusername (*2)	Name of the user that is to perform SMTP authentication on the host of the outgoing mail (SMTP) server
	smtppassword (*2)	Password of the user that is to perform SMTP authentication on the host of the outgoing mail (SMTP) server

*1: Set this for an environment in which authentication is required when obtaining or sending a release package.

*2: Set this for an environment in which SMTP server authentication is required when the email is sent.

Deployment of operation components (for J2EE application release)

- Retrieve release package

- Transfer release package

- Deploy to IJServer

- Notify completion

- Send error email

Enter the parameter value according to the content shown below.

Table 7.11 Input Information of operation components

Operation Component names	Parameter name	Input Value
Retrieve release package	username (*1)	User name that connects to the file transfer destination host using either SSH or FTP
	password (*1)	Password of the user that connects to the file transfer destination host using either SSH or FTP
Transfer release package	username (*1)	User name that connects to the file transfer destination host using either SSH or FTP
	password (*1)	Password of the user that connects to the file transfer destination host using either SSH or FTP

Operation Component names	Parameter name	Input Value
Deploy to IJServer	commandline	The ijsdeployment command of Interstage Application Server has been set to deploy release package to IJServer. Modify to specify the ijsdeployment command with absolute path according to the environment of release target server, and so on.
Notify completion	smtpusername (*2)	Name of the user that is to perform SMTP authentication on the host of the outgoing mail (SMTP) server
	smtppassword (*2)	Password of the user that is to perform SMTP authentication on the host of the outgoing mail (SMTP) server
Send error email	smtpusername (*2)	Name of the user that is to perform SMTP authentication on the host of the outgoing mail (SMTP) server
	smtppassword (*2)	Password of the user that is to perform SMTP authentication on the host of the outgoing mail (SMTP) server

*1: Set this for an environment in which authentication is required when obtaining or sending a release package.

*2: Set this for an environment in which SMTP server authentication is required when the email is sent.

Deployment of operation components (for other application releases)

- Retrieve release package

- Transfer release package

- Deploy release package

- Notify completion

- Send error email

Enter the parameter value according to the content shown below.

Table 7.12 Input Information of operation components

Operation component names	Parameter name	Input Value
Retrieve release package	username (*1)	User name that connects to the file transfer destination host using either SSH or FTP
	password (*1)	Password of the user that connects to the file transfer destination host using either SSH or FTP
Transfer release package	username (*1)	User name that connects to the file transfer destination host using either SSH or FTP
	password (*1)	Password of the user that connects to the file transfer destination host using either SSH or FTP
Deploy release package	commandline	To deploy release package to install direction of applications, set the means of applying that is suitable for the type of applications.
Notify completion	smtpusername (*2)	Name of the user that is to perform SMTP authentication on the host of the outgoing mail (SMTP) server
	smtppassword (*2)	Password of the user that is to perform SMTP authentication on the host of the outgoing mail (SMTP) server
Send error email	smtpusername (*2)	Name of the user that is to perform SMTP authentication on the host of the outgoing mail (SMTP) server
	smtppassword (*2)	Password of the user that is to perform SMTP authentication on the host of the outgoing mail (SMTP) server

*1: Set this for an environment in which authentication is required when obtaining or sending a release package.

*2: Set this for an environment in which SMTP server authentication is required when the email is sent.

See

Refer to *Systemwalker Runbook Automation Studio User's Guide* for information on how to modify Automated Operation Processes.

7.7.1.3 Entering Information in the Process Start Window

Here is a description of the fields when entering with the form.

Figure 7.10 Input form (for the release of Java EE applications)

Figure 7.11
Input form (for the release of J2EE applications)

Figure 7.12 Input form (for the release of other applications)

Table 7.13 Input items and UDA of settings destination (for the release of Java EE application)

Field name	Set value	UDA Settings Destination
Release targeted server	Set IP address or host name of the Business Server where the release package is released.	release_hostname
Release package storage server	Set IP address or host name of the server where the release package is stored.	stored_server
Master release package file	Enter the file name of the release package archived in the release package storage server as a full path.	master_release_package_file_name
Management Server	Input IP address or host name of the Management Server.	manage_server
Temporary file name	Enter the temporary file name used when storing the retrieved release package file in the Management Server as a full path.	temporary_file_name
File names the release package to be deployed	Specify the file name used when sending and storing the release package in/to the Business Server as a full path.	deplyment_release_package_file_name
IJServer cluster name	Specify the name of the IJServer cluster where the release package is deployed.	ijserver_cluster_name

Table 7.14 Input Items and UDA of Settings Destination (for the release of J2EE Application)

Field name	Set value	UDA Settings destination
release targeted server	Set IP address or host name of the Business Server where the release package is released.	release_hostname
release package storage server	Set IP address or host name of the server where the release package is stored.	stored_server
Master release package file	Enter the file name of the release package archived in the release package storage server as a full path.	master_release_package_file_name
Management Server	Input IP address or host name of the Management Server.	manage_server
Temporary file name	Enter the temporary file name used when storing the retrieved release package file in the Management Server as a full path.	temporary_file_name
File names the release package to be deployed	Specify the file name used when sending and storing the	deplyment_release_package_file_name

Field name	Set value	UDA Settings destination
	release package in or to the Business Server as a full path.	
IJServer name	Specify the name of the IJServer where the release package is deployed.	ijserver_name

Table 7.15 Input Items and UDA of Settings Destination (for the release of other Applications)

| Field name	Set value	UDA Settings destination
release targeted server	Set IP address or host name of the Business Server where the release package is released.	release_hostname
release package storage server	Set IP address or host name of the server where the release package is stored.	stored_server
Master release package file	Enter the file name of the release package archived in the release package storage server as a full path.	master_release_package_file_name
Management Server	Input IP address or host name of the Management Server.	manage_server
Temporary file name	Enter the temporary file name used when storing the retrieved release package file in the Management Server as a full path.	temporary_file_name
File names the release package to be deployed	Specify the file name used when sending and storing the release package in or to the Business Server as a full path.	deplyment_release_package_file_name

7.8 Customizing the Release Automation Template

7.8.1 Automating the Release Process

Normally, when performing the release of an application to the business system, there are multiple processes, such as drafting and testing release plans. These can be seen as a single process that continues until the release is completed, or can be seen as a collection of processes divided among each phase.

With Systemwalker Runbook Automation, this kind of task, where people have to intervene, can be created as an Automated Operation Process. It is also possible to invoke from this Automated Operation Process further Automated Operation Processes where each of the phases is automated.

Figure 7.13 Automating the release process
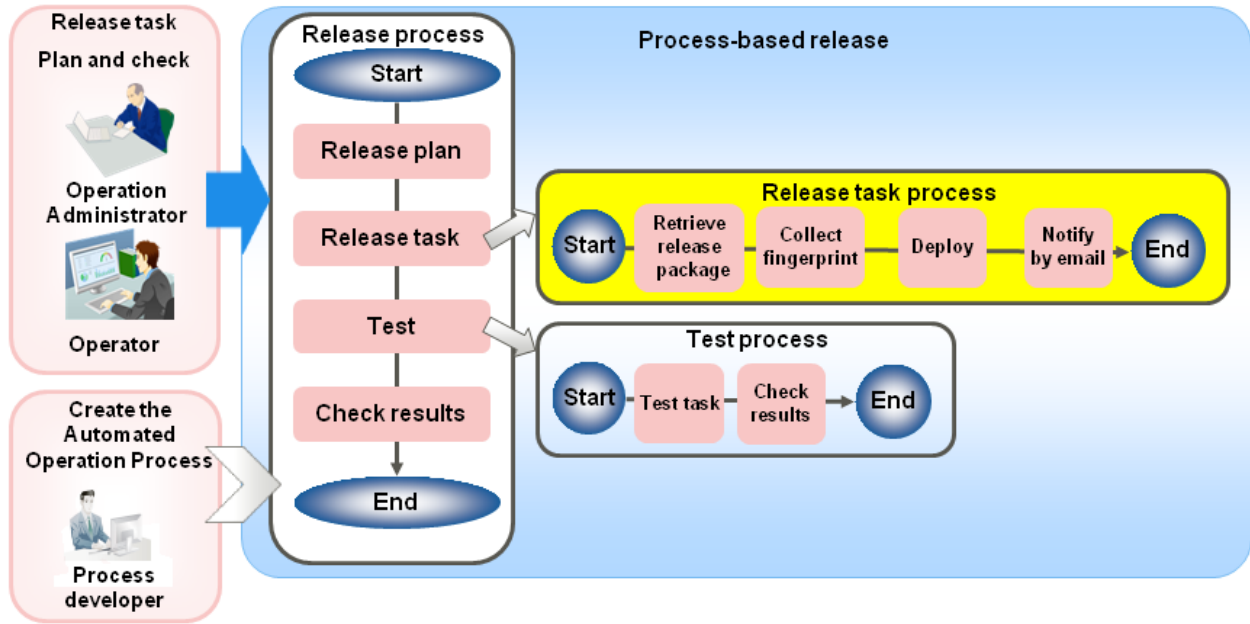
Also, by using the operation components provided with Systemwalker Runbook Automation, it is possible to set the schedule for each of the Automated Operation Processes.

Table 7.16 Operation components for which schedule can be set

Operation component names	Purpose
Register Schedule Definition	Registers the schedule in accordance with the specified conditions.
Delete Schedule Definition	Deletes specified schedules.

The subsequent chapter explains how to customize the release automation template including the operation components mentioned above.

7.8.1.1 Specify the Schedule and Execute Release Task Processes

By using the "Register Schedule Definition" component with the Automated Operation Process that brings together each process of the release, it is possible to schedule execution of the release tasks in accordance with the release plan.

The "Register Schedule Definition " component registers Schedule Definitions in accordance with specified conditions. It is possible to operate the registered Schedule Definitions from the Schedule Definitions list window.

As a result, it is also possible to check the execution schedule and progress status of the release task processes in the process status window. In this way, it is possible for the release tasks to manage performance in combination with other administrative tasks.

Figure 7.14 Scheduled release task
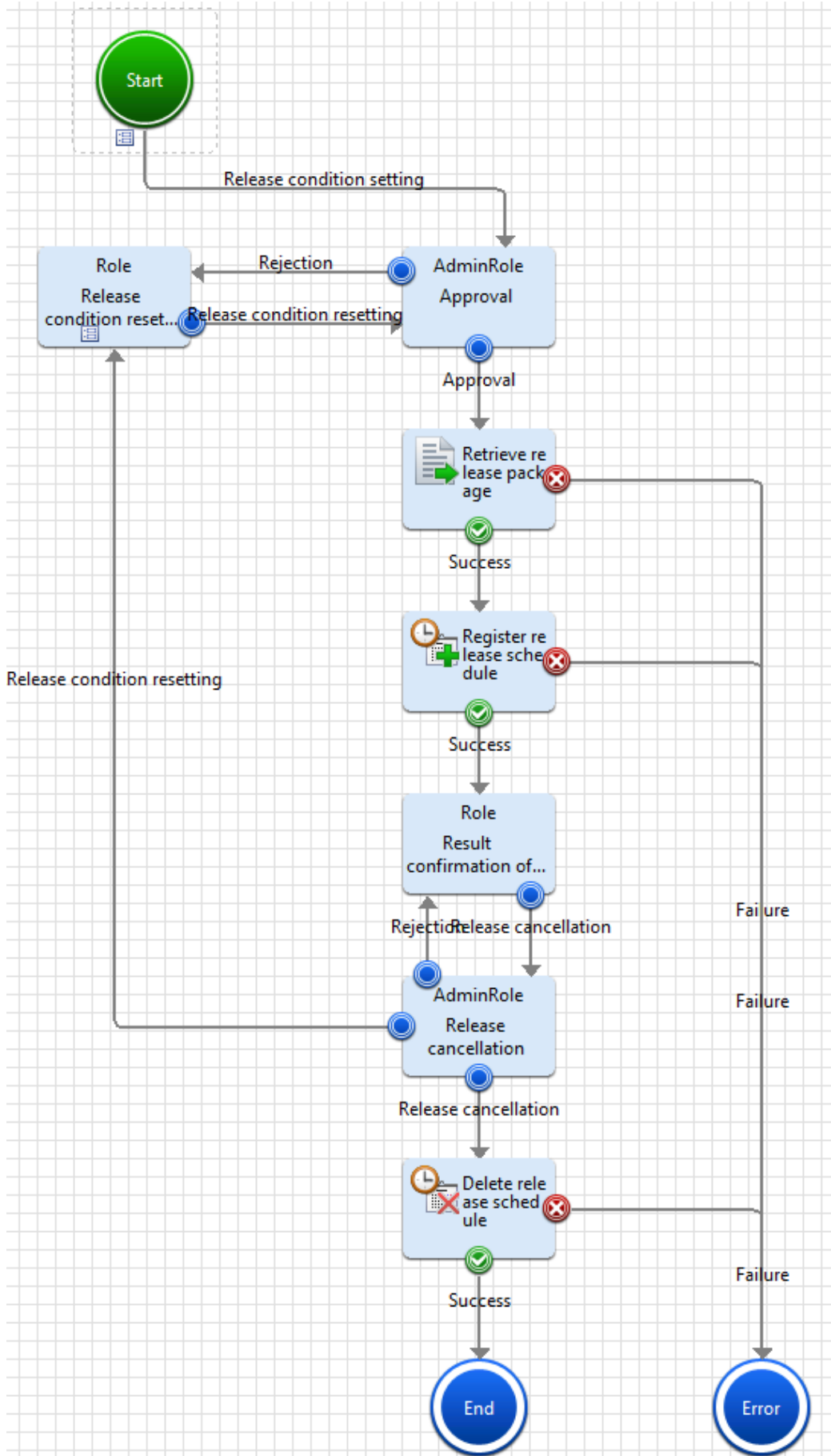
Also, by deploying the "Delete Schedule Definition" component in the same process definition, it is possible to cancel an already registered schedule.

7.8.1.2 Linking with the SCM

Retrieve the release package from the SCM server where the release package is archived. Use the "Execute arbitrary command" operation component to retrieve the release package. In this way, it is possible to automate the handover of the release package from developer to operation administrator as an Automated Operation Process.

Table 7.17 Input information for operation component

Operation component name	Parameter name	Input value
Execute arbitrary command	commandline	Set the command for retrieving the release package provided by the SCM server.

7.8.1.3 Releasing a Release Package to Multiple Release Targeted Server

By customizing the release automation template it is possible to release the release package to multiple release targeted server.

Add as many "Transfer files", "Collect fingerprint", and "Delete files" operation components as the number of release targeted server to release the release packages to multiple release targeted server.

Figure 7.15 Releasing to multiple release targeted server