FUJITSU

ServerView Resource Orchestrator Cloud Edition V3.0.0

Installation Guide

Windows/Linux

J2X1-7609-01ENZ0(05)
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Preface

Purpose

This manual explains how to install ServerView Resource Orchestrator (hereinafter Resource Orchestrator).

Target Readers

This manual is written for system administrators who will use Resource Orchestrator to operate the infrastructure in private cloud or data center environments.
When setting up systems, it is assumed that readers have the basic knowledge required to configure the servers, storage, network devices, and server virtualization software to be installed. Additionally, a basic understanding of directory services such as Active Directory and LDAP is necessary.

Organization

This manual is composed as follows:

Title	Description
Chapter 1 Operational Environment	Explains the operational environment of Resource Orchestrator.
Chapter 2 Installation	Explains how to install Resource Orchestrator.
Chapter 3 Uninstallation	Explains how to uninstall Resource Orchestrator.
Chapter 4 Upgrading from Earlier Versions	Explains how to upgrade from earlier versions of Resource Coordinator.
Appendix A Advisory Notes for Environments with Systemwalker Centric Manager or ETERNUS SF Storage Cruiser	Explains advisory notes regarding use of Resource Orchestrator with Systemwalker Centric Manager or ETERNUS SF Storage Cruiser.
Appendix B Manager Cluster Operation Settings and Deletion	Explains the settings necessary when using Resource Orchestrator on cluster systems, and the method for deleting Resource Orchestrator from cluster systems.
Glossary	Explains the terms used in this manual. Please refer to it when necessary.

Notational Conventions

The notation in this manual conforms to the following conventions.

- When using Resource Orchestrator and the functions necessary differ due to the necessary basic software (OS), it is indicated as follows:

[Windows]	Sections related to Windows (When not using Hyper-V)
[Linux]	Sections related to Linux
[Red Hat Enterprise Linux]	Sections related to Red Hat Enterprise Linux
[Solaris]	Sections related to Solaris
[VMware]	Sections related to VMware
[Hyper-V]	Sections related to Hyper-V
[Xen]	Sections related to Xen
[KVM]	Sections related to RHEL-KVM
[Solaris Containers]	Sections related to Solaris containers
[Windows/Hyper-V]	Sections related to Windows and Hyper-V

[Windows/Linux]	Sections related to Windows and Linux
[Linux/VMware]	Sections related to Linux and VMware
[Linux/Xen]	Sections related to Linux and Xen
[Xen/KVM]	Sections related to Xen and RHEL-KVM
[Linux/Solaris/VMware]	Sections related to Linux, Solaris, and VMware
[Linux/VMware/Xen]	Sections related to Linux, VMware, and Xen
[Linux/Xen/KVM]	Sections related to Linux, Xen, and RHEL-KVM
[VMware/Hyper-V/Xen]	Sections related to VMware, Hyper-V, and Xen
[Linux/Solaris/VMware/Xen]	Sections related to Linux, Solaris, VMware, and Xen
[Linux/VMware/Xen/KVM]	Sections related to Linux, VMware, Xen, and RHEL-KVM
[VMware/Hyper-V/Xen/KVM]	Sections related to VMware, Hyper-V, Xen, and RHEL-KVM
[Linux/Solaris/VMware/Xen/KVM]	Sections related to Linux, Solaris, VMware, Xen, and RHEL-KVM
[VM host]	Sections related to VMware, Windows Server 2008 with Hyper-V enabled, Xen, RHEL-KVM, and Solaris containers

- Unless specified otherwise, the blade servers mentioned in this manual refer to PRIMERGY BX servers.
- Oracle Solaris may also be indicated as Solaris, Solaris Operating System, or Solaris OS.
- References and character strings or values requiring emphasis are indicated using double quotes (").
- Window names, dialog names, menu names, and tab names are shown enclosed by brackets ([ ]).
- Button names are shown enclosed by angle brackets (< >) or square brackets ([ ]).
- The order of selecting menus is indicated using [ ]-[ ].
- Text to be entered by the user is indicated using bold text.
- Variables are indicated using italic text and underscores.
- The ellipses ("...") in menu names, indicating settings and operation window startup, are not shown.

Menus in the ROR console

Operations on the ROR console can be performed using either the menu bar or pop-up menus.

By convention, procedures described in this manual only refer to pop-up menus.

Documentation Road Map

The following manuals are provided with Resource Orchestrator. Please refer to them when necessary:

Manual Name	Abbreviated Form	Purpose
ServerView Resource Orchestrator Cloud Edition V3.0.0 Setup Guide	Setup Guide CE	**Please read this first.** Read this when you want information about the purposes and uses of basic functions, and how to install Resource Orchestrator.
ServerView Resource Orchestrator Cloud Edition V3.0.0 Installation Guide	Installation Guide CE	Read this when you want information about how to install Resource Orchestrator.
ServerView Resource Orchestrator Cloud Edition V3.0.0 Operation Guide	Operation Guide CE	Read this when you want information about how to operate systems that you have configured.

Manual Name	Abbreviated Form	Purpose
ServerView Resource Orchestrator Cloud Edition V3.0.0 User's Guide for Infrastructure Administrators (Resource Management)	User's Guide for Infrastructure Administrators (Resource Management) CE	Read this when you want information about how to operate the GUI (resource management) used by infrastructure administrators and dual-role administrators.
ServerView Resource Orchestrator Cloud Edition V3.0.0 User's Guide for Infrastructure Administrators	User's Guide for Infrastructure Administrators CE	Read this when you want information about how to operate the GUI (for operations other than resource management) used by infrastructure administrators and dual-role administrators.
ServerView Resource Orchestrator Cloud Edition V3.0.0 User's Guide for Tenant Administrators	User's Guide for Tenant Administrators CE	Read this when you want information about how to operate the GUI used by tenant administrators.
ServerView Resource Orchestrator Cloud Edition V3.0.0 User's Guide for Tenant Users	User's Guide for Tenant Users CE	Read this when you want information about how to operate the GUI used by tenant users.
ServerView Resource Orchestrator Cloud Edition V3.0.0 Reference Guide for Infrastructure Administrators (Resource Management)	Reference Guide (Resource Management) CE	Read this when you want information about commands used by infrastructure administrators and dual-role administrators to manage resources, messages output by the system, and how to perform troubleshooting.
ServerView Resource Orchestrator Cloud Edition V3.0.0 Reference Guide for Infrastructure Administrators	Reference Guide CE	Read this when you want information about the commands used by infrastructure administrators and dual-role administrators for operations other than resource management.
ServerView Resource Orchestrator Cloud Edition V3.0.0 Messages	Messages CE	Read this when you want detailed information about the corrective actions for displayed messages.

In some cases this manual may ask you to refer to the following Virtual Edition manuals.
Please refer to them when necessary:

Manual Name	Abbreviated Form	Purpose
ServerView Resource Orchestrator Virtual Edition V3.0.0 Setup Guide	Setup Guide VE	Read this when you want information about the purposes and uses of basic functions, and how to install Resource Orchestrator.
ServerView Resource Orchestrator Virtual Edition V3.0.0 Installation Guide	Installation Guide VE	Read this when you want information about how to install Resource Orchestrator.
ServerView Resource Orchestrator Virtual Edition V3.0.0 Operation Guide	Operation Guide VE	Read this when you want information about how to operate systems that you have configured.
ServerView Resource Orchestrator Virtual Edition V3.0.0 User's Guide	User's Guide VE	Read this when you want information about how to operate the GUI.
ServerView Resource Orchestrator Virtual Edition V3.0.0 Command Reference	Command Reference	Read this when you want information about how to use commands.
ServerView Resource Orchestrator Virtual Edition V3.0.0 Messages	Messages VE	Read this when you want detailed information about the corrective actions for displayed messages.

Related Documentation

Please refer to these manuals when necessary.

- Systemwalker Resource Coordinator Virtual server Edition Installation Guide
- Systemwalker Resource Coordinator Virtual server Edition Setup Guide
- ServerView Resource Orchestrator Installation Guide
- ServerView Resource Orchestrator Setup Guide
- ServerView Resource Orchestrator Operation Guide
- ServerView Resource Orchestrator User's Guide

Abbreviations

The following abbreviations are used in this manual:

Abbreviation	Products
Windows	Microsoft(R) Windows Server(R) 2008 Standard Microsoft(R) Windows Server(R) 2008 Enterprise Microsoft(R) Windows Server(R) 2008 R2 Standard Microsoft(R) Windows Server(R) 2008 R2 Enterprise Microsoft(R) Windows Server(R) 2008 R2 Datacenter Microsoft(R) Windows Server(R) 2003 R2, Standard Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise Edition Microsoft(R) Windows Server(R) 2003 R2, Standard x64 Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise x64 Edition Windows(R) 7 Professional Windows(R) 7 Ultimate Windows Vista(R) Business Windows Vista(R) Enterprise Windows Vista(R) Ultimate Microsoft(R) Windows(R) XP Professional operating system
Windows Server 2008	Microsoft(R) Windows Server(R) 2008 Standard Microsoft(R) Windows Server(R) 2008 Enterprise Microsoft(R) Windows Server(R) 2008 R2 Standard Microsoft(R) Windows Server(R) 2008 R2 Enterprise Microsoft(R) Windows Server(R) 2008 R2 Datacenter
Windows 2008 x86 Edition	Microsoft(R) Windows Server(R) 2008 Standard (x86) Microsoft(R) Windows Server(R) 2008 Enterprise (x86)
Windows 2008 x64 Edition	Microsoft(R) Windows Server(R) 2008 Standard (x64) Microsoft(R) Windows Server(R) 2008 Enterprise (x64)
Windows Server 2003	Microsoft(R) Windows Server(R) 2003 R2, Standard Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise Edition Microsoft(R) Windows Server(R) 2003 R2, Standard x64 Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise x64 Edition
Windows 2003 x64 Edition	Microsoft(R) Windows Server(R) 2003 R2, Standard x64 Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise x64 Edition
Windows 7	Windows(R) 7 Professional Windows(R) 7 Ultimate
Windows Vista	Windows Vista(R) Business Windows Vista(R) Enterprise Windows Vista(R) Ultimate
Windows XP	Microsoft(R) Windows(R) XP Professional operating system
Linux	Red Hat(R) Enterprise Linux(R) 5 (for x86) Red Hat(R) Enterprise Linux(R) 5 (for Intel64)

Abbreviation	Products
	Red Hat(R) Enterprise Linux(R) 5.1 (for x86) Red Hat(R) Enterprise Linux(R) 5.1 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.2 (for x86) Red Hat(R) Enterprise Linux(R) 5.2 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.3 (for x86) Red Hat(R) Enterprise Linux(R) 5.3 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.4 (for x86) Red Hat(R) Enterprise Linux(R) 5.4 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.5 (for x86) Red Hat(R) Enterprise Linux(R) 5.5 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.6 (for x86) Red Hat(R) Enterprise Linux(R) 5.6 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.7 (for x86) Red Hat(R) Enterprise Linux(R) 5.7 (for Intel64) Red Hat(R) Enterprise Linux(R) 6.2 (for x86) Red Hat(R) Enterprise Linux(R) 6.2 (for Intel64) SUSE(R) Linux Enterprise Server 11 for x86 SUSE(R) Linux Enterprise Server 11 for EM64T
Red Hat Enterprise Linux	Red Hat(R) Enterprise Linux(R) 5 (for x86) Red Hat(R) Enterprise Linux(R) 5 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.1 (for x86) Red Hat(R) Enterprise Linux(R) 5.1 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.2 (for x86) Red Hat(R) Enterprise Linux(R) 5.2 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.3 (for x86) Red Hat(R) Enterprise Linux(R) 5.3 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.4 (for x86) Red Hat(R) Enterprise Linux(R) 5.4 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.5 (for x86) Red Hat(R) Enterprise Linux(R) 5.5 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.6 (for x86) Red Hat(R) Enterprise Linux(R) 5.6 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.7 (for x86) Red Hat(R) Enterprise Linux(R) 5.7 (for Intel64) Red Hat(R) Enterprise Linux(R) 6.2 (for x86) Red Hat(R) Enterprise Linux(R) 6.2 (for Intel64)
Red Hat Enterprise Linux 5	Red Hat(R) Enterprise Linux(R) 5 (for x86) Red Hat(R) Enterprise Linux(R) 5 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.1 (for x86) Red Hat(R) Enterprise Linux(R) 5.1 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.2 (for x86) Red Hat(R) Enterprise Linux(R) 5.2 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.3 (for x86) Red Hat(R) Enterprise Linux(R) 5.3 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.4 (for x86) Red Hat(R) Enterprise Linux(R) 5.4 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.5 (for x86) Red Hat(R) Enterprise Linux(R) 5.5 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.6 (for x86) Red Hat(R) Enterprise Linux(R) 5.6 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.7 (for x86) Red Hat(R) Enterprise Linux(R) 5.7 (for Intel64)
Red Hat Enterprise Linux 6	Red Hat(R) Enterprise Linux(R) 6.2 (for x86) Red Hat(R) Enterprise Linux(R) 6.2 (for Intel64)

Abbreviation	Products
RHEL5-Xen	Red Hat(R) Enterprise Linux(R) 5.4 (for x86) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.4 (for Intel64) Linux Virtual Machine Function
RHEL-KVM	Red Hat(R) Enterprise Linux(R) 6.2 (for x86) Virtual Machine Function Red Hat(R) Enterprise Linux(R) 6.2 (for Intel64) Virtual Machine Function
DOS	Microsoft(R) MS-DOS(R) operating system, DR DOS(R)
SUSE Linux Enterprise Server	SUSE(R) Linux Enterprise Server 11 for x86 SUSE(R) Linux Enterprise Server 11 for EM64T
Oracle VM	Oracle VM Server for x86
ESC	ETERNUS SF Storage Cruiser
GLS	PRIMECLUSTER GLS
Navisphere	EMC Navisphere Manager
Solutions Enabler	EMC Solutions Enabler
MSFC	Microsoft Failover Cluster
SCVMM	System Center Virtual Machine Manager 2008 R2 System Center 2012 Virtual Machine Manager
VMware	VMware vSphere(R) 4 VMware vSphere(R) 4.1 VMware vSphere(R) 5
VMware FT	VMware Fault Tolerance
VMware DRS	VMware Distributed Resource Scheduler
VMware DPM	VMware Distributed Power Management
VMware vDS	VMware vNetwork Distributed Switch
VIOM	ServerView Virtual-IO Manager
ServerView Agent	ServerView SNMP Agents for MS Windows (32bit-64bit) ServerView Agents Linux ServerView Agents VMware for VMware ESX Server
ROR VE	ServerView Resource Orchestrator Virtual Edition
ROR CE	ServerView Resource Orchestrator Cloud Edition
Resource Coordinator	Systemwalker Resource Coordinator Systemwalker Resource Coordinator Virtual server Edition

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Chapter 1 Operational Environment

For the operational environment of Resource Orchestrator, refer to "1.4 Software Environment" and "1.5 Hardware Environment" of the "Setup Guide CE".

Chapter 2 Installation

This chapter explains the installation of ServerView Resource Orchestrator.

2.1 Manager Installation

This section explains installation of managers.

2.1.1 Preparations

This section explains the preparations and checks required before commencing installation.

- Host Name Checks

  Refer to "Host Name Checks".

- SMTP Server Checks

  Refer to "SMTP Server Checks".

- System Time Checks

  Refer to "System Time Checks".

- Exclusive Software Checks

  Refer to "Exclusive Software Checks".

- Required Software Preparation and Checks

  Refer to "Required Software Preparation and Checks".

- Required information collection and checks

  Refer to "2.1.1.2 Collecting and Checking Required Information".

- Configuration Parameter Checks

  Refer to "2.1.1.3 Configuration Parameter Checks".

2.1.1.1 Software Preparation and Checks

Software preparation and checks are explained in the following sections.

This section explains the preparations and checks required before commencing the installation of Resource Orchestrator.

Host Name Checks

It is necessary to set the host name (FQDN) for the admin server to operate normally. Describe the host name in the hosts file, using 256 characters or less. In the hosts file, for the IP address of the admin server, configure the host name (FQDN) and then the computer name.

hosts File

[Windows]

System_drive\WindowsSystem32\drivers\etc\hosts

[Linux]

/etc/hosts

Note

For the admin client, either configure the hosts file so access to the admin server is possible using the host name (FQDN), or name resolution using a DNS server.

When registering local hosts in the hosts file, take either one of the following actions.

- When setting the local host name to "127.0.0.1", ensure that an IP address accessible from remote hosts is described first.
- Do not set the local host name to "127.0.0.1".

Example

When configuring the admin server with the IP address "10.10.10.10", the host name (FQDN) "remote1.example.com", and the computer name "remote1"

```
10.10.10.10 remote1.example.com remote1
127.0.0.1 remote1.example.com localhost. localdomain localhost
```

SMTP Server Checks

Resource Orchestrator uses e-mail. Configure the SMTP server settings to create an environment where e-mail is available.

System Time Checks

Set the same system time for the admin server and managed servers.

If the system time differs, correct values will not be displayed in the [Usage Condition] tab on the ROR console.

Exclusive Software Checks

Before installing Resource Orchestrator, check that the software listed in "1.4.2.3 Exclusive Software" of the "Setup Guide CE" and the manager of Resource Orchestrator have not been installed on the system.
Use the following procedure to check that exclusive software has not been installed.

[Windows]

1. Open "Add or Remove Programs" on the Windows Control Panel.

   The [Add or Remove Programs] window will be displayed.

2. Check that none of the software listed in "1.4.2.3 Exclusive Software" of the "Setup Guide CE" or the following software are displayed.

   - "ServerView Resource Orchestrator Manager"

3. If the names of exclusive software have been displayed, uninstall them according to the procedure described in the relevant manual before proceeding.

   If managers of an earlier version of Resource Orchestrator have been installed, they can be upgraded. Refer to "4.2 Manager".
   When reinstalling a manager on a system on which the same version of Resource Orchestrator has been installed, perform uninstallation referring to "3.1 Manager Uninstallation" and then perform the reinstallation.

   Information

   For Windows Server 2008, select "Programs and Features" from the Windows Control Panel.

[Linux]

1. Check that none of the software listed in "1.4.2.3 Exclusive Software" in the "Setup Guide CE" or the following software are displayed.

   Execute the following command and check if Resource Orchestrator Manager has been installed.

```
# rpm -q FJSVrcvmr <RETURN>
```

2. If the names of exclusive software have been displayed, uninstall them according to the procedure described in the relevant manual before proceeding.

   If managers of an earlier version of Resource Orchestrator have been installed, they can be upgraded. Refer to "4.2 Manager".
   When reinstalling a manager on a system on which the same version of Resource Orchestrator has been installed, perform uninstallation referring to "3.1 Manager Uninstallation" and then perform the reinstallation.

Note

- When uninstalling exclusive software, there are cases where other system administrators might have installed the software, so check that deleting the software causes no problems before actually doing so.
- With the standard settings of Red Hat Enterprise Linux 5 or later, when DVD-ROMs are mounted automatically, execution of programs on the DVD-ROM cannot be performed. Release the automatic mount settings and perform mounting manually, or start installation after copying the contents of the DVD-ROM to the hard disk.
  When copying the contents of the DVD-ROM, replace "*DVD-ROM_mount_point*" with the used directory in the procedures in this manual.

Required Software Preparation and Checks

Before installing Resource Orchestrator, check that the required software given in "1.4.2.2 Required Software" of the "Setup Guide CE" has been installed. If it has not been installed, install it before continuing.

When operating managers in cluster environments, refer to "Appendix B Manager Cluster Operation Settings and Deletion" and "B.2.1 Preparations", and perform preparations and checks in advance.

Note

[Windows]

- Microsoft LAN Manager Module

  Before installing Resource Orchestrator, obtain the Microsoft LAN Manager module from the following FTP site.
  The Microsoft LAN Manager module can be used regardless of the CPU architecture type (x86, x64).

  ```
  URL: ftp://ftp.microsoft.com/bussys/clients/msclient/dsk3-1.exe (As of February 2012)
  ```

  When installing Resource Orchestrator to an environment that already has ServerView Deployment Manager installed, it is not necessary to obtain the Microsoft LAN Manager module.

  Prepare for the following depending on the architecture of the installation target.

  - When installing a manager on Windows 32bit(x86)

    The Microsoft LAN Manager module can be installed without extracting it in advance.
    After obtaining the module, extract it to a work folder (such as C:\temp) on the system for installation.

  - When installing a manager on Windows 64bit(x64)

    The obtained module must be extracted using the Expand command on a computer with x86 CPU architecture.
    The obtained module is for x86 CPU architecture, and cannot be extracted on computers with x64 CPU architecture.

    For details on how to extract the module, refer to the following examples:

    Example

    When dsk3-1.exe was deployed on c:\temp

```
>cd /d c:\temp <RETURN>
>dsk3-1.exe <RETURN>
>Expand c:\temp\protman.do_ /r <RETURN>
>Expand c:\temp\protman.ex_ /r <RETURN>
```

Use the Windows 8.3 format (*1) for the folder name or the file name.
After manager installation is complete, the extracted Microsoft LAN Manager module is no longer necessary.

*1: File names are limited to 8 characters and extensions limited to 3 characters.

After extracting the following modules, deploy them to the folder that has been set for environment_variable%SystemBoot%.

- PROTMAN.DOS
- PROTMAN.EXE
- NETBIND.COM

- Settings for ServerView Operations Manager 4.X for Windows

  In order for Resource Orchestrator to operate correctly, ensure that when installing ServerView Operations Manager for Windows you do not select "IIS (MS Internet Information Server)" for Select Web Server.

  For the settings, refer to the ServerView Operations Manager 4.X for Windows manual.

- SNMP Trap Service Settings

  In order for Resource Orchestrator to operate correctly, the following settings for the standard Windows SNMP trap service are required.

  - Open "Services" from "Administrative Tools" on the Windows Control Panel, and then configure the startup type of SNMP Trap service as "Manual" or "Automatic" on the [Services] window.

- Settings for ServerView Virtual-IO Manager

  When using VIOM, in order for Resource Orchestrator to operate correctly, ensure that the following settings are made when installing ServerView Virtual-IO Manager for Windows.

  - When using the I/O Virtualization Option

    Clear the "Select address ranges for IO Virtualization" checkbox on the virtual I/O address range selection window.

  - When not using the I/O Virtualization Option

    Check the "Select address ranges for IO Virtualization" checkbox on the virtual I/O address range selection window, and then select address ranges for the MAC address and the WWN address.
    When there is another manager, select address ranges which do not conflict those of the other manager.

  For details, refer to the ServerView Virtual-IO Manager for Windows manual.

- DHCP server installation

  Installation of the Windows standard DHCP Server is necessary when managed servers belonging to different subnets from the admin server are to be managed.

  Install the DHCP Server following the procedure below:

  1. Add DHCP Server to the server roles.
     Perform binding of the network connections for the NIC to use as the admin LAN.
     For the details on adding and binding, refer to the manual for Windows.
  2. Open "Services" from "Administrative Tools" on the Windows Control Panel, and then configure the startup type of DHCP Server service as "Manual" on the [Services] window.
  3. From the [Services] window, stop the DHCP Server service.

     When an admin server is a member of a domain, perform 4.

4. Authorize DHCP servers.

   a. Open "DHCP" from "Administrative Tools" on the Windows Control Panel, and select [Action]-[Managed authorized servers] on the [DHCP] window.

      The [Manage Authorized Servers] window will be displayed.

   b. Click <Authorize>.

      The [Authorize DHCP Server] window will be displayed.

   c. Enter the admin IP address of the admin server in "Name or IP address".

   d. Click <OK>.

      The [Confirm Authorization] window will be displayed.

   e. Check the "Name" and "IP Address".

   f. Click <OK>.

      The server will be displayed in the "Authorized DHCP servers" of the [Manage Authorized Servers] window.

- ETERNUS SF Storage Cruiser

  When using ESC, configure the Fibre Channel switch settings in advance.

[Linux]

- Microsoft LAN Manager Module

  Before installing Resource Orchestrator, obtain the Microsoft LAN Manager module from the following FTP site.

  The Microsoft LAN Manager module can be used regardless of the CPU architecture type (x86, x64).

URL: ftp://ftp.microsoft.com/bussys/clients/msclient/dsk3-1.exe (As of February 2012)

  When installing Resource Orchestrator to an environment that already has ServerView Deployment Manager installed, it is not necessary to obtain the Microsoft LAN Manager module.

  The obtained module must be extracted using the Expand command on a computer with x86 CPU Windows architecture. For details on how to extract the module, refer to the following examples:

  Example

  When dsk3-1.exe was deployed on c:\temp

  ```
  >cd /d c:\temp <RETURN>
  >dsk3-1.exe <RETURN>
  >Expand c:\temp\protman.do_ /r <RETURN>
  >Expand c:\temp\protman.ex_ /r <RETURN>
  ```

  Use the Windows 8.3 format (*1) for the folder name or the file name.

  After manager installation is complete, the extracted Microsoft LAN Manager module is no longer necessary.

  *1: File names are limited to 8 characters and extensions limited to 3 characters.

  After extracting the following modules, deploy them to a work folder (/tmp) on the system for installation.

  - PROTMAN.DOS
  - PROTMAN.EXE
  - NETBIND.COM

- SNMP Trap Daemon

  In order for Resource Orchestrator to operate correctly to operate correctly, ensure that the following settings are made for the "/etc/snmp/snmptrapd.conf" file, when installing the net-snmp package. When there is no file, add the following setting after creating the file.

  ```
  disableAuthorization yes
  ```

- ETERNUS SF Storage Cruiser

  When using ESC, configure the Fibre Channel switch settings in advance.

User Account Checks

The OS user account name used for the database connection for Resource Orchestrator is fixed as "rcxdb". When applications using the OS user account "rcxdb" exist, delete them after confirming there is no effect on them.

Single Sign-On Preparation and Checks

Before installing Resource Orchestrator, certificate preparation and user registration with the registration service are required.
For details, refer to "4.5 Installing and Configuring Single Sign-On" of the "Setup Guide CE".

For setting up Resource Orchestrator, it is necessary to establish communication beforehand, since communication between the manager and the directory service requires LDAP (Lightweight Directory Access Protocol) of the TCP/IP protocol protected by SSL.
Use tools or commands to check communications.

- When the directory server is Microsoft Active Directory

  For details, refer to the Microsoft web site below.

  How to enable LDAP over SSL with a third-party certification authority

  ```
  URL: http://support.microsoft.com/kb/321051/en/ (As of April 2012)
  ```

Language Settings

As Resource Orchestrator installs programs that correspond to the supported language, language settings (locale) cannot be changed after installation.

Therefore, set the language (locale) to Japanese or English according to your operational requirements.

The example of language settings (locale) confirmation methods is given below:

Example

- For Windows

  From the Control Panel, open "Date, Time, Language, and Regional Options" and select [Regional and Language Options].

- For Red Hat Enterprise Linux 5

  From the desktop screen, select [System]-[Administration]-[Language].

Tuning System Parameters (Admin Server) [Linux]

Before installation, it is necessary to tune up system parameters for the admin server. See the table below for the system parameters that need to be tuned and their values.

Point

Set the values according to the "type" of each parameter as follows:

- **When the type is "setup value"**

  Modification is not necessary if already set value (default or previous value) is equal to or larger than the value in the table. If it is smaller than the value in the table, change the value to the one in the table.

- **When the type is "additional value"**

  Add the value in the table to already set value. Before adding the value, check the upper limit for the system, and set either the resulting value or the upper limit for the system, whichever is smaller.

For details, refer to the Linux manual.

- Shared Memory

Parameter	Description	Value	Type
shmmax	Maximum Segment Size of Shared Memory	2684354560	Setup value
shmall	Total amount of shared memory available for use	655360	Setup value
shmmni	Maximum number of shared memory segments	98	Additional value

- Semaphores

  To configure semaphores, specify the value for each parameter in the following format:

```
kernel.sem = para1 para2 para3 para4
```

Parameter	Description	Value	Type
para1	Maximum number of semaphores for each semaphore identifier	512	Setup value
para2	Total number of semaphores in the system	13325	Additional value
para3	Maximum number of operators for each semaphore call	50	Setup value
para4	Total number of semaphore operators in the system	1358	Additional value

- Message Queue

Parameter	Description	Value	Type
msgmax	Maximum size of a message	16384	Setup value
msgmnb	Maximum size of the messages that can be retained in a single message queue	114432	Setup value
msgmni	Maximum number of message queue IDs	1041	Additional value

[Tuning Procedure]

Use the following procedure to perform tuning:

1. Use the following command to check the values of the corresponding parameters currently configured for the system.

```
# /sbin/sysctl -a
```

Example

```
# /sbin/sysctl -a
...
  (omitted)
...

kernel.sem = 250 32000 32 128
kernel.msgmnb = 65536
kernel.msgmni = 16
kernel.msgmax = 65536
kernel.shmmni = 4096
kernel.shmall = 4294967296
kernel.shmmax = 68719476736

...
  (omitted)
...
```

2. For each parameter, compare the current value to that in the above table, and then calculate the appropriate value, based on its value type (setup or additional value).

3. Edit /etc/sysctl.conf. Edit the content as in the following example:

Example

```
kernel.sem = 512 13325 50 1358
kernel.msgmnb = 114432
kernel.msgmni = 1041
kernel.shmmni = 4154
```

4. Confirm that edited content is reflected in /etc/sysctl.conf, using the following command:

```
# /bin/cat /etc/sysctl.conf
```

5. Enable the configuration on 4. using one of the following methods:

   - Reboot the system to reflect the settings

   ```
   # /sbin/shutdown -r now
   ```

   - Use /sbin/sysctl -p to reflect the settings

   ```
   # /sbin/sysctl -p /etc/sysctl.conf (*)
   ```

   * When using this command, reboot is not necessary.

6. Confirm that configured parameters are reflected, using the following command:

```
# /sbin/sysctl -a
```

Example

```
# /sbin/sysctl -a
...
  (omitted)
...

kernel.sem = 512 13325 50 1358
kernel.msgmnb = 114432
```

```
kernel.msgmni = 1041
kernel.msgmax = 65536
kernel.shmmni = 4154
kernel.shmall = 4294967296
kernel.shmmax = 68719476736

...
  (omitted)
...
```

2.1.1.2 Collecting and Checking Required Information

Before installing Resource Orchestrator, collect required information and check the system status, then determine the information to be specified on the installation window. The information that needs to be prepared is given below.

- Installation Folder

  Decide the installation folder for Resource Orchestrator.
  Note that folders on removable disks cannot be specified.
  Check that there are no files or folders in the installation folder.
  Check that the necessary disk space can be secured on the drive for installation.
  For the amount of disk space necessary for Resource Orchestrator, refer to "1.4.2.4 Static Disk Space" and "1.4.2.5 Dynamic Disk Space" of the "Setup Guide CE".

- Image File Storage Folder

  The image file storage folder is located in the installation folder.
  Check that sufficient disk space can be secured on the drive where the storage folder will be created.
  For the necessary disk space, refer to "1.4.2.5 Dynamic Disk Space" of the "Setup Guide CE".

  For details of how to change the image file storage folder, refer to "5.5 rcxadm imagemgr" of the "Command Reference".

- Port Number

  When Resource Orchestrator is installed, the port numbers used by it will automatically be set in the services file of the system. So usually, there is no need to pay attention to port numbers.

  If the port numbers used by Resource Orchestrator are being used for other applications, a message indicating that the numbers are in use is displayed when the installer is started, and installation will stop.
  In that case, describe the entries for the following port numbers used by Resource Orchestrator in the services file using numbers not used by other software, and then start the installer.

Example

```
# service name port number/
protocol name
nfdomain      23455/tcp
nfagent       23458/tcp
rcxmgr        23460/tcp
rcxweb        23461/tcp
rcxtask       23462/tcp
rcxmongrel1   23463/tcp
rcxmongrel2   23464/tcp
rcxdb         23465/tcp
rcxmongrel3   23466/tcp
rcxmongrel4   23467/tcp
rcxmongrel5   23468/tcp
```

For details, refer to "3.1.2 Changing Port Numbers" of the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- Directory Service Connection Information for Single Sign-On

  Check the settings of the directory service used for Single Sign-On.

  Refer to the following manual when the OpenDS that is included with ServerView Operations Manager is used.

  "ServerView user management via an LDAP directory service" in the "ServerView Suite User Management in ServerView" manual of ServerView Operations Manager

Parameters Used for Installation

The following table contains the parameters used for installation.

[Windows]

No.	Window	Entry	Description
1	Installation Folder Selection	Installation Folder	This is the folder where Resource Orchestrator is installed. (*1) Default value: **C:\Fujitsu\ROR** The installation folder can contain 14 characters or less including the drive letter and "\". A path starting with "\\" or a relative path cannot be specified. It can contain alphanumeric characters, including hyphens ("-") and underscores ("_").
2	Administrative User Creation	User Account	This is the user account name to be used for logging into Resource Orchestrator as an administrative user. Specifying the administrator account, "administrator", of ServerView Operations Manager enables Single Sign-On coordination with ServerView Operations Manager when the OpenDS that is included with ServerView Operations Manager is used. The name must start with an alphabetic character and can be up to 16 alphanumeric characters long, including underscores ("_"), hyphens ("-"), and periods, (".). Input is case-sensitive.
		Password	The password of the administrative user. The string must be composed of alphanumeric characters and symbols, and can be up to 16 characters long.
		Retype password	
3	Admin LAN Selection	Network to use for the admin LAN	This is the network to be used as the admin LAN. Select it from the list. The maximum value for the subnet mask is 255.255.255.255(32bit mask). The minimum value is 255.255.0.0(16bit mask). However, 255.255.255.254 cannot be specified.
4	Directory Server Information 1/2	IP Address	This is the IP address of the directory server to be connected to.
		Port number	This is the port number of the directory server to be connected to. Check the settings of the directory server to be used. Specify a port number for SSL. "1474" is set as the

No.	Window	Entry	Description
			initial port number for SSL when the OpenDS that is included with ServerView Operations Manager is used.
		Use of SSL for connecting to the Directory Server	Select "SSL Authentication".
		Directory Server Certificates	Specify the folder storing directory server CA certificates. Only server CA certificates are stored in this folder.
5	Directory Server Information 2/2	Base (DN)	This is the base name (DN) of the directory server to be connected to. Check the settings of the directory server to be used. "dc=fujitsu,dc=com" is set as the initial value when the OpenDS that is included with ServerView Operations Manager is used.
		Administrator (DN)	This is the administrator name (DN) of the directory server to be connected to. Check the settings of the directory server to be used. "cn=Directory Manager" is set when the OpenDS that is included with ServerView Operations Manager is used.
		Password	This is the password of the administrator of the directory server to be connected to. Check the settings of the directory server to be used. Refer to the following manual when the OpenDS that is included with ServerView Operations Manager is used. "ServerView user management with OpenDS" in the "ServerView Suite User Management in ServerView" manual of ServerView Operations Manager
6	Port Number Settings	Interstage Management Console	This is the port number of the Interstage management console. Default value: **12000**
		Web Server (Interstage HTTP Server)	This is the port number of the Web server. Default value: **80**
		CORBA Service	The port number of the CORBA service used by Resource Orchestrator. Default value: **8002**
7	CMDB Destination Folder Selection	CMDB Manager's database installation folder	This is the folder to install the CMDB of Resource Orchestrator. The installation folder can contain 64 characters or less including the drive letter and "\". A path starting with "\\" or a relative path cannot be specified. It can contain alphanumeric characters, including hyphens ("-") and underscores ("_").
8	Admin Server Settings	FQDN for the Admin Server	The FQDN of the authentication server used by Resource Orchestrator. The FQDN of the authentication server must be the FQDN of the admin server. The FQDN can be up to 249 characters long and must be supported for name resolution.

*1: Specify an NTFS disk.

[Linux]

No.	Window	Entry	Description
1	Administrative User Creation	User Account	This is the user account name to be used for logging into Resource Orchestrator as an administrative user. Specifying the administrator account, "administrator", of ServerView Operations Manager enables Single Sign-On coordination with ServerView Operations Manager when the OpenDS that is included with ServerView Operations Manager is used. The name must start with an alphabetic character and can be up to 16 alphanumeric characters long, including underscores ("_"), hyphens ("-"), and periods, (".). Input is case-sensitive.
		Password	The password of the administrative user. The string must be composed of alphanumeric characters and symbols, and can be up to 16 characters long.
		Retype password	
2	Admin LAN Selection	Network to use for the admin LAN	This is the network to be used as the admin LAN. Select it from the list. The maximum value for the subnet mask is 255.255.255.255(32bit mask). The minimum value is 255.255.0.0(16bit mask). However, 255.255.255.254 cannot be specified.
3	Directory Server Information	IP Address	This is the IP address of the directory server to be connected to.
		Port number	This is the port number of the directory server to be connected to. Check the settings of the directory server to be used. Specify a port number for SSL. "1474" is set as the initial port number for SSL when the OpenDS that is included with ServerView Operations Manager is used.
		Use of SSL for connecting to the Directory Server	Select "SSL Authentication".
		Directory Server Certificates	Specify the directory used to store directory server CA certificates. Only server CA certificates are stored in this directory.
		Base (DN)	This is the base name (DN) of the directory server to be connected to. Check the settings of the directory server to be used. "dc=fujitsu,dc=com" is set as the initial value when the OpenDS that is included with ServerView Operations Manager is used.
		Administrator (DN)	This is the administrator name (DN) of the directory server to be connected to. Check the settings of the directory server to be used. "cn=Directory Manager" is set when the OpenDS that is included with ServerView Operations Manager is used.
		Password	This is the password of the administrator of the directory server to be connected to. Check the settings of the directory server to be used. Refer to the following manual when the OpenDS that is included with ServerView Operations Manager is used.

No.	Window	Entry	Description
			"ServerView user management with OpenDS" in the "ServerView Suite User Management in ServerView" manual of ServerView Operations Manager
4	Port Number Settings	Interstage Management Console	This is the port number of the Interstage management console. Default value: **12000**
		Web Server (Interstage HTTP Server)	This is the port number of the Web server. Default value: **80**
		CORBA Service	The port number of the CORBA service used by Resource Orchestrator. Default value: **8002**
5	CMDB Destination Folder Selection	CMDB Manager's database installation folder	This is the folder to install the CMDB of Resource Orchestrator. Enter a directory that already exists on the OS, using a maximum of 63 characters.
6	Admin Server Settings	FQDN for the Admin Server	The FQDN of the authentication server used by Resource Orchestrator. The FQDN of the authentication server must be the FQDN of the admin server. The FQDN can be up to 106 characters long and must be supported for name resolution.

2.1.1.3 Configuration Parameter Checks

Check configuration parameters following the procedure below:

[Windows]

1. Log in as the administrator.
2. Start the installer.

   The installer is automatically displayed when the first DVD-ROM is set in the DVD drive. If it is not displayed, execute "RcSetup.exe" to start the installer.
3. Select "Tool" on the window displayed, and then click "Environment setup conditions check tool". Configuration parameter checking will start.
4. When configuration parameter checking is completed, the check results will be saved in the following location.

   C:\tmp\ror_precheckresult-*YYYY-MM-DD-hhmmss*.txt

   Refer to the check results, and check that no error is contained. If any error is contained, remove the causes of the error.

[Linux]

1. Log in to the system as the OS administrator (root).

   Boot the admin server in multi-user mode to check that the server meets requirements for installation, and then log in to the system using root.
2. Set the first Resource Orchestrator DVD-ROM.
3. Execute the following command to mount the DVD-ROM. If the auto-mounting daemon (autofs) is used for starting the mounted DVD-ROM, the installer will fail to start due to its "noexec" mount option.

   # **mount /dev/hdc** *DVD-ROM_mount_point* <RETURN>

4. Execute the agent installation command (the RcSetup.sh command).

```
# cd DVD-ROM_mount_point <RETURN>
# ./RcSetup.sh <RETURN>
```

5. Select "Environment setup conditions check tool" from the menu to execute the tool.

6. When the check is completed, the result will be sent to standard output.

2.1.2 Installation [Windows]

The procedure for manager installation is given below.

Before installing Resource Orchestrator, check that the preparations given in "2.1.1 Preparations" have been performed.

Precautions for Installation

When a terminal server has been installed, execute the following command using the command prompt to change the terminal service to installation mode.

```
CHANGE USER /INSTALL
User session is ready to install applications.
```

Installation

The procedure for manager installation is given below.

1. Log on as the administrator.

   Log on to the system on which the manager is to be installed.
   Log on as a user belonging to the local Administrators group.

2. Start the installer.

   The installer is automatically displayed when the first DVD-ROM is set in the DVD drive. If it is not displayed, execute "RcSetup.exe" to start the installer.

3. Click "Manager(Cloud Edition) installation".

4. Following the installation wizard, enter the parameters prepared and confirmed in "Parameters Used for Installation" properly.

5. Upon request of the wizard for DVD-ROM switching, set the second DVD-ROM and the third DVD-ROM to continue the installation.

- In the event of installation failure, restart and then log in as the user that performed the installation, and perform uninstallation following the uninstallation procedure.
  After that, remove the cause of the failure referring to the meaning of the output message and the suggested corrective actions, and then perform installation again.

- If there are internal inconsistencies detected during installation, the messages "The problem occurred while installing it" or "Native Installer Failure" will be displayed and installation will fail. In this case, uninstall the manager and reinstall it.

- For uninstallation of managers, refer to "3.1.3 Uninstallation [Windows]". If the problem persists, please collect troubleshooting information and contact Fujitsu technical staff.

- If rolling back to the previous status before an installation failure has not finished, the message "System has some on incomplete install information. Please delete before this installation" will be displayed and installation will fail. Uninstall the manager and reinstall it. For uninstallation of managers, refer to "3.1.3 Uninstallation [Windows]". If the problem persists even if reinstallation is performed, please collect troubleshooting information and contact Fujitsu technical staff.

- Nullifying Firewall Settings for Ports to be used by Resource Orchestrator

  When installing Resource Orchestrator on systems with active firewalls, in order to enable correct communication between the manager, agents, and clients, disable the firewall settings for the port numbers to be used for communication.

  For the port numbers used by Resource Orchestrator and required software, refer to "Appendix A Port List" of the "Setup Guide CE".

  However, when port numbers have been changed by editing the services file during installation of Resource Orchestrator, replace the default port numbers listed in "Appendix A Port List" of the "Setup Guide CE" with the port numbers changed to during installation.

Post-installation Cautions

- When a terminal server has been installed, execute the following command using the command prompt to change the terminal service to the execution mode.

  If continuously proceed to "2.1.4 Setup", this operation is unnecessary.

```
CHANGE USER /EXECUTE
User session is ready to execute applications.
```

- The following users are added.

  - swrbadbuser

    swrbadbuser is used as an OS account to start the database service for process management. Do not delete this account when Resource Orchestrator has been installed.

  - rcxctdbchg

    rcxctdbchg is used as an OS account to start the database service for metering. Do not delete this account when Resource Orchestrator has been installed.

  - rcxctdbdsb

    rcxctdbdsb is used as an OS account to start the database service for dashboards. Do not delete this account when Resource Orchestrator has been installed.

2.1.3 Installation [Linux]

The procedure for manager installation is given below.

Before installing Resource Orchestrator, check that the preparations given in "2.1.1 Preparations" have been performed.

1. Log in to the system as the OS administrator (root).

   Boot the admin server that Resource Orchestrator is to be installed on in multi-user mode, and then log in to the system using root.

2. Set the first Resource Orchestrator DVD-ROM and execute the following command to mount the DVD-ROM. If the auto-mounting daemon (autofs) is used for DVD-ROM auto-mounting, the installer fails to start due to its "noexec" mount option.

   Set the same value for the first, second, and third DVD-ROMs in the DVD mount point.

   # **mount /dev/hdc** *DVD-ROM_mount_point* <RETURN>

3. Execute the manager installation command (the RcSetup.sh command).

   # *DVD-ROM_mount_point*/ **RcSetup.sh** <RETURN>

4. Select "2. Manager(Cloud Edition) installation".

5. Perform installation according to the installer's interactive instructions.

   Enter the parameters prepared and confirmed in "Parameters Used for Installation" in "2.1.1.2 Collecting and Checking Required Information".

6. A message for disk switching will be output.

7. Start a different terminal (such as a GNOME terminal), and then eject the DVD-ROM using the following command.

```
# eject DVD-ROM_mount_point <RETURN>
```

8. Set the second DVD-ROM and wait for the completion of auto-mounting.

9. Mount the DVD-ROM again.

```
# umount DVD-ROM_mount_point <RETURN>
# mount /dev/hdc DVD-ROM_mount_point <RETURN>
```

10. Press the Enter key to continue the installation.

11. Repeat 8. to 10. with the third DVD-ROM as well to continue the installation.

- Current Directory Setting

  Do not set the current directory to the DVD-ROM to allow disk switching.

- In Single User Mode

  In single user mode, X Windows does not start, and one of the following operations is required.

  - Switching virtual consoles (using the CTL + ALT + PFn keys)
  - Making commands run in the background

- Corrective Action for Installation Failure

  In the event of installation failure, restart the OS and then log in as the user that performed the installation, and perform uninstallation following the uninstallation procedure.

  After that, remove the cause of the failure referring to the meaning of the output message and the suggested corrective actions, and then perform installation again.

- If there are internal inconsistencies detected during installation, the messages "The problem occurred while installing it" or "It failed in the installation" will be displayed and installation will fail. In this case, uninstall the manager and reinstall it. If the problem persists, please contact Fujitsu technical staff.

- Nullifying Firewall Settings for Ports to be used by Resource Orchestrator

  When installing Resource Orchestrator on systems with active firewalls, in order to enable correct communication between the manager, agents, and clients, disable the firewall settings for the port numbers to be used for communication.

  For the port numbers used by Resource Orchestrator and required software, refer to "Appendix A Port List" of the "Setup Guide CE".

  However, when port numbers have been changed by editing the services file during installation of Resource Orchestrator, replace the default port numbers listed in "Appendix A Port List" of the "Setup Guide CE" with the port numbers changed to during installation.

- Destination Directories

  The destination directories are fixed as those below and cannot be changed.

  - /opt
  - /etc/opt
  - /var/opt

2.1.4 Setup

This section explains the procedure for manager setup.

Advisory Notes for Pre-setup

When using Microsoft Active Directory on a different server from the manager, add "Active Directory Lightweight Directory Services".

Use the following procedure to add "Active Directory Lightweight Directory Services".

1. Select [Start]-[Administrative Tools]-[Server Manager] on the Windows menu.

   The [Server Manager] dialog is displayed.

2. Select [Roles]-[Add Roles]-[Active Directory Lightweight Directory Services].

3. Following the wizard to add roles, click <Install> on a confirmation window.

[Windows]

When a terminal server has been installed, execute the following command using the command prompt to change the terminal service to installation mode.
If it is already installation mode, this operation is unnecessary.

```
CHANGE USER /INSTALL
User session is ready to install applications.
```

Setup

For manager setup, execute the setup command.
Setup is executable from either the media or the extracted module.

[Windows]

1. Log on as the administrator.

   Log on to the system on which the manager is to be set up.
   Log on as a user belonging to the local Administrators group.

2. Execute the setup command.

   - When executing from the media

     >*Installation_medium***RcSetup.exe** <RETURN>

   - When executing from the extracted module

     >*Installation_folder***ROR\SVROR\Manager\sys\setup\RcSetup.exe** <RETURN>

3. Select setup from the menu to execute the setup command.

[Linux]

1. Log in to the system as the OS administrator (root).

2. Execute the setup command.

   - When executing from the media

     >*Installation_medium*/**RcSetup.sh** <RETURN>

   - When executing from the extracted module

     >*Installation_folder*/**FJSVrcvmr/sys/setup/RcSetup.sh** <RETURN>

3. Select setup from the menu to execute the setup command.

Point

After completing setup, perform the procedure described in "Chapter 6 Configuration after Installation" in the "Setup Guide CE".

Note

- When setup failed, check if there are no problems for the following cases:
  - The CA certificate specified during installation has not been correctly stored or imported

    After checking that the CA certificate is correctly stored before setup, import the CA certificate.
    For details, refer to "4.5.5 When Reconfiguring Single Sign-On" in the "Setup Guide CE".
    Check the CA certificate for communication using LDAP and SSL between the manager and the directory service, referring to the ServerView Operations Manager manual.
  - The directory server information given during the installation process was incorrect

    For details, refer to "1.7.10 rcxadm authctl" in the "Reference Guide (Resource Management) CE", and use the command to check that whether the following information is correct. If the information is incorrect, modify it.
    - IP Address
    - Port Number
    - Base (DN)
    - Administrator (DN)
    - Password
  - Unsetup has not been completed

    Delete the following entries from the directory service to use:
    - swrbaadmin
    - swrbasch
    - Group
  - The OpenDS LDAP port number has been changed

    Reset the port number to the default, and perform the operation again.
- When configuring an environment on the admin server with multiple IP addresses, use the following procedure before initiating setup.
  1. Check the IP address that can be used for connection to the admin server when the ping command is executed from a different server.
  2. Edit the relevant line in the Interstage JMX service configuration file as follows.

     File Storage Location

     [Windows]

Installation_folder\ROR\IAPS\jmx\etc\isjmx.xml

     [Linux]

/etc/opt/FJSVisjmx/isjmx.xml

     Edited Content

     Before modifying

<!-- <host localhost="xxx.xxx.xxx.xxx"/> -->

After modifying

The following is an example when the connectable IP address is 123.123.1.1.

```
<host localhost="123.123.1.1"/>
```

3. After modifying, use the following procedure to resume the Interstage JMX service and the Interstage management console Servlet service.

   [Windows]
   Go to [Start]-[Administrative Tools]-[Services] on the Windows menu, and resume the following services. Select [Resume] or [Stop], then [Start] from the menu.

   - Interstage JServlet(OperationManagement)
   - Interstage Operation Tool

   [Linux]
   Execute the following command to resume services.

   ```
   # /opt/FJSVisgui/bin/ismngconsolestop <RETURN>
   # /opt/FJSVisgui/bin/ismngconsolestart <RETURN>
   ```

Post-Setup Cautions

When a terminal server has been installed, execute the following command using the command prompt to change the terminal service to the execution mode.

```
CHANGE USER /EXECUTE
User session is ready to execute applications.
```

2.1.5 License Setup

This section explains license setup.

To use Resource Orchestrator, license setup is required after the installation.

For details on license configuration, refer to "Chapter 7 Logging in to Resource Orchestrator" in the "Setup Guide CE".

2.1.6 Importing a Certificate to a Browser

This section explains certificate import to Web browsers.

To use Resource Orchestrator, a certificate must be installed to Web browsers after license setup.

For details, refer to "7.4 Importing a Certificate to a Browser" in the "Setup Guide CE".

2.2 Agent Installation

This section explains the procedure for physical L-Server or VM host agent installation.

2.2.1 Preparations

This section explains the preparations and checks required before commencing installation.

2.2.1.1 Software Preparation and Checks

Software preparation and checks are explained in the following sections.

- Exclusive Software Checks

  Refer to "Exclusive Software Checks".

- Required Software Checks

  Refer to "Required Software Preparation and Checks".

Exclusive Software Checks

Before installing Resource Orchestrator, check that the software listed in "1.4.2.3 Exclusive Software" of the "Setup Guide CE" and the agent of Resource Orchestrator have not been installed on the system.
Use the following procedure to check that exclusive software has not been installed.

[Windows/Hyper-V]

1. Open "Add or Remove Programs" on the Windows Control Panel.

   The [Add or Remove Programs] window will be displayed.

2. Check that none of the software listed in "1.4.2.3 Exclusive Software" of the "Setup Guide CE" has been installed on the system, and the there is no information which shows a Resource Orchestrator agent has not been installed.

   - "ServerView Resource Orchestrator Agent"

3. When any of the exclusive software is displayed on the [Add or Remove Programs] window, uninstall it according to the procedure described in the relevant manual before installing Resource Orchestrator.

   If agents of an earlier version of Resource Orchestrator have been installed, they can be upgraded. Refer to "4.3 Agent".
   When reinstalling an agent on a system on which an agent of the same version of Resource Orchestrator has been installed, perform uninstallation referring to "3.2.1 Uninstallation [Windows/Hyper-V]" and then perform installation.

   #### Information

   For Windows Server 2008, select "Programs and Features" from the Windows Control Panel.

[Linux]

1. Check that none of the software listed in "1.4.2.3 Exclusive Software" in the "Setup Guide CE" are displayed. Execute the following command and check if Resource Orchestrator Agent has been installed.

   ```
   # rpm -q FJSVrcvat <RETURN>
   ```

2. If the names of exclusive software have been displayed, uninstall them according to the procedure described in the relevant manual before proceeding.

   If agents of an earlier version of Resource Orchestrator have been installed, they can be upgraded. Refer to "4.3 Agent".
   When reinstalling an agent on a system on which an agent of the same version of Resource Orchestrator has been installed, perform uninstallation referring to "3.2.2 Uninstallation [Linux/VMware/Xen/KVM/Oracle VM]" and then perform installation.

   #### Note

   - When uninstalling exclusive software, there are cases where other system administrators might have installed the software, so check that deleting the software causes no problems before actually doing so.

   - With the standard settings of Red Hat Enterprise Linux 5 or later, when DVD-ROMs are mounted automatically, execution of programs on the DVD-ROM cannot be performed. Release the automatic mount settings and perform mounting manually, or start installation after copying the contents of the DVD-ROM to the hard disk.
     When copying the contents of the DVD-ROM, replace "*DVD-ROM_mount_point*" with the used directory in the procedures in this manual.

Required Software Preparation and Checks

Before installing Resource Orchestrator, check that the required software given in "1.4.2.2 Required Software" of the "Setup Guide CE" has been installed. If it has not been installed, install it before continuing.

Note

- ServerView Agents Settings

  To operate Resource Orchestrator correctly on PRIMERGY series servers, perform the necessary settings for SNMP services during installation of ServerView Agents.
  For how to perform SNMP service settings, refer to the ServerView Agents manual.

  - For the SNMP community name, specify the same value as the SNMP community name set for the management blade.
  - For the SNMP community name, set Read (reference) or Write (reference and updating) authority.
  - For the host that receives SNMP packets, select "Accept SNMP packets from any host" or "Accept SNMP packets from these hosts" and set the admin LAN IP address of the admin server.
  - For the SNMP trap target, set the IP address of the admin server.
    When an admin server with multiple NICs is set as the SNMP trap target, specify the IP address of the admin LAN used for communication with the managed server.

- The "setupcl.exe" and "sysprep.exe" Modules

  For Windows OS's other than Windows Server 2008, it is necessary to specify storage locations for the "setupcl.exe" and "sysprep.exe" modules during installation. Obtain the newest modules before starting installation of Resource Orchestrator.

  For the method of obtaining the modules, refer to "1.4.2.2 Required Software" of the "Setup Guide CE".

  Extract the obtained module using the following method:

  Example

  When WindowsServer2003-KB926028-v2-x86-JPN.exe has been placed in c:\temp

  ```
  >cd /d c:\temp <RETURN>
  >WindowsServer2003-KB926028-v2-x86-JPN.exe /x <RETURN>
  ```

  During installation, specify the cabinet file "deploy.cab" in the extracted folder, or the "setupcl.exe" and "sysprep.exe" modules contained in "deploy.cab".
  After agent installation is complete, the extracted module is no longer necessary.

Language Settings

As Resource Orchestrator installs programs that correspond to the supported language, language settings (locale) cannot be changed after installation.

Therefore, set the language (locale) to Japanese or English according to your operational requirements.

The example of language settings (locale) confirmation methods is given below:

Example

- For Windows

  From the Control Panel, open "Date, Time, Language, and Regional Options" and select [Regional and Language Options].

- For Red Hat Enterprise Linux 5

  From the desktop screen, select [System]-[Administration]-[Language].

Red Hat Enterprise Linux 6 Preconfiguration

Only perform this when using Red Hat Enterprise Linux 6 as the basic software of a server.

When using cloning and server switchover, perform the following procedure to modify the configuration file.

1. Execute the following command.

   ```
   # systool -c net <RETURN>
   ```

   ```
   # systool -c net <RETURN>
   Class = "net"
   Class Device = "eth0"
   Device =
   "0000:01:00.0"
   Class Device = "eth1"
   Device =
   "0000:01:00.1"
   Class Device = "eth2"
   Device =
   "0000:2:00 AM.0"
   Class Device = "eth3"
   Device =
   "0000:2:00 AM.1"
   Class Device = "lo"
   Class Device = "sit0"
   ```

2. Confirm the device name which is displayed after "Class Device =" and the PCI bus number which is displayed after "Device =" in the command output results.

3. Correct the configuration file.

   After confirming support for device name and MAC address in the following configuration file, change ATTR{address}=="*MAC_address*" to KERNELS=="*PCI_bus_number*".

   All corresponding lines should be corrected.

   Configuration File Storage Location

   /etc/udev/rules.d/70-persistent-net.rules

   - Before changing

     ```
     SUBSYSTEM=="net", ACTION=="add", DRIVERS=="?*",
     ATTR{address}=="MAC_address", ATTR{type}=="1", KERNEL=="eth*",
     NAME="Device_name"
     ```

   - After changing

```
SUBSYSTEM=="net", ACTION=="add", DRIVERS=="?*",
KERNELS=="PCI_bus_number", ATTR{type}=="1", KERNEL=="eth*",
NAME="Device_name"
```

4. After restarting the managed servers, check if communication with the entire network is possible.

Configuration File Check

- When using Red Hat Enterprise Linux

  When using the following functions, check the configuration files of network interfaces before installing Resource Orchestrator, and release any settings made to bind MAC addresses.

  - Server switchover
  - Cloning

  Only perform this when using Red Hat Enterprise Linux 4 AS/ES as the basic software of a server.

  Refer to the /etc/sysconfig/network-scripts/ifcfg-eth*X* file (eth*X* is an interface name such as eth0 or eth1), and check that there is no line starting with "HWADDR=" in the file.
  If there is a line starting with "HWADDR=", this is because the network interface is bound to a MAC address. In that case, comment out the line.

  Example

  When the admin LAN interface is eth0

  ```
  DEVICE=eth0
  #HWADDR=xx:xx:xx:xx:xx:xx <- If this line exists, comment it out.
  ONBOOT=yes
  TYPE=Ethernet
  ```

- When using SUSE Linux Enterprise Server

  - When using cloning and server switchover, perform the following procedure to modify the configuration file.

    1. Execute the following command.

       ```
       # systool -c net <RETURN>
       ```

       Example

       ```
       # systool -c net <RETURN>
       Class = "net"

         Class Device = "eth0"
           Device = "0000:01:00.0"

         Class Device = "eth1"
           Device = "0000:01:00.1"

         Class Device = "eth2"
           Device = "0000:2:00 AM.0"

         Class Device = "eth3"
           Device = "0000:2:00 AM.1"

         Class Device = "lo"
       ```

```
Class Device = "sit0"
```

2. Confirm the device name which is given after "Class Device =" and PCI bus number which is given after "Device =" in the command output results.

3. Modify the configuration file.

   When using SUSE Linux Enterprise Server 10

   a. After confirming support for device name and MAC address in the following configuration file, change SYSFS{address}=="*MAC_address*" to ID=="*PCI_bus_number*".
   All corresponding lines should be corrected.
   Support of the device name and MAC address will be used after step b.

   /etc/udev/rules.d/30-net_persistent_names.rules

   Before changing

   SUBSYSTEM=="net", ACTION=="add", SYSFS{address}=="*MAC_address*", IMPORT="/lib/udev/rename_netiface %k *device_name*"

   After changing

   SUBSYSTEM=="net", ACTION=="add", ID=="*PCI_bus_number*", IMPORT="/lib/udev/rename_netiface %k *device_name*"

   b. Based on the results of step 1. and a. in step 3., change the name of the following file will be to a name that includes the PCI bus number.

   Before changing

   /etc/sysconfig/network/ifcfg-eth-id-MAC address

   After changing

   /etc/sysconfig/network/ifcfg-eth-bus-pci-PCI bus number

   When using SUSE Linux Enterprise Server 11

   Change ATTR{address}=="*MAC address*" to KERNELS=="*PCI_bus_number*" in the following configuration file.
   All corresponding lines should be corrected.

   /etc/udev/rules.d/70-persistent-net.rules

   Before changing

   SUBSYSTEM=="net", ACTION=="add", DRIVERS=="?*", ATTR{address}=="*MAC_address*", ATTR{type}=="1", KERNEL=="eth*", NAME="*device_name*"

   After changing

   SUBSYSTEM=="net", ACTION=="add", DRIVERS=="?*", KERNELS=="*PCI_bus_number*", ATTR{type}=="1", KERNEL=="eth*", NAME="*device_name*"

4. After restarting the managed servers, check if communication with the entire network is possible.

- When using cloning or the backup and restore method for server switchover, during installation perform partition settings so that names of device paths are defined using the "Device Name" format (for example: /dev/sda1) in the /etc/fstab file.

  When installation is already complete, change the names of device paths defined in the boot configuration files /boot/efi/SuSE/elilo.conf and /boot/grub/menu.lst, and the /etc/fstab file so they use the "Device Name" format (for example: /dev/sda1).For specific details about the mount definition, please refer to the following URL and search for the Document ID:3580082.

URL: http://www.novell.com/support/microsites/microsite.do (As of February 2012)

2.2.1.2 Collecting and Checking Required Information

Before installing Resource Orchestrator, collect required information and check the system status, then determine the information to be specified on the installation window. The information that needs to be prepared is given below.

- Installation folder and available disk space

  Decide the installation folder for Resource Orchestrator. Check that the necessary disk space can be secured on the drive for installation.
  For the amount of disk space necessary for Resource Orchestrator, refer to "1.4.2.4 Static Disk Space" and "1.4.2.5 Dynamic Disk Space" of the "Setup Guide CE".

- Port number

  When Resource Orchestrator is installed, the port numbers used by it will automatically be set in the services file of the system. So usually, there is no need to pay attention to port numbers.
  If the port numbers used by Resource Orchestrator are being used for other applications, a message indicating that the numbers are in use is displayed when the installer is started, and installation will stop.
  In that case, describe the entries for the port numbers used by Resource Orchestrator in the services file using numbers not used by other software, and then start the installer.
  For details, refer to "3.2.6 Changing Port Numbers" of the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- Check the status of the admin LAN and NIC

  Decide the network (IP addresses) to be used for the admin LAN.
  Check that the NIC used for communication with the admin LAN is enabled.
  For admin LANs, refer to "4.2.2 IP Addresses (Admin LAN)" of the "Setup Guide VE".

  [Linux/Xen/KVM]
  Make the numeral of the managed server's network interface name (ethX) one of a consecutive sequence starting from 0. For the settings, refer to the manual for the OS.

- Check the target disk of image operations

  For backup and restoration of system images to disks, refer to "8.1 Overview" of the "Operation Guide CE".
  For cloning of disks, refer to "7.1 Overview" of the "User's Guide VE".

- Windows Volume License Information [Windows]

  When using the following functions, you must have a volume license for the version of Windows to be installed on managed servers by Resource Orchestrator.
  Check whether the Windows license you have purchased is a volume license.

  - Server switchover (HBA address rename method/ VIOM server profile switchover method)
  - Cloning
  - Restoration after server replacement
  - Server replacement using HBA address rename

  When using cloning, you must enter volume license information when installing Resource Orchestrator.
  Depending on the version of Windows being used, check the following information prior to installation.

  - For Windows Server 2003

    Check the product key.
    Generally, the product key is provided with the DVD-ROM of the Windows OS purchased.

  - For Windows Server 2008

    Check the information necessary for license authentication (activation).
    The two activation methods are Key Management Service (KMS) and Multiple Activation Key (MAK). Check which method you will use.

Check the following information required for activation depending on the method you will use.

- Activation Information

  Table 2.1 Activation Information Methods and Information to Check

Method	Information to Check
KMS (*1)	- The KMS host name (FQDN) or the computer name or IP address - Port number (Default 1688) (*2)
MAK	The MAK key

  *1: When using Domain Name Service (DNS) to automatically find the KMS host, checking is not necessary.
  *2: When changing the port number from the default (1688), correct the definition file after installing agents. For details, refer to "7.2 Collecting a Cloning Image" of the "User's Guide VE".

- Proxy Server Information

  When using a proxy server to connect to the KMS host (KMS method) or the Volume Activation Management Tool (VAMT) to authenticate a proxy license (MAK method), check the host name or IP address, and the port number of the proxy server.

- Administrator's Password

  Check the password as it is necessary for performing activation.

- Windows Administrator accounts

  When using Windows Server 2008, check whether Administrator accounts have been changed (renamed).
  Environments which have been changed (renamed) are not supported.

2.2.2 Installation [Windows/Hyper-V]

This section explains the procedure for agent installation.

Before installing Resource Orchestrator, check that the preparations given in "2.2.1 Preparations" have been performed.

1. Log on to Windows as the administrator.

   Log on to the system on which the agent is to be installed. Log on as a user belonging to the local Administrators group.

2. Start the installer from the window displayed when the first Resource Orchestrator DVD-ROM is set.

   Click "Agent installation" which is displayed on the window.

3. The Resource Orchestrator setup window will be displayed.

   Check the contents of the license agreement window etc. and then click <Yes>.

4. The [Select Installation Folder] window will be displayed.

   Click <Next>> to use the default Installation Folder. To change folders, click <Browse>, change folders, and click <Next>>.

   Note

   When changing the folders, be careful about the following points.

   - Do not specify the installation folder of the system (such as C:\).
   - Enter the location using 100 characters or less. Do not use double-byte characters or the following symbols in the folder name.

     """, "|", ":", "*", "?", "/", ".", "<", ">", ",", "%", "&", "^", "=", "!", ";", "#", "'", "+", "[", "]", "{", "}"

   - When installing this product to Windows 2003 x64 Edition or Windows 2008 x64 Edition, the following folder names cannot be specified for the installation folders.
     - "%SystemRoot%\System32\"

- When using cloning, installation on the OS system drive is advised, because Sysprep initializes the drive letter during deployment of cloning images.

5. The [Admin Server Registration] window will be displayed.

   Specify the admin LAN IP address of the admin server, the folder containing the "setupcl.exe" and "sysprep.exe" modules, then click <Next>>.

   Admin Server IP Address

   Specify the IP address of the admin server. When the admin server has multiple IP addresses, specify the IP address used for communication with managed servers.

   Folder Containing the setupcl.exe and sysprep.exe Modules

   Click <Refer> and specify "deploy.cab" or "setupcl.exe" and "sysprep.exe" as prepared in "2.2.1.1 Software Preparation and Checks".

   Information

   With Windows Server 2008, "setupcl.exe" and "sysprep.exe" are installed along with the OS so specification is not necessary (<Refer> will be disabled).

6. The [License Authentication] window will be displayed.

   Enter the license authentication information for the Windows volume license.
   As license authentication information is not necessary if cloning will not be used, click <Next>> without selecting "Using the cloning feature of this product".

   If cloning will be used, depending on the version of Windows being used, specify the following information collected in "Windows Volume License Information [Windows]" of "2.2.1.2 Collecting and Checking Required Information", and click <Next>>.

   For Windows Server 2003

   Product Key

   Enter the Windows product key for the computer the agent is to be installed on.

   Confirm Product Key

   Enter the Windows product key again to confirm it.

   For Windows Server 2008

   License Authentication Method

   Select the license authentication method from Key Management Service (KMS) and Multiple Activation Key (MAK).

   - When Key Management Service (KMS) is selected

     KMS host

     Enter the host name of the KMS host name, and the computer name or IP address.
     When using Domain Name Service (DNS) to automatically find the KMS host, this is not necessary.

   - When Multiple Activation Key (MAK) is selected

     The MAK key

     Enter the MAK key for the computer the agent is to be installed on.

     Confirm Multiple Activation Key

     Enter the MAK key again to confirm it.

   Proxy server used for activation

   Enter the host name or IP address of the proxy server.
   When the proxy server has a port number, enter the port number.

Administrator's Password

Enter the administrator password for the computer the agent is to be installed on.

Note

If an incorrect value is entered for "Product Key", "Key Management Service host", "The MAK Key", or "Proxy server used for activation" on the [License Authentication Information Entry] window, cloning will be unable to be used.
Check that the correct values have been entered.

7. The [Start Copying Files] window will be displayed.

   Check that there are no mistakes in the contents displayed on the window, and then click <Install>>.
   Copying of files will start.
   To change the contents, click <<Back>.

8. The Resource Orchestrator setup completion window will be displayed.

   When setup is completed, the [Installshield Wizard Complete] window will be displayed.
   Click <Finish> and close the window.

9. Execute the command below when using Hyper-V. [Hyper-V]

   ```
   >Installation_folder\RCXCTMGA\setup\dsbsetup.bat IP_address <RETURN>
   ```

   Specify the admin LAN IP address of the managed server for *IP address*. It takes a few minutes to complete the command.

   Confirm that the message below is displayed after the command is completed.

   ```
   Info: Setup completed successfully.
   ```

Note

- Corrective Action for Installation Failure

  When installation is stopped due to errors (system errors, processing errors such as system failure, or errors due to execution conditions) or cancellation by users, remove the causes of any problems, and then take corrective action as follows.

  - Open "Add or Remove Programs" from the Windows Control Panel, and when "ServerView Resource Coordinator VE Agent" is displayed, uninstall it and then install the agent again.
    For uninstallation, refer to "3.2 Agent Uninstallation".

    Information

    For Windows Server 2008, select "Programs and Features" from the Windows Control Panel.

  - If "ServerView Resource Coordinator VE Agent" is not displayed, install it again.

- Nullifying Firewall Settings for Ports to be used by Resource Orchestrator

  When installing Resource Orchestrator on systems with active firewalls, in order to enable the manager to communicate with agents correctly, disable the firewall settings for the port numbers to be used for communication.
  For the port numbers used by Resource Orchestrator and required software, refer to "Appendix A Port List" of the "Setup Guide CE". However, when port numbers have been changed by editing the services file during installation of Resource Orchestrator, replace the default port numbers listed in "Appendix A Port List" of the "Setup Guide CE" with the port numbers changed to during installation.

- Uninstall the Related Services

  When installing ServerView Deployment Manager after Resource Orchestrator has been installed, or using ServerView Deployment Manager in the same subnet, it is necessary to uninstall the related services.

  For the method for uninstalling the related services, please refer to "5.12 deployment_service_uninstall" of the "Command Reference".

2.2.3 Installation [Linux/VMware/Xen/KVM/Oracle VM]

This section explains the procedure for agent installation.

Before installing Resource Orchestrator, check that the preparations given in "2.2.1 Preparations" have been performed.

1. Log in to the system as the OS administrator (root).

   Boot the managed server that agent (Cloud Edition for Dashboard) is to be installed on in multi-user mode, and then log in to the system using root.

   [Xen/KVM]
   Log in from the console.

2. Set the first Resource Orchestrator DVD-ROM.

3. Execute the following command to mount the DVD-ROM. If the auto-mounting daemon (autofs) is used for starting the mounted DVD-ROM, the installer will fail to start due to its "noexec" mount option.

   ```
   # mount /dev/hdc DVD-ROM_mount_point <RETURN>
   ```

4. Execute the agent installation command (RcSetup.sh).

   ```
   # cd DVD-ROM_mount_point <RETURN>
   # ./RcSetup.sh <RETURN>
   ```

5. Perform installation according to the installer's interactive instructions.

6. Enter the host name or IP address of a connected admin server.

Note

- Corrective Action for Installation Failure

  In the event of installation failure, restart and then log in as the user that performed the installation, and perform uninstallation following the uninstallation procedure.
  After that, remove the cause of the failure referring to the meaning of the output message and the suggested corrective actions, and then perform installation again.

- Nullifying Firewall Settings for Ports to be used by Resource Orchestrator

  When installing Resource Orchestrator on systems with active firewalls, in order to enable the manager to communicate with agents correctly, disable the firewall settings for the port numbers to be used for communication.

  ### Example

  [VMware]

  ```
  # /usr/sbin/esxcfg-firewall -openPort 23458,tcp,in,"nfagent" <RETURN>
  ```

  For the port numbers used by Resource Orchestrator and required software, refer to "Appendix A Port List" of the "Setup Guide CE". However, when port numbers have been changed by editing the services file during installation of Resource Orchestrator, replace the default port numbers listed in "Appendix A Port List" of the "Setup Guide CE" with the port numbers changed to during installation.

- When installation was performed without using the console [Xen/KVM]

  When installation is performed by logging in from somewhere other than the console, the network connection will be severed before installation is complete, and it is not possible to confirm if the installation was successful. Log in from the console and restart the managed server. After restarting the server, follow the procedure in "Corrective Action for Installation Failure" and perform installation again.

- Uninstall the Related Services

  When installing ServerView Deployment Manager after Resource Orchestrator has been installed, or using ServerView Deployment Manager in the same subnet, it is necessary to uninstall the related services.

  For the method for uninstalling the related services, please refer to "5.12 deployment_service_uninstall" of the "Command Reference".

2.3 Agent (Cloud Edition for Dashboard) Installation

This section explains the procedure for installation of agents (Cloud Edition for Dashboard).

2.3.1 Preparations

This section explains the preparations and checks required before commencing installation.

Before installing agent (Cloud Edition for Dashboard), install agent (Cloud Edition).

2.3.2 Exclusive Software Checks

Before installing agent (Cloud Edition for Dashboard), check that the software listed in "1.4.2.3 Exclusive Software" in the "Setup Guide CE" and the agent (Cloud Edition for Dashboard) of Resource Orchestrator have not been installed on the system.

Use the following procedure to check that exclusive software has not been installed.

[Windows/Hyper-V]

1. Open "Add or Remove Programs" on the Windows Control Panel.

   The [Add or Remove Programs] window will be displayed.

2. Check that none of the software listed in "1.4.2.3 Exclusive Software" in the "Setup Guide CE" and the agent (Cloud Edition for Dashboard) of Resource Orchestrator have not been installed on the system.

3. When any of the exclusive software is displayed on the [Add or Remove Programs] window, uninstall it according to the procedure described in the relevant manual before installing Resource Orchestrator.

Information

For Windows Server 2008, select "Programs and Features" from the Windows Control Panel.

[Linux]

1. Execute the following command and check if the package has been installed.

   ```
   # rpm -q FJSVsqcag <RETURN>
   ```

2. If it has been installed, uninstall it before continuing.

2.3.3 Installation [Windows/Hyper-V]

Install agents (Cloud Edition for Dashboard) using the following procedure.

Before installing Resource Orchestrator, check that the preparations given in "2.3.1 Preparations" have been performed.

1. Log on to Windows as the administrator.

   Log on to the system on which the agent (Cloud Edition for Dashboard) is to be installed. Log on as a user belonging to the local Administrators group.

2. Start the installer from the window displayed when the Resource Orchestrator DVD-ROM is set.

   Click "Agent installation (Cloud Edition for Dashboard)" which is displayed on the window.

3. When installation is completed successfully, the following message will be displayed:

```
INFO : ServerView Resource Orchestrator Agent (Cloud Edition for Dashboard) was installed successfully.
```

4. Execute the command below when using Hyper-V.

```
>Installation_folder\RCXCTMGA\setup\dsbsetup.bat IP_address <RETURN>
```

Specify the admin LAN IP address of the managed server for *IP address*. It takes a few minutes to complete the command.

Confirm that the message below is displayed after the command is completed.

```
Info: Setup completed successfully.
```

2.3.4 Installation [Linux]

Install agents (Cloud Edition for Dashboard) using the following procedure.

Before installing Resource Orchestrator, check that the preparations given in "2.3.1 Preparations" have been performed.

If the target system is the following OS, there is no need to install agent (Cloud Edition for Dashboard):

- VMWare
- Xen/KVM
- OracleVM
- SUSE Enterprise Linux Server

1. Log in to the system as the OS administrator (root).

   Boot the managed server that agent (Cloud Edition for Dashboard) is to be installed on in multi-user mode, and then log in to the system using root.

2. Set the Resource Orchestrator DVD-ROM.

   Execute the following command to mount the DVD-ROM. If the auto-mounting daemon (autofs) is used for DVD-ROM auto-mounting, the installer fails to start due to its "noexec" mount option.

```
# mount /dev/hdc DVD-ROM_mount_point <RETURN>
```

3. Launch the installation command (RcSetup.sh).

```
# cd DVD-ROM_mount_point <RETURN>
# ./RcSetup.sh <RETURN>
```

4. Perform installation according to the installer's interactive instructions.

   Click "Agent(Cloud Edition for Dashboard) installation" which is displayed on the window.

5. When installation is completed successfully, the following message will be displayed:

```
INFO: ServerView Resource Orchestrator Agent (Cloud Edition for Dashboard) was installed successfully.
```

Note

If the host name specified as "HOSTNAME" of the /etc/sysconfig/network does not exist in /etc/hosts, the message below is displayed.

```
hostname: Unknown host
```

Check beforehand that the host name is described in /etc/hosts, and perform installation.

2.4 HBA address rename setup service Installation

This section explains installation of the HBA address rename setup service.

The HBA address rename setup service is only necessary when using HBA address rename.
For details, refer to "1.6 System Configuration" of the "Setup Guide CE".

2.4.1 Preparations

This section explains the preparations and checks required before commencing installation.

2.4.1.1 Software Preparation and Checks

Software preparation and checks are explained in the following sections.

Exclusive Software Checks

Before installing Resource Orchestrator, check that the software listed in "1.4.2.3 Exclusive Software" of the "Setup Guide CE" and the HBA address rename setup service of Resource Orchestrator have not been installed on the system.
Use the following procedure to check that exclusive software has not been installed.

1. Check if the HBA address rename setup service has been installed using the following procedure:

   [Windows]
   Open "Add or Remove Programs" from the Windows Control Panel, and check that none of the software listed in "1.4.2.3 Exclusive Software" of the "Setup Guide CE" or the HBA address rename setup service have been installed.

   Information

   For Windows Server 2008 or Windows Vista, select "Programs and Features" from the Windows Control Panel.

   [Linux]
   Execute the following command and check if the package has been installed.

   ```
   # rpm -q FJSVrcvhb FJSVscw-common FJSVscw-tftpsv <RETURN>
   ```

2. If exclusive software has been installed, uninstall it according to the procedure described in the relevant manual before proceeding.

2.4.1.2 Collecting and Checking Required Information

Before installing Resource Orchestrator, collect required information and check the system status, then determine the information to be specified on the installation window. The information that needs to be prepared is given below.

- Installation folder and available disk space

  Decide the installation folder for Resource Orchestrator. Check that the necessary disk space can be secured on the drive for installation. For the amount of disk space necessary for Resource Orchestrator, refer to "1.4.2.4 Static Disk Space" and "1.4.2.5 Dynamic Disk Space" of the "Setup Guide CE".

2.4.2 Installation [Windows]

Install the HBA address rename setup service using the following procedure.

Before installing Resource Orchestrator, check that the preparations given in "2.4.1 Preparations" have been performed.

1. Log on to Windows as the administrator.

   Log on to the system on which the HBA address rename setup service is to be installed. Log on as a user belonging to the local Administrators group.

2. Start the installer from the window displayed when the first Resource Orchestrator DVD-ROM is set.

   Click "HBA address rename setup service installation" on the window.

   Information

   If the above window does not open, execute "RcSetup.exe" from the DVD-ROM drive.

3. Enter parameters prepared and confirmed in "Parameters Used for Installation" according to the installer's instructions.

4. The Resource Orchestrator setup window will be displayed.

   Check the contents of the license agreement window etc. and then click <Yes>.

5. The [Select Installation Folder] window will be displayed.

   Click <Next>> to use the default Installation Folder. To change folders, click <Browse>, change folders, and click <Next>>.

   Note

   When changing the folders, be careful about the following points.

   - Do not specify the installation folder of the system (such as C:\).
   - Enter the location using 100 characters or less. Do not use double-byte characters or the following symbols in the folder name.

     """, "|", ":", "*", "?", "/", ".", "<", ">", ",", "%", "&", "^", "=", "!", ";", "#", "'", "+", "[", "]", "{", "}"
   - When installing this product to Windows 2003 x64 Edition or Windows 2008 x64 Edition, the following folder names cannot be specified for the installation folders.
     - "%SystemRoot%\System32\"
     - Folder names including "Program Files" (except the default "C:\Program Files (x86)")

6. The [Start Copying Files] window will be displayed.

   Check that there are no mistakes in the contents displayed on the window, and then click <Install>>.

   Copying of files will start.

   To change the contents, click <<Back>.

7. The Resource Orchestrator setup completion window will be displayed.

   When using the HBA address rename setup service immediately after configuration, check the "Yes, launch it now." checkbox.

   Click <Finish> and close the window.

   - If the check box is checked

     The HBA address rename setup service will start after the window is closed.

   - If the check box is not checked

     Refer to "8.2.1 Settings for the HBA address rename Setup Service" of the "Setup Guide CE", and start the HBA address rename setup service.

Note

- Corrective Action for Installation Failure

  When installation is stopped due to errors (system errors, processing errors such as system failure, or errors due to execution conditions) or cancellation by users, remove the causes of any problems, and then take corrective action as follows.

- Open "Add or Remove Programs" from the Windows Control Panel, and if "ServerView Resource Orchestrator HBA address rename Setup Service" is displayed, uninstall it and then install the service again.
  For uninstallation, refer to "3.4 HBA address rename setup service Uninstallation".

  Information

  For Windows Server 2008 or Windows Vista, select "Programs and Features" from the Windows Control Panel.

- If "ServerView Resource Orchestrator HBA address rename setup service" is not displayed, install it again.

2.4.3 Installation [Linux]

Install the HBA address rename setup service using the following procedure.

Before installing Resource Orchestrator, check that the preparations given in "2.4.1 Preparations" have been performed.

1. Log in to the system as the OS administrator (root).

   Boot the managed server that agent (Cloud Edition for Dashboard) is to be installed on in multi-user mode, and then log in to the system using root.

2. Set the first Resource Orchestrator DVD-ROM.

3. Execute the following command to mount the DVD-ROM. If the auto-mounting daemon (autofs) is used for starting the mounted DVD-ROM, the installer will fail to start due to its "noexec" mount option.

   ```
   # mount /dev/hdccd DVD-ROM_mount_point <RETURN>
   ```

4. Execute the installation command (RcSetup.sh).

   ```
   # cd DVD-ROM_mount_point <RETURN>
   # ./ RcSetup.sh <RETURN>
   ```

5. Perform installation according to the installer's instructions.

Note

- Corrective Action for Installation Failure

  Execute the following command, delete the packages from the environment in which installation failed, and then perform installation again.

  ```
  # cd DVD-ROM_mount_point/DISK1/HBA/Linux/hbaar <RETURN>
  # ./rcxhbauninstall <RETURN>
  ```

Chapter 3 Uninstallation

This chapter explains the uninstallation of ServerView Resource Orchestrator.

The uninstallation of managers, agents, and the HBA address rename setup service is performed in the following order:

1. Manager Uninstallation

   Refer to "3.1 Manager Uninstallation".

2. Agent (Cloud Edition for Dashboard) Uninstallation

   Refer to "3.3 Agent (Cloud Edition for Dashboard) Uninstallation".

3. Agent Uninstallation

   Refer to "3.2 Agent Uninstallation".

4. HBA address rename setup service Uninstallation

   For uninstallation, refer to "3.4 HBA address rename setup service Uninstallation".

When uninstalling a Resource Orchestrator Manager, use "Uninstall (middleware)" for the uninstallation.
"Uninstall (middleware)" is a common tool for Fujitsu middleware products.

The Resource Orchestrator Manager is compatible with "Uninstall (middleware)".

When a Resource Orchestrator Manager is installed, "Uninstall (middleware)" is installed first, and then "Uninstall (middleware)" will control the installation and uninstallation of Fujitsu middleware products. If "Uninstall (middleware)" has already been installed, the installation is not performed.

For the uninstallation of Uninstall (middleware), refer to "3.4 HBA address rename setup service Uninstallation".

3.1 Manager Uninstallation

The uninstallation of managers is explained in the following sections.

The procedure for manager uninstallation is given below.

- Preparations

  Refer to "3.1.1 Preparations".

- Unsetup

  Refer to "3.1.2 Unsetup".

- Uninstallation

  Refer to "3.1.3 Uninstallation [Windows]" or "3.1.4 Uninstallation [Linux]".

3.1.1 Preparations

This section explains the preparations and checks required before commencing uninstallation.

Pre-uninstallation Advisory Notes

- Executing unsetup

  Be sure to execute unsetup before commencing uninstallation.
  For details, refer to "3.1.2 Unsetup".

- Checking physical L-Server system images and cloning images

  [Windows]

  System images and cloning images of physical L-Servers obtained using Resource Orchestrator will not be deleted.

  Images of physical L-Servers will remain in the specified image file storage folder.

When they are not necessary, delete them manually after uninstalling Resource Orchestrator.

Folder storing the image files (default)

Installation_folder\SVROR\ScwPro\depot

[Linux]

The L-Server generated by this product and system and cloning images collected by this product are deleted.

If changed from the default, it remains in the directory storing the image file.

- Checking HBA address rename

When using HBA address rename, the manager sets the WWN for the HBA of each managed server.
When uninstalling a manager be sure to do so in the following order:

1. Delete servers (*1)
2. Uninstall the manager

*1: For the server deletion method, refer to "5.2 Deleting Managed Servers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

When using HBA address rename, if the manager is uninstalled without servers being deleted, the WWNs of the servers are not reset to the factory default values.
Ensure uninstallation of managers is performed only after servers are deleted.

When operating without resetting the WWN, if the same WWN is setup on another server, data may be damaged if the volume is accessed at the same time.

Also, when operating managers in cluster environments, release cluster settings before uninstalling managers. For how to release cluster settings, refer to "Appendix B Manager Cluster Operation Settings and Deletion".

- Back up (copy) certificates

When operating managers in cluster environments, back up (copy) certificates before performing uninstallation.

Manager certificates are stored in the following folders:

[Windows]
Drive_name:\Fujitsu\ROR\SVROR\certificate

[Linux]
Shared_disk_mount_point/Fujitsu/ROR/SVROR

- Definition files

All definition files created for using Resource Orchestrator will be deleted.
If the definition files are necessary, before uninstalling Resource Orchestrator back up (copy) the folder below to another folder.

[Windows]
Installation_folder\Manager\etc\customize_data

[Linux]
/etc/opt/FJSVrcvmr/custmize_data

- Security files used for issuing Navisphere CLI

All security files for Navisphere created for using EMC storage will be deleted.
If the security files are necessary, before uninstalling Resource Orchestrator back them up (copy them).

3.1.2 Unsetup

This section explains the procedure for manager unsetup.

Unsetup

For manager unsetup, execute the unsetup command.

Unsetup is executable from either the media or the extracted module.

[Windows]

1. Log in as the administrator.
2. Execute the unsetup command.
   - When executing from the media

     >*Installation_medium***RcSetup.exe** <RETURN>

   - When executing from the extracted module

     >*Installation_folder***ROR\SVROR\Manager\sys\setup\RcSetup.exe** <RETURN>
3. Select unsetup from the menu to execute the unsetup command.

[Linux]

1. Log in to the system as the OS administrator (root).
2. Execute the unsetup command.
   - When executing from the media

     # *Installation_medium*/**RcSetup.sh** <RETURN>

   - When executing from the extracted module

     # **/opt/FJSVrcvmr/sys/setup/RcSetup.sh** <RETURN>
3. Select unsetup from the menu to execute the unsetup command.

3.1.3 Uninstallation [Windows]

The procedure for manager uninstallation is given below.

Before uninstalling this product, check that the preparations given in "3.1.1 Preparations" have been performed.

1. Log on to Windows as the administrator.

   Log on to the system from which the manager is to be uninstalled. Log on as a user belonging to the local Administrators group.
2. Execute the following command.

   %F4AN_INSTALL_PATH%\F4ANswnc\bin\swncctrl stop <RETURN>
3. Start the uninstaller. Select [Start]-[All Programs]-[Fujitsu]-[Uninstall (middleware)] from the Windows menu. Click the product name then <Remove>, and the uninstallation window will open.

   Information

   The services of Resource Orchestrator are automatically stopped and deleted.

The start-up account created during installation is not automatically deleted.
When the account is not necessary, delete it. However, do not delete the account if it is also used for other purposes.

Information

Deletion Methods for Windows User Accounts
Open "Computer Management" from "Administrative Tools" on the Windows Control Panel, then select [Local Users and Groups]-[Users] on the [Computer Management] window.
Right-click the user account to be deleted, and then select [Delete] from the displayed menu.

Note

- During uninstallation, certificates are backed up to the following folders. When reinstalling a manager and using the same certificates, copy the backed up certificates to the appropriate folders below.

  - *Installation_folder*\back\site\certificate
  - *Installation_folder*\back\domain\certificate

  If the certificates backed up on uninstallation are not necessary, delete them manually.

  Any updates that have been applied to Resource Orchestrator will be deleted during uninstallation.

- If a manager is uninstalled and then reinstalled without agents being deleted, it will not be able to communicate with agents used before uninstallation.
  In this case, the certificates to indicate that it is the same manager are necessary.
  After installation, manager certificates are stored in the following folder:

  - *Installation_folder*\Manager\etc\opt\FJSVssmgr\current\certificate
  - *Installation_folder*\Manager\etc\opt\FJSVrcxdm\certificate

  When uninstalling the manager, the certificates are backed up in the following folder. When reinstalling a manager and using the same certificates, copy the backed up certificates to the appropriate folders.

  - *Installation_folder*\back\site\certificate
  - *Installation_folder*\back\domain\certificate

  If the certificates backed up on uninstallation are not necessary, delete them manually.

  When operating managers in cluster environments, back up the certificates as indicated in the preparations for uninstallation.
  When reinstalling a manager in a cluster environment and using the same certificates, copy the backed up certificates from the primary node to the above folders.

- After uninstallation, folders and files may remain. If they are not necessary, delete the following folders (along with files contained in the folders) and files.

  - The *Installation_folder* (by default, C:\Fujitsu\ROR\SVROR or C:\ProgramFiles(x86)\Resource Orchestrator) and its contents (Confirm whether folders can be deleted referring to the caution below.)
  - IAPS
  - IBPM
  - IBPMA
  - IBPMA_DATA
  - SQCM
  - SQC_DATA
  - RCXCFMG
  - RCXCTMG
  - SWOMGR
  - SWRBAM

When uninstallation is stopped due to errors (system errors or processing errors such as system failure) or cancellation by users, resolve the causes of any problems, and then attempt uninstallation again.

- If the system and cloning images backed up during uninstallation are no longer needed, delete them manually.
- Deletion may fail due to locked files. Restart the OS and then delete them.
- The "%SystemDrive%\ProgramData" folder is not displayed on Explorer as it is a hidden folder.
  To look into the folder, specify the folder name directly, or go to [Organize]-[Folder and search options] of Explorer, select the [View] tab, and enable "Show hidden files, folders, and drives" under [Hidden files and folders].
- Setting information of the DHCP server modified using Resource Orchestrator will not be initialized after uninstallation. Perform initialization if necessary.
- After uninstallation of Resource Orchestrator, the startup settings of the DHCP server become "Manual" and the service is stopped.
- After uninstallation, when a password has been saved using the rcxlogin command, the password saved in the following folder remains for each OS user account on which the rcxlogin command was executed. When re-installing the manager, delete it.

  Folder_set_for_each_user's_APPDATA_environment_variable\Systemwalker Resource Coordinator\

3.1.4 Uninstallation [Linux]

The procedure for manager uninstallation is given below.

Before uninstalling this product, check that the preparations given in "3.1.1 Preparations" have been performed.

1. Log in to the system as the OS administrator (root).
2. Execute the following command.

   ```
   # /opt/FJSVswnc/bin/swncctrl stop <RETURN>
   ```

3. If the CORBA service is already started, stop the application server. Execute the following command.

   ```
   # isstop -f <RETURN>
   ```

4. If a service to use the Interstage Management Console is already started, stop the service. Execute the following command.

   ```
   # ismngconsolestop <RETURN>
   ```

5. If Interstage Directory Service is being used, stop all the repositories of the service.

   Detect the active repositories using the ireplist command, and then stop all of them using the irepstop command.

   ```
   # ireplist <RETURN>
   No Repository Status
   -- ---------- --------
    1 rep001     Active
   # irepstop -R rep001 <RETURN>
   ```

6. Launch the uninstallation command (cimanager.sh).

   Perform uninstallation according to the uninstaller's interactive instructions.

   ```
   # /opt/FJSVcir/cimanager.sh -c <RETURN>
   ```

Note

- When the PATH variable has been configured to enable execution of UpdateAdvisor (Middleware) commands from a user-defined location, performing uninstallation will delete any patches that have been applied to Resource Orchestrator so there is no need to return it to the state prior to application.
  When the PATH variable has not been configured, return it to the state prior to application before performing uninstallation.

- If a manager is uninstalled and then reinstalled without agents being deleted, it will not be able to communicate with agents used before uninstallation.
  In this case, the certificates to indicate that it is the same manager are necessary.
  After installation, manager certificates are stored in the following directory:

  /etc/opt/FJSVrcvmr/opt/FJSVssmgr/current/certificate

- When uninstalling the manager, the certificates are backed up in the following directory.
  When reinstalling a manager and using the same certificates, copy the backed up certificates to the above folder.

  /var/tmp/back/site/certificate

- If the certificates backed up on uninstallation are not necessary, delete them manually.
  When operating managers in cluster environments, back up the certificates as indicated in the preparations for uninstallation.
  When reinstalling a manager in a cluster environment and using the same certificates, copy the backed up certificates from the primary node to the above folders.

- After uninstallation, the installation directories below may remain. In that case, delete any remaining directories manually.
  - /opt/FJSVawjbk
  - /opt/FJSVctchg
  - /opt/FJSVctdsb
  - /opt/FJSVctmg
  - /opt/FJSVctmyp
  - /opt/FJSVctope
  - /opt/FJSVctpw
  - /opt/FJSVctsec
  - /opt/FJSVena
  - /opt/FJSVibpma
  - /opt/FJSVssqc
  - /opt/FJSVtd (Confirm whether directories in this directory can be deleted referring to the caution below.)
  - /opt/remcs
  - /etc/opt/FJSVctchg
  - /etc/opt/FJSVctmg
  - /etc/opt/FJSVctmyp
  - /etc/opt/FJSVctope
  - /etc/opt/FJSVctpw
  - /etc/opt/FJSVctsec
  - /etc/opt/FJSVibpma
  - /etc/opt/FJSVirep
  - /etc/opt/FJSVisas
  - /etc/opt/FJSVisgui
  - /etc/opt/FJSVod
  - /etc/opt/FJSVssqc
  - /var/opt/FJSVcfmg
  - /var/opt/FJSVctchg
  - /var/opt/FJSVctdsb

- /var/opt/FJSVctmg
- /var/opt/FJSVctmyp
- /var/opt/FJSVctsec
- /var/opt/FJSVena
- /var/opt/FJSVibpma
- /var/opt/FJSVirep
- /var/opt/FJSVisas
- /var/opt/FJSVisgui
- /var/opt/FJSVisjmx
- /var/opt/FJSVssqc
- /var/opt/FJSVswrbam
- /var/opt/FJSVtd
- root_account_home_directory/InstallShield

- Do not delete /opt/FJSVtd/var/IRDB.
- After uninstallation, when a password is saved using the rcxlogin command, the password saved in the following directory remains depending on the user account for an OS on which the rcxlogin commands are executed. When re-installing the manager, delete it.

  /*Directory_set_for_each_user's_HOME_environment_variable*/.rcx/

3.1.5 Post-uninstallation Procedure

This section explains the procedures to be taken after manager uninstallation.

If necessary, delete the users registered in the directory service.
If necessary, delete the IflowUsers group registered in the directory service.

3.1.5.1 Fujitsu XML Processor Uninstallation [Windows]

This section explains the uninstallation of the Fujitsu XML Processor.

Note

Confirm that other products are not using it before performing uninstallation.

[Add or Remove Programs] ([Programs and Functions] on Windows Server 2008) may display an old version of Fujitsu XML Processor. If it is not necessary, uninstall it as well.

The procedure for uninstallation of the Fujitsu XML Processor is given below:

1. Log in using an account belonging to the Administrators group.
2. Start the uninstaller.

   Open [Add or Remove Programs] from the Windows Control Panel.

   Select "Fujitsu XML Processor V5.2.4" and then click <Remove>.

   Information

   When using Windows Server 2008, open "Programs and Functions" from the Windows Control Panel.

3. A confirmation message for continuing uninstallation will be displayed.

   To execute uninstallation, click <OK>.
   To cancel, click <Cancel>.

4. Execute uninstallation.

   The program removal window will open.
   The program and the relevant registry information will be removed.

3.1.5.2 SMEE Uninstallation [Linux]

This section explains the uninstallation of SMEE.

Note

Confirm that other products are not using it before performing uninstallation.

The procedure for uninstallation of SMEE is given below.

1. Log in to the system as the superuser (root).
2. Use the rpm command to uninstall the package.

```
# rpm -e FJSVsmee <RETURN>
```

3.1.5.3 Securecrypto Library RunTime Uninstallation [Linux]

This section explains the uninstallation of Securecrypto Library RunTime.

Note

Confirm that other products are not using it before performing uninstallation.

The procedure for uninstallation of Securecrypto Library RunTime is given below.

1. Log in to the system as the superuser.
2. Use the rpm command to uninstall the package.

```
# rpm -e FJSVsclr <RETURN>
```

3.1.5.4 Groups Remaining after Uninstallation

The iscertg and swadmin groups have been created. If it is not necessary, delete this group.

3.1.5.5 Cautions about SMEE and Securecrypto Library RunTime Uninstallation [Linux]

After SMEE and Securecrypto Library RunTime uninstallation, the following folders will remain. Confirm that other products are not using them, and delete them manually if they are not necessary.

Delete any remaining files and folders contained in these folders as well.

- /opt/FJSVsmee

- /etc/opt/FJSVsclr

3.2 Agent Uninstallation

The uninstallation of agents is explained in the following sections.

3.2.1 Uninstallation [Windows/Hyper-V]

This section explains the procedure for uninstallation of agents.

1. Log on to Windows as the administrator.

   Log on to the system from which the agent is to be uninstalled. Log on as a user belonging to the local Administrators group.

2. Delete agents.

   Open "Add or Remove Programs" from the Windows Control Panel, and if "ServerView Resource Orchestrator Agent" is not displayed on the [Add or Remove Programs] window, delete any remaining resources manually.

   Information

   For Windows Server 2008, select "Programs and Features" from the Windows Control Panel.

3. The [Confirm Uninstall] dialog will be displayed.

   Click <OK>.

   Information

   The services of Resource Orchestrator are automatically stopped and deleted.

4. When uninstallation is completed, the confirmation window will be displayed.

   Click <Finish>.

   Note

   - Any updates that have been applied to Resource Orchestrator will be deleted during uninstallation.
   - When uninstallation is stopped due to errors (system errors or processing errors such as system failure) or cancellation by users, resolve the causes of any problems, and then attempt uninstallation again.

     If uninstallation fails even when repeated, the executable program used for uninstallation may have become damaged somehow.

     In this case, set the first Resource Orchestrator DVD-ROM, open the command prompt and execute the following command:

     ```
     >"DVD-ROM_drive\DISK1\Agent\Windows\agent\win\setup.exe" /z"UNINSTALL" <RETURN>
     ```

     Open "Add or Remove Programs" from the Windows Control Panel, and if "ServerView Resource Orchestrator Agent" is not displayed on the [Add or Remove Programs] window, delete any remaining folders manually.

     Information

     For Windows Server 2008, select "Programs and Features" from the Windows Control Panel.

3.2.2 Uninstallation [Linux/VMware/Xen/KVM/Oracle VM]

This section explains the procedure for uninstallation of agents.

1. Log in to the system as the OS administrator (root).

   Log in to the managed server from which Resource Orchestrator will be uninstalled, using root.

2. Execute the rcxagtuninstall command.

   Executing this command performs uninstallation, and automatically deletes the packages of Resource Orchestrator.

   ```
   # /opt/FJSVrcxat/bin/rcxagtuninstall <RETURN>
   ```

   When uninstallation is completed successfully, the following message will be displayed.

   ```
   INFO : ServerView Resource Orchestrator Agent was uninstalled successfully.
   ```

   If uninstallation fails, the following message will be displayed.

   ```
   ERROR : Uninstalling package_name was failed.
   ```

   Information

   When the uninstaller of Resource Orchestrator is started, its services are stopped.

3. If uninstallation fails, use the rpm command to remove the packages given in the message, and start the process from 1. again.

   ```
   # rpm -e package_name <RETURN>
   ```

Note

- When the PATH variable has been configured to enable execution of UpdateAdvisor (Middleware) commands from a user-defined location, performing uninstallation will delete any patches that have been applied to Resource Orchestrator so there is no need to return it to the state prior to application.
  When the PATH variable has not been configured, return it to the state prior to application before performing uninstallation.
- After uninstallation, the installation directories and files below may remain. In that case, delete any remaining directories and files manually.

  Directories

  - /opt/FJSVnrmp
  - /opt/FJSVrcxat
  - /opt/FJSVrcximg
  - /opt/FJSVrcxkvm
  - /opt/FJSVssagt
  - /opt/FJSVssqc
  - /opt/systemcastwizard
  - /etc/opt/FJSVnrmp
  - /etc/opt/FJSVrcxat
  - /etc/opt/FJSVssagt
  - /etc/opt/FJSVssqc
  - /var/opt/systemcastwizard
  - /var/opt/FJSVnrmp
  - /var/opt/FJSVrcxat

- /var/opt/FJSVssagt
- /var/opt/FJSVssqc

Files

- /boot/clcomp2.dat
- /etc/init.d/scwagent
- /etc/scwagent.conf

3.3 Agent (Cloud Edition for Dashboard) Uninstallation

This section explains the procedure for uninstallation of agents (Cloud Edition for Dashboard).

3.3.1 Uninstallation [Windows/Hyper-V]

When the agent is uninstalled, the agent (Cloud Edition for Dashboard) is uninstalled.

Note

- Any updates that have been applied to Resource Orchestrator will be deleted during uninstallation.
- When the agent (Cloud Edition) is uninstalled, the agent (Cloud Edition for Dashboard) is also uninstalled automatically.
- When uninstallation is stopped due to errors (system errors or processing errors such as system failure) or cancellation by users, resolve the causes of any problems, and then attempt uninstallation again.

3.3.2 Uninstallation [Linux/VMware/Xen/KVM/Oracle VM]

When the agent is uninstalled, the agent (Cloud Edition for Dashboard) is uninstalled.

Note

- When the PATH variable has been configured to enable execution of UpdateAdvisor (Middleware) commands from a user-defined location, performing uninstallation will delete any patches that have been applied to Resource Orchestrator. Therefore, there is no need to return it to the state prior to application. When the PATH variable has not been configured, return it to the state prior to application before performing uninstallation.
- When the agent (Cloud Edition) is uninstalled, the agent (Cloud Edition for Dashboard) is also uninstalled automatically.
- After uninstallation, the installation directories and files below may remain. In that case, delete any remaining directories and files manually.
  - Directories
    - /opt/systemcastwizard
    - /opt/FJSVnrmp
    - /opt/FJSVrcvat
    - /opt/FJSVssagt
    - /opt/FJSVssqc
    - /etc/opt/FJSVnrmp
    - /etc/opt/FJSVrcvat
    - /etc/opt/FJSVssagt
    - /etc/opt/FJSVssqc

- /var/opt/systemcastwizard
- /var/opt/FJSVnrmp
- /var/opt/FJSVrcvat
- /var/opt/FJSVssagt
- /var/opt/FJSVssqc

- Files
  - /boot/clcomp2.dat
  - /etc/init.d/scwagent
  - /etc/scwagent.conf

3.4 HBA address rename setup service Uninstallation

This section explains uninstallation of the HBA address rename setup service.

3.4.1 Uninstallation [Windows]

The procedure for uninstallation of the HBA address rename setup service is given below.

1. Log on to Windows as the administrator.

   Log on to the system from which the HBA address rename setup service is to be uninstalled. Log on as a user belonging to the local Administrators group.

2. Delete the HBA address rename setup service.

   Open "Add or Remove Programs" from the Windows Control Panel, and select "ServerView Resource Orchestrator HBA address rename setup service" and delete it from the [Add or Remove Programs] window.

   Information

   For Windows Server 2008 or Windows Vista, select "Programs and Features" from the Windows Control Panel.

3. The [Confirm Uninstall] dialog will be displayed.

   Click <OK>.

   Information

   The services of Resource Orchestrator are automatically stopped and deleted.

4. When uninstallation is completed, the confirmation window will be displayed.

   Click <Finish>.

Note

- Any updates that have been applied to Resource Orchestrator will be deleted during uninstallation.
- When uninstallation is stopped due to errors (system errors or processing errors such as system failure) or cancellation by users, resolve the causes of any problems, and then attempt uninstallation again.

  If uninstallation fails even when repeated, the executable program used for uninstallation may have become damaged somehow.

  In this case, set the first Resource Orchestrator DVD-ROM, open the command prompt and execute the following command:

```
>"DVD-ROM_drive\DISK1\HBA\Windows\hbaar\win\setup.exe" /z"UNINSTALL" <RETURN>
```

Open "Add or Remove Programs" from the Windows Control Panel, and if "ServerView Resource Orchestrator HBA address rename setup service" is not displayed on the [Add or Remove Programs] window, delete any remaining folders manually.

Information

For Windows Server 2008 or Windows Vista, select "Programs and Features" from the Windows Control Panel.

3.4.2 Uninstallation [Linux]

The procedure for uninstallation of the HBA address rename setup service is given below.

1. Log in to the system as the OS administrator (root).

   Log in to the managed server from which Resource Orchestrator will be uninstalled, using root.

2. Execute the rcxhbauninstall command.

   ```
   # /opt/FJSVrcvhb/bin/rcxhbauninstall <RETURN>
   ```

   Starting the uninstaller displays the following message which explains that before uninstallation the Resource Orchestrator services will be automatically stopped.

   ```
   Any Resource Orchestrator service that is still running will be stopped and removed.
   Do you want to continue ? [y,n,?,q]
   ```

   To stop the services and uninstall Resource Orchestrator enter "y", to discontinue the uninstallation enter "n".

   If "n" or "q" is entered, the uninstallation is discontinued.

   If "?" is entered, an explanation of the entry method will be displayed.

3. Enter "y" and the uninstallation will start.

   When uninstallation is completed successfully, the following message will be displayed.

   ```
   INFO : ServerView Resource Orchestrator HBA address rename setup service was uninstalled successfully.
   ```

   If uninstallation fails, the following message will be displayed.

   ```
   ERROR : Uninstalling "package_name" was failed
   ```

4. If uninstallation fails, use the rpm command to remove the packages given in the message, and start the process from 1. again.

   ```
   # rpm -e package_name <RETURN>
   ```

Note

- When the PATH variable has been configured to enable execution of UpdateAdvisor (Middleware) commands from a user-defined location, performing uninstallation will delete any patches that have been applied to Resource Orchestrator so there is no need to return it to the state prior to application.
  When the PATH variable has not been configured, return it to the state prior to application before performing uninstallation.
- After uninstallation, the installation directories below may remain. In that case, delete any remaining directories manually.
  - /opt/FJSVrcvhb
  - /opt/FJSVscw-common
  - /opt/FJSVscw-tftpsv

- /etc/opt/FJSVrcvhb
- /etc/opt/FJSVscw-common
- /etc/opt/FJSVscw-tftpsv
- /var/opt/FJSVrcvhb
- /var/opt/FJSVscw-common
- /var/opt/FJSVscw-tftpsv

3.5 Uninstall (middleware) Uninstallation

The uninstallation of "Uninstall (middleware)" is explained in this section.

Note

- When uninstalling Resource Orchestrator, use "Uninstall (middleware)" for the uninstallation.
- "Uninstall (middleware)" also manages product information on Fujitsu middleware other than Resource Orchestrator. Do not uninstall "Uninstall (middleware)" unless it is necessary for some operational reason.

  In the event of accidental uninstallation, reinstall it following the procedure below.

  [Windows]

  1. Log in to the installation machine as the OS administrator (root).
  2. Set the first Resource Orchestrator DVD-ROM.
  3. Execute the installation command.

     ```
     >DVD-ROM_drive\DISK1\CIR\cirinst.exe <RETURN>
     ```

  [Linux]

  1. Log in to the system as the superuser (root).
  2. Set the first Resource Orchestrator DVD-ROM.
  3. Execute the following command to mount the DVD-ROM.

     If the auto-mounting daemon (autofs) is used for DVD-ROM auto-mounting, the installer fails to start due to its "noexec" mount option.

     ```
     # mount /dev/hdc DVD-ROM_mount_point <RETURN>
     # cd DVD-ROM_mount_point <RETURN>
     ```

  4. Execute the installation command.

     ```
     # ./DISK1/CIR/cirinst.sh <RETURN>
     ```

Information

To uninstall "Uninstall (middleware)", follow the procedure below.

1. Start "Uninstall (middleware)" and check that other Fujitsu middleware products do not remain.

   The starting method is as follows.

   [Windows]
   Select [Start]-[All Programs]-[Fujitsu]-[Uninstall (middleware)].

[Linux]

```
# /opt/FJSVcir/bin/cimanager.sh [-c] <RETURN>
```

To start it in command mode, specify the -c option. If the -c option is not specified, it will start in GUI mode if the GUI has been configured, or start in command mode otherwise.

Note

If the command path contains a blank space, it will fail to start. Do not specify a directory with a name containing blank spaces.

2. After checking that no Fujitsu middleware product has been installed, execute the following uninstallation command.

   [Windows]

   ```
   >%SystemDrive\FujitsuF4CR\bin\cirremove.exe <RETURN>
   ```

   [Linux]

   ```
   # /opt/FJSVcir/bin/cirreomve.sh <RETURN>
   ```

3. When "This software is a common tool of Fujitsu products. Are you sure you want to remove it? [y/n]:" is displayed, enter "y" to continue. Uninstallation will be completed in seconds.

4. After uninstallation is complete, delete the following directory and contained files.

   [Windows]
   %SystemDrive%FujitsuF4CR

   [Linux]
   /var/opt/FJSVcir

Chapter 4 Upgrading from Earlier Versions

This chapter explains how to upgrade environments configured using an older version of ServerView Resource Orchestrator (hereinafter the old version ROR) to this version of ServerView Resource Orchestrator Cloud Edition (hereinafter ROR CE) environments.

4.1 Overview

This section explains an overview of the following upgrades.

- Upgrade from an older version of ROR to ROR CE
- Upgrade from ROR VE to ROR CE

Upgrade from an older version ROR to ROR CE

Perform the upgrade in the following order:

1. Upgrade the manager
2. Upgrade the agents
3. Upgrade the clients and HBA address rename setup service

Upgrade can be performed using upgrade installation.

Upgrade installation uses the Resource Orchestrator installer to automatically upgrade previous versions to the current version.

Upgrade from ROR VE to ROR CE

The manager, agent, client, and HBA address rename setup service must be upgraded for upgrading from ROR VE to ROR CE. In addition, Cloud Edition licenses are required for each agent used.

For license registration, refer to "License Setup" in "7.1 Login" of the "Setup Guide CE".

Note

- When using Virtual Edition, if SPARC Enterprise series servers are registered as managed servers, upgrade to Cloud Edition is not possible.
- The combinations of managers and agents, clients, and HBA address rename setup service supported by Resource Orchestrator are as shown below.

Old Version	New Version	Upgradability
RCVE	ROR VE	Yes
RCVE	ROR CE	Yes
Older version of ROR	ROR CE	Yes
Older version of ROR	ROR VE	-
ROR VE	ROR CE	Yes

Yes: Supported
-: Not supported

4.2 Manager

This section explains the upgrading of managers.

When operating managers in clusters, transfer using upgrade installation cannot be performed. Perform the upgrade manually.

Transferred Data

The following manager data is transferred:

- Resource Orchestrator setting information (Setting information for the environment of the earlier version)
- Certificates
- System images and cloning images (Files in the image file storage folder)

Also, with transfer using upgrade installation the following data is also transferred:

- Port number settings
- Power consumption data
- Batch files and script files for event-related functions

Data which is transferred during upgrade installation is backed up in the following folder. Ensure that the folder is not deleted until after the upgrade is complete.

[Windows]
Drive_name\Program Files\RCVE-upgradedata

[Linux]
/var/opt/RCVE-upgradedata
/var/opt/backupscwdir

Preparations

Perform the following preparations and checks before upgrading:

- Check that the environment is one in which managers of this version can be operated.
  For operating environments, refer to "Chapter 1 Operational Environment".
  Take particular care regarding the memory capacity.
- To enable recovery in case there is unexpected trouble during the upgrade process, please back up the admin server. For how to back up the admin server, refer to "Appendix E Backup and Restoration of Admin Servers" of the "ServerView Resource Orchestrator User's Guide" or "Appendix B Admin Server Backup and Restore" of the "ServerView Resource Coordinator VE Operation Guide".
- As well as backing up the admin server, also back up (copy) the following information:
  - Port number settings

    [Windows]
    Drive_name\WINDOWS\system32\drivers\etc\services

    [Linux]
    /etc/services

  - Batch files and script files for event-related functions

    [Windows]
    Installation_folder\Manager\etc\trapop.bat

    [Linux]
    /etc/opt/FJSVrcvmr/trapop.sh

  - Definition File

    [Windows]
    Installation_folder\Manager\etc\customize_data

    [Linux]
    /etc/opt/FJSVrcvmr/customize_data

- When using GLS to perform redundancy of NICs for the admin LAN of managed servers, activate the admin LAN on the primary interface.
- To confirm that the upgrade is complete, if there are registered VM hosts on which there are VM guests, check from the ROR console or earlier versions of the Resource Coordinator VE console that all of the VM guests are displayed and record their information before upgrading.
- When server switchover settings have been performed, it is not possible to upgrade when spare servers have been switched to. Restore any such servers before starting the upgrade. For how to restore, refer to the information about Server Switchover in the "ServerView Resource Coordinator VE Operation Guide".

Upgrade using Upgrade Installation

When upgrading to this version from V2.1.1, upgrade can be performed using upgrade installation. Perform the upgrade using the following procedure:

Note

- Do not change the hardware settings or configurations of managers, agents, or any other devices until upgrading is completed.
- When there are system images and cloning images, the same amount of disk space as necessary for the system images and cloning images is required on the admin server in order to temporarily copy the images during the upgrade. Before performing the upgrade, check the available disk space.
- When performing an upgrade installation, please do not access the installation folder of the earlier version or any of the files and folders inside it using the command prompt, Explorer, or an editor.
  While it is being accessed, attempts to perform upgrade installation will fail.
  If upgrade installation fails, stop accessing the files or folders and then perform the upgrade installation again.
- In the event that upgrade installation fails, please resolve the cause of the failure and perform upgrade installation again. If the problem cannot be resolved and upgrade installation fails again, please contact Fujitsu technical staff.
- When stopping the upgrade and restoring the earlier version, please do so by restoring the information that was backed up during the preparations.
  When performing restoration and a manager of this version or an earlier version has been installed, please uninstall it.
  After restoration, please delete the folder containing the backed up assets. For how to restore the admin server, refer to the "ServerView Resource Orchestrator User's Guide" or the "ServerView Resource Coordinator VE Operation Guide".
- Upgrade installation will delete patches that were applied to the earlier version.

  [Linux]
  When the PATH variable has not been configured to enable execution of UpdateAdvisor (Middleware) commands from a user-defined location, performing upgrade installation will delete any patches that have been applied to the old version, but it will not delete product information or component information. Refer to the UpdateAdvisor (Middleware) manual and delete software and component information from the applied modification checklist.
- When operating managers in clusters, transfer using upgrade installation cannot be performed. Perform the upgrade manually.

1. Upgrade Installation

   [Windows]
   Refer to "2.1.2 Installation [Windows]", and execute the Resource Orchestrator installer.
   The Resource Orchestrator setup window will be displayed. Check the contents of the license agreement, etc. and then click <Next>.
   The settings to be inherited from the earlier version will be displayed. Check them and click <Next>. Upgrade installation will begin.

   [Linux]
   Refer to "2.1.3 Installation [Linux]", and execute Resource Orchestrator installer.
   Check the contents of the license agreement, etc. and then enter "y".
   The setting information that will be taken over from the earlier version will be displayed. Please check it and then enter "y". Upgrade installation will begin.

2. Restarting after Upgrade Installation is Finished [Windows]

   After upgrade installation is finished, restart the system in order to complete the upgrade.

3. Transfer of Resource Data on the Directory Server

   If user management has been conducted by the directory service with ServerView Resource Orchestrator V2.3.0, transfer resource data on the directory server to Resource Orchestrator information.

   Transfer the following data:

   - User group information and group users

     It is necessary that user information be registered both on the directory server and as Resource Orchestrator information with the same name. When Resource Orchestrator is logged in, authentication is performed by the directory service. User password is managed by the directory service.

   - Role definitions

   - Access range and roles

4. Restore the directory that backed up before upgrading to following directory

   [Windows]
   Installation_folder\Manager\etc\customize_data

   [Linux]
   /etc/opt/FJSVrcvmr/customize_data

5. When upgrading from ROR V2.2.0 - V2.3.0 Manager, use the following procedure to add parameter to the file.

   If the file is not exists in environment, this step is not necessary.

   [Windows]
   Installation_folder\Manager\etc\customize_data\l_server.rcxprop
   Installation_folder\Manager\etc\customize_data\vnetwork_ibp.rcxprop
   Installation_folder\Manager\rails\config\rcx\vm_guest_params.rb

   [Linux]
   /etc/opt/FJSVrcvmr/customize_data/l_server.rcxprop
   /etc/opt/FJSVrcvmr/customize_data/vnetwork_ibp.rcxprop
   /opt/FJSVrcvmr/rails/config/rcx/vm_guest_params.rb

   It is unnecessary to do procedure e and d when upgrading from ROR V2.3.0.

   a. Stop the manager.

   b. Refer following file and write down the following parameter's value.

      [Windows]
      Installation_folder\ROR_upgradedata\Manager\rails\config\rcx\vm_guest_params.rb

      [Linux]
      /var/tmp/ROR_upgradedata/opt_FJSVrcvmr/rails/config/rcx/vm_guest_params.rb

      [Parameter]
      SHUTDOWN_TIMEOUT = *value*

   c. Refer following file and find the following parameter's value.

      If the parameter's value is not same as wrote down in procedure b, please fix the value.

      [Windows]
      Installation_folder\Manager\rails\config\rcx\vm_guest_params.rb

      [Linux]
      /opt/FJSVrcvmr/rails/config/rcx/vm_guest_params.rb

      [Parameter]
      SHUTDOWN_TIMEOUT = *value*

d. Add following parameter to l_server.rcxprop

   allocate_after_create=true
   auto_preserved=false

e. When using IBP configuration mode, add following parameter to vnetwork_ibp.rcxprop.

   support_ibp_mode = true

f. Start the manager.

Note

- When using backup system images or collecting cloning images without upgrading agents, either reboot managed servers after the manager upgrade is completed, or restart the related services.
  For restarting the related services, refer to "5.2 Agent" in the "ServerView Resource Coordinator VE Setup Guide".
- Before upgrading, installation and configuration of Single Sign-On are required.
  For details, refer to "4.5 Installing and Configuring Single Sign-On" in the "Setup Guide CE".

Manual Upgrade

Upgrading from older version ROR managers in clustered operation to ROR CE is performed by exporting and importing system configuration files for pre-configuration.

Perform the upgrade using the following procedure:

See

For pre-configuration, refer to the following manuals:

- "Systemwalker Resource Coordinator Virtual server Edition Setup Guide"
  - "Chapter 7 Pre-configuration"
  - "Appendix D Format of CSV System Configuration Files"
- "User's Guide Infrastructure Administrators (Resource Management) CE"
  - "Chapter 6 Pre-configuration"
  - "Appendix A Format of CSV System Configuration Files"

Note

- When upgrading from V13.2, do not uninstall V13.2 clients until step 2. has been completed.
- Do not change the hardware settings or configurations of managers, agents, or any other devices until upgrading is completed.
- When upgrading from manager operating in clusters, replace the parts referring to "Systemwalker Resource Coordinator Virtual server Edition manuals" with the earlier versions of "ServerView Resource Coordinator VE manuals" for the following procedure.

1. Set Maintenance Mode

   Use the Resource Coordinator console of the earlier version or the ROR console to place all managed servers into maintenance mode.

2. System Configuration File Export

   Use the pre-configuration function of the earlier version and export the system configuration file in CSV format. During the export, do not perform any other operations with Resource Orchestrator.
   For the export method, refer to the "Systemwalker Resource Coordinator Virtual server Edition Setup Guide".

3. Back up (copy) Assets to Transfer

   a. Perform backup (copying) of the certificates of the earlier version.

      Back up (copy) the following folders and directories:

      [Windows]

      For V13.2 and V13.3
      Installation_folder\Site Manager\etc\opt\FJSVssmgr\current\certificate
      Installation_folder\Domain Manager\etc\opt\FJSVrcxdm\certificate

      For V2.1.0 or later
      Installation_folder\Manager\etc\opt\FJSVssmgr\current\certificate
      Installation_folder\Manager\etc\opt\FJSVrcxdm\certificate
      Installation_folder\Manager\sys\apache\conf\ssl.crt
      Installation_folder\Manager\sys\apache\conf\ssl.key

      [Linux]
      /etc/opt/FJSVrcvmr/opt/FJSVssmgr/current/certificate
      /etc/opt/FJSVrcvmr/sys/apache/conf/ssl.crt
      /etc/opt/FJSVrcvmr/sys/apache/conf/ssl.key

   b. Back up (copy) the folder containing the physical L-Server system images and cloning images of the earlier version to a location other than the installation folder and the image file storage folder.
      When using the default image file storage folder, back up (copy) the following folder or directory:

      [Windows]
      Installation_folder\ScwPro\depot\Cloneimg

      [Linux]
      /var/opt/FJSVscw-deploysv/depot/CLONEIMG

      When using a folder or directory other than the default, back up (copy) the "Cloneimg" folder or "CLONEIMG" directory used.

Note

- When operating managers in clusters, the above folders or directories are stored on the shared disk. Check if files, folders, or directories stored in the above locations are correctly backed up (copied).
  The backup (copy) storage target can be set to be stored in a folder or directory on the shared disk other than "RCoordinator" which is created during setup of the manager cluster service.
- When operating managers in clusters, the back up (copy) of folders or directories should be executed on the primary node.
- Before making a backup (copy) of system images and cloning images, check the available disk space. For the disk space necessary for system images and cloning images, refer to the "Systemwalker Resource Coordinator Virtual server Edition Installation Guide". When there is no storage folder for system images and cloning images, this step is not necessary.

When operating managers in clusters, refer to "B.4 Releasing Configuration" in the "ServerView Resource Coordinator VE Installation Guide" of the earlier version, and uninstall the cluster services and the manager of the earlier versions.

Note

User account information is deleted when managers are uninstalled. Refer to step 7. and perform reconfiguration from the ROR console.

4. Uninstallation of earlier version managers

   Refer to the "Systemwalker Resource Coordinator Virtual server Edition Installation Guide" for the method for uninstalling the manager of the earlier version.

   When operating managers in clusters, refer to "B.4 Releasing Configuration" in the "ServerView Resource Coordinator VE Installation Guide" of the earlier version, and uninstall the cluster services and the manager of the earlier versions.

Note

- Do not perform "Delete servers" as described in Preparations of the "Systemwalker Resource Coordinator Virtual server Edition Installation Guide". When managed servers using HBA address rename have been deleted, it is necessary to reboot managed servers after upgrading of the manager is completed.
- User account information is deleted when managers are uninstalled. Refer to step 7. and perform reconfiguration from the RC console.
- In environments where there are V13.2 managers and clients, uninstall V13.2 clients only after uninstalling the manager of the earlier version.

5. Installation of Managers of This Version

   Install managers of this version.
   For installation, refer to "2.1 Manager Installation".

   When operating managers in cluster environments, refer to "Appendix B Manager Cluster Operation Settings and Deletion", uninstall the manager and then configure the cluster services.

Note

When installing managers, specify the same admin LAN as used for the earlier version on the [Admin LAN Selection] window.

After installing managers, use the following procedure to restore the certificates and image file storage folder backed up (copied) in step 3.

a. Stop the manager.

b. Return the image file storage folder backup (copy) to the folder specified during installation.

   When using the default image file storage folder, restore to the following folder or directory:

   [Windows]
   Installation_folder\ScwPro\depot\Cloneimg

   [Linux]
   /var/opt/FJSVscw-deploysv/depot/CLONEIMG

   When using a folder other than the default, restore to the new folder.
   When the image file storage folder was not backed up, this step is not necessary.

c. Restore the backed up (copied) certificates to the manager *installation_folder*.
   Restore to the following folder or directory:

   [Windows]
   Installation_folder\Manager\etc\opt\FJSVssmgr\current\certificate
   Installation_folder\Manager\etc\opt\FJSVrcxdm\certificate
   Installation_folder\Manager\sys\apache\conf\ssl.crt
   Installation_folder\Manager\sys\apache\conf\ssl.key

   [Linux]
   /etc/opt/FJSVrcvmr/opt/FJSVssmgr/current/certificate
   /etc/opt/FJSVrcvmr/sys/apache/conf/ssl.crt
   /etc/opt/FJSVrcvmr/sys/apache/conf/ssl.key

d. Restore the information that was backed up during preparations.

   - Port number settings

     Change the port numbers based on the information that was backed up during preparations.
     For details of how to change port numbers, refer to "3.1.2 Changing Port Numbers" of the "User's Guide for Infrastructure Administrator (Resource Management) CE".
     When the port number has not been changed from the default, this step is not necessary.

- Batch files and script files for event-related functions

  Restore them by replacing the following file.

  [Windows]
  Installation_folder\Manager\etc\trapop.bat

  [Linux]
  /etc/opt/FJSVrcvmr/trapop.sh

e. Start the manager.

   For the methods for starting and stopping managers, refer to "7.2 Starting and Stopping the Manager" of the "Setup Guide CE".

Note

Take caution regarding the following when operating managers in clusters.

- Restoring the image file storage folder and certificates should be performed on shared disks are mounted on the primary node.
- Restoration of batch files and script files for event-related functions should be performed on both nodes.

6. User Account Settings

   Using the information recorded during preparations, perform setting of user accounts using the ROR console.
   For details, refer to "Chapter 4 User Accounts" of the "Operation Guide VE".

7. Edit System Configuration Files

   Based on the environment created for the earlier version, edit the system configuration file (CSV format) exported in step 2.
   Change the operation column of all resources to "new".

   When upgrading from V13.3 or later, do not change the operation column of resources contained in the following sections to "new":

   - ServerAgent
   - ServerVMHost
   - Memo

   For how to edit system configuration files (CVS format), refer to the "Systemwalker Resource Coordinator Virtual server Edition Setup Guide".

Note

When the spare server information is configured, use the following procedure to delete the spare server information.

- After upgrade from V13.2

  Set hyphens ("-") for all parameters ("Spare server name", "VLAN switch", and "Automatic switch") of the "Server switch settings" of "(3)Server Blade Information".

- In cases other than above

  In the "SpareServer" section, set "operation" as a hyphen ("-").

8. Creating an Environment of This Version

   Import the system configuration file and create an environment of this version.
   Use the following procedure to configure an environment of this version.

   a. Import of the system configuration file

      Import the edited system configuration file.
      For the import method, refer to "6.2 Importing the System Configuration File" of the "User's Guide for Infrastructure Administrators (Resource Management) CE".

b. Agent Registration

Using the information recorded during preparations, perform agent registration using the ROR console. Perform agent registration with the OS of the managed server booted.
For agent registration, refer to "8.3 Software Installation and Agent Registration" of the "Setup Guide CE".
After completing agent registration, use the ROR console to check that all physical OS's and VM hosts are displayed. When there are VM hosts (with VM guests) registered, check that all VM guests are displayed.

c. Spare Server Information Settings

Using the information recorded during preparations, perform registration of spare server information using the ROR console.
For registration of spare server information, refer to "8.6 Server Switchover Settings" of the "User's Guide VE".

d. Registration of Labels, Comments, and Contact Information

When label, comment, and contact information has been registered, change the contents of the operation column of the system configuration file (CSV format) that were changed to "new" in step 6. back to hyphens ("-"), and change the contents of the operation column of resources contained in the [Memo] section to "new".
For how to edit system configuration files (CVS format), refer to the "Systemwalker Resource Coordinator Virtual server Edition Setup Guide".
Import the edited system configuration file.
For the import method, refer to "6.2 Importing the System Configuration File" of the "User's Guide for Infrastructure Administrators (Resource Management) CE".

9. Set Maintenance Mode

Using the information recorded during preparation, place the managed servers placed into maintenance mode into maintenance mode again.
For maintenance mode settings, refer to "Appendix B Maintenance Mode" of the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Note

- When using backup system images or collecting cloning images without upgrading agents, either reboot managed servers after the manager upgrade is completed, or restart the related services.
  For restarting the related services, refer to "5.2 Agent" in the "ServerView Resource Coordinator VE Setup Guide".
- Before upgrading, installation and configuration of Single Sign-On are required.
  For details, refer to "4.5 Installing and Configuring Single Sign-On" in the "Setup Guide CE".

4.3 Agent

This section explains the upgrading of agents.
Upgrading of agents is not mandatory even when managers have been upgraded to this version. Perform upgrades if necessary.

Transferred Data

Before upgrading, note that the following agent resources are transferred:

- Definition files of the network parameter auto-configuration function (when the network parameter auto-configuration function is being used)

  [Windows/Hyper-V]
  Installation_folder\Agent\etc\event_script folder
  Installation_folder\Agent\etc\ipaddr.conf file
  Installation_folder\Agent\etc\ipaddr.conf file

  [Linux/VMware/Xen/KVM]
  /etc/opt/FJSVrcxat/event_script directory
  /etc/opt/FJSVnrmp/lan/ipaddr.conf file
  /etc/FJSVrcx.conf file

Data and work files which are transferred during upgrade installation are stored in the following folder. Ensure that the folder is not deleted until after the upgrade is complete.

[Windows/Hyper-V]
Drive_name\Program Files\RCVE-upgradedata

[Linux/VMware/Xen/KVM]
/var/opt/RCVE-upgradedata

Preparations

Perform the following preparations and checks before upgrading:

- Check that the environment is one in which agents of this version can be operated.
  For operating environments, refer to "Chapter 1 Operational Environment".
- To enable recovery in case there is unexpected trouble during the upgrade process, back up the folders and files listed in "Transferred Data" to a folder other than the agent installation folder.

Upgrade using Upgrade Installation

When performing upgrade installation from V2.1.1 of agents in Windows environments, upgrade installation can be performed using the installer of this version.

Use the following procedure to upgrade agents of earlier versions to agents of this version on all of the managed servers that are being upgraded.

Note

- Do not perform any other operations with Resource Orchestrator until the upgrade is completed.
- Perform upgrading of agents after upgrading of managers is completed.
- In the event that upgrade installation fails, please resolve the cause of the failure and perform upgrade installation again. If the problem cannot be resolved and upgrade installation fails again, please contact Fujitsu technical staff.
- When performing an upgrade installation, please do not access the installation folder of the earlier version or any of the files and folders inside it using the command prompt, Explorer, or an editor.
  While it is being accessed, attempts to perform upgrade installation will fail.
  If upgrade installation fails, stop accessing the files or folders and then perform the upgrade installation again.
- When stopping the upgrade and restoring the earlier version, please re-install the agent of the earlier version and then replace the information that was backed up during the preparations.
  When performing restoration and an agent of this version or an earlier version has been installed, please uninstall it.
  After restoration, please delete the folder containing the backed up assets.
- Upgrade installation will delete patches that were applied to the earlier version.

  [Linux]
  When the PATH variable has not been configured to enable execution of UpdateAdvisor (Middleware) commands from a user-defined location, performing upgrade installation will delete any patches that have been applied to the old version, but it will not delete product information or component information. Refer to the UpdateAdvisor (Middleware) manual and delete software and component information from the applied modification checklist.

1. Upgrade Installation

   [Windows/Hyper-V]
   Refer to "2.2.2 Installation [Windows/Hyper-V]", and execute the Resource Orchestrator installer.
   The Resource Orchestrator setup window will be displayed. Check the contents of the license agreement, etc. and then click <Yes>.
   The setting information that will be taken over from the earlier version will be displayed. Please check it and then click <Install>.
   Upgrade installation will begin.

[Linux/VMware/Xen/KVM]
Refer to "2.2.3 Installation [Linux/VMware/Xen/KVM/Oracle VM]", and execute the Resource Orchestrator installer.
Check the contents of the license agreement, etc. and then enter "y".
The setting information that will be taken over from the earlier version will be displayed. Please check it and then enter "y". Upgrade installation will begin.

Note

- After upgrading agents, use the ROR console to check if the upgraded managed servers are being displayed correctly.
- Updating of system images and cloning images is advised after agents have been upgraded.
- When upgrade installation is conducted on SUSE Linux Enterprise Server, upgrade installation will be conducted successfully even if the following message is displayed.

```
insserv: Warning, current runlevel(s) of script `scwagent' overwrites defaults.
```

2. Set Maintenance Mode

   When server switchover settings have been performed for managed servers, place them into maintenance mode.
   When managed servers are set as spare servers, place the managed servers set as spare servers into maintenance mode.

3. Backing up (copying) of Network Parameter Auto-configuration Function Definition Files

   When using the network parameter auto-configuration function during deployment of cloning images, back up (copy) the following folders and files to a location other than the agent installation folder.

   [Windows/Hyper-V]
   Installation_folder\Agent\etc\event_script folder
   Installation_folder\Agent\etc\ipaddr.conf file
   Installation_folder\Agent\etc\ipaddr.conf file

   [Linux/VMware/Xen/KVM]
   /etc/opt/FJSVrcxat/event_script directory
   /etc/opt/FJSVnrmp/lan/ipaddr.conf file
   /etc/FJSVrcx.conf file

4. Restoration of Network Parameter Auto-configuration Function Definition Files

   When using the network parameter auto-configuration function during deployment of cloning images, restore the definition files that were backed up (copied) in step 3. When 3. was not performed, this step is not necessary.

   a. Stop agents.

      For the method for stopping agents, refer to "7.3 Starting and Stopping the Agent" in the "Setup Guide CE".

   b. Restore the definition file.

      Restore the folders and files backed up (copied) in step 3. to the following locations in the installation folder of this version:

      [Windows/Hyper-V]
      Installation_folder\Agent\etc\event_script folder
      Installation_folder\Agent\etc\ipaddr.conf file
      Installation_folder\Agent\etc\ipaddr.conf file

      [Linux/VMware/Xen/KVM]
      /etc/opt/FJSVrcxat/event_script directory
      /etc/opt/FJSVnrmp/lan/ipaddr.conf file
      /etc/FJSVrcx.conf file

   c. Start agents.

      For the method for starting agents, refer to "7.3 Starting and Stopping the Agent" in the "Setup Guide CE".

5. Release Maintenance Mode

   Release the maintenance mode of managed servers placed into maintenance mode in step 2.

Note

- After upgrading agents, use the ROR console to check if the upgraded managed servers are being displayed correctly.
- Updating of system images and cloning images is advised after agents have been upgraded.

Manual Upgrade

Use the following procedure to upgrade agents of earlier versions to agents of this version on all of the managed servers that are being upgraded.

Note

- Do not perform any other operations with Resource Orchestrator until the upgrade is completed.
- Perform upgrading of agents after upgrading of managers is completed.
- When using the network parameter auto-configuration function during deployment of cloning images, specify the same installation folder for agents of the earlier version and those of this version.

1. Set Maintenance Mode

   - When server switchover settings have been performed for managed servers

     Place them into maintenance mode.

   - When managed servers are set as spare servers

     Place the managed servers set as spare servers into maintenance mode.

2. Backing up (copying) of Network Parameter Auto-configuration Function Definition Files

   When using the network parameter auto-configuration function during deployment of cloning images, back up (copy) the following folders and files to a location other than the agent installation folder.

   [Windows/Hyper-V]
   Installation_folder\Agent\etc\event_script folder
   Installation_folder\Agent\etc\ipaddr.conf file
   Installation_folder\Agent\etc\ipaddr.conf file

   [Linux/VMware/Xen/KVM]
   /etc/opt/FJSVrcxat/event_script directory
   /etc/opt/FJSVnrmp/lan/ipaddr.conf file
   /etc/FJSVrcx.conf file

3. Uninstall Older Version ROR Agents

   Refer to the "ServerView Resource Orchestrator User's Guide", and uninstall the agents.

4. Install ROR CE Agents

   Install ROR CE agents.
   For installation, refer to "2.2 Agent Installation".

5. Restoration of Network Parameter Auto-configuration Function Definition Files

   When using the network parameter auto-configuration function during deployment of cloning images, restore the definition files that were backed up (copied) in step 2. When 2. was not performed, this step is not necessary.

   a. Stop agents.

      For the method for stopping agents, refer to "7.3 Starting and Stopping the Agent" in the "Setup Guide CE".

b. Restore the definition file.

   Restore the folders and files backed up (copied) in step 2. to the following locations in the installation folder of this version:

   [Windows/Hyper-V]
   Installation_folder\Agent\etc\event_script folder
   Installation_folder\Agent\etc\ipaddr.conf file
   Installation_folder\Agent\etc\ipaddr.conf file

   [Linux/VMware/Xen/KVM]
   /etc/opt/FJSVrcxat/event_script directory
   /etc/opt/FJSVnrmp/lan/ipaddr.conf file
   /etc/FJSVrcx.conf file

c. Start agents.

   For the method for starting agents, refer to "7.3 Starting and Stopping the Agent" in the "Setup Guide CE".

6. Release Maintenance Mode

   Release the maintenance mode of managed servers placed into maintenance mode in step 1.

Note

- After upgrading agents, use the ROR console to check that the upgraded managed servers are being displayed correctly.
- Updating of system images and cloning images is advised after agents have been upgraded.

Upgrading with ServerView Update Manager or ServerView Update Manager Express

Upgrade installation can be performed with ServerView Update Manager or ServerView Update Manager Express when upgrading to this version from ROR V2.2.2 or later, or RCVE V2.2.2 or later.

Refer to the manual of ServerView Update Manager or ServerView Update Manager Express for the procedure.

Note

- To upgrade with ServerView Update Manager, the server to be upgrade must be managed by ServerView Operations Manager.
- OS's and hardware supported by ServerView Update Manager or ServerView Update Manager Express can be updated.
- For Linux or VMware, the installed ServerView Agents must be at least V5.01.08.
- Do not perform any other operations with Resource Orchestrator until the upgrade is completed.
- Perform upgrading of agents after upgrading of managers is completed.
- In the event that upgrade installation fails, please resolve the cause of the failure and perform upgrade installation again. If the problem cannot be resolved and upgrade installation fails again, please contact Fujitsu technical staff.
- When performing an upgrade installation, please do not access the installation folder of the earlier version or any of the files and folders inside it using the command prompt, Windows Explorer, or an editor. While it is being accessed, attempts to perform upgrade installation will fail.
- If upgrade installation fails, stop accessing the files or folders and then perform the upgrade installation again.
- When stopping the upgrade and restoring the earlier version, please re-install the agent of the earlier version and then replace the information that was backed up during the preparations.

  When performing restoration and an agent of this version or an earlier version has been installed, please uninstall it.

  After restoration, please delete the folder containing the backed up assets.
- Upgrade installation will delete patches that were applied to the earlier version.

[Linux]

- When the PATH variable has not been configured to enable execution of UpdateAdvisor (Middleware) commands from a user-defined location, performing upgrade installation will delete any patches that have been applied to the old version, but it will not delete product information or component information. Refer to the UpdateAdvisor (Middleware) manual and delete software and component information from the applied modification checklist.
- After upgrading agents, use the ROR console to check that the upgraded managed servers are being displayed correctly.
- Updating of system images and cloning images is advised after agents have been upgraded.

4.4 Client

This section explains the upgrading of clients.

Web browsers are used as clients of this version.

When upgrading clients, it is necessary to clear the Web browser's cache (temporary internet files).

Use the following procedure to clear the Web browser's cache.

1. [Select [Tools]-[Internet Options].

   The [Internet Options] dialog is displayed.

2. Select the [General] tab on the [Internet Options] dialog.
3. Select <Delete> in the "Browsing history" area.

   The [Delete Browsing History] dialog is displayed.

4. Check the "Temporary Internet files" checkbox in the [Delete Browsing History] dialog and unselect the other checkboxes.
5. Click <Delete>.

   The Web browser's cache is cleared.

4.5 HBA address rename setup service

This section explains upgrading of the HBA address rename setup service.

Transferred Data

There is no HBA address rename setup service data to transfer when upgrading from an earlier version to this version.

Preparations

Perform the following preparations and checks before upgrading:

- Check that the environment is one in which agents of this version can be operated.

  For operating environments, refer to "Chapter 1 Operational Environment".

Upgrade using Upgrade Installation

When upgrading to this version from V2.1.1, upgrade can be performed using upgrade installation. Perform the upgrade using the following procedure:

Note

- Do not perform any other operations with Resource Orchestrator until the upgrade is completed.
- Perform upgrading of the HBA address rename setup service after upgrading of managers is completed.

- In the event that upgrade installation fails, please resolve the cause of the failure and perform upgrade installation again. If the problem cannot be resolved and upgrade installation fails again, please contact Fujitsu technical staff.
- When performing an upgrade installation, please do not access the installation folder of the earlier version or any of the files and folders inside it using the command prompt, Explorer, or an editor.
  While it is being accessed, attempts to perform upgrade installation will fail.
  If upgrade installation fails, stop accessing the files or folders and then perform the upgrade installation again.
- When stopping the upgrade and restoring the earlier version, please re-install the HBA address rename setup service of the earlier version.
  When performing restoration and the HBA address rename setup service of this version or an earlier version has been installed, please uninstall it.
- Upgrade installation will delete patches that were applied to the earlier version.

  [Linux]
  When the PATH variable has not been configured to enable execution of UpdateAdvisor (Middleware) commands from a user-defined location, performing upgrade installation will delete any patches that have been applied to the old version, but it will not delete product information or component information. Refer to the UpdateAdvisor (Middleware) manual and delete software and component information from the applied modification checklist.

1. Upgrade Installation

   [Windows]
   Refer to "2.4.2 Installation [Windows]", and execute the Resource Orchestrator installer.
   The Resource Orchestrator setup window will be displayed. Check the contents of the license agreement, etc. and then click <Yes>.
   The setting information that will be taken over from the earlier version will be displayed. Please check it and then click <Install>.
   Upgrade installation will begin.

   [Linux]
   Refer to "2.4.3 Installation [Linux]", and execute Resource Orchestrator installer.
   The Resource Orchestrator setup window will be displayed. Check the contents of the license agreement, etc. and then enter "y".
   A message checking about performing the upgrade installation will be displayed.
   To perform upgrade installation, enter "y". Upgrade installation will begin.

2. Display the Resource Orchestrator Setup Completion Window [Windows]

   When using the HBA address rename setup service immediately after configuration, check the "Yes, launch it now." checkbox.
   Click <Finish> and close the window. If the checkbox was checked, the HBA address rename setup service will be started after the window is closed.

3. Start the HBA address rename setup Service

   [Windows]
   When the HBA address rename setup service was not started in step 2., refer to "8.2.1 Settings for the HBA address rename Setup Service" of the "Setup Guide CE", and start the HBA address rename setup service.

   [Linux]
   Refer to "8.2.1 Settings for the HBA address rename Setup Service" of the "Setup Guide CE", and start the HBA address rename setup service.

Appendix A Advisory Notes for Environments with Systemwalker Centric Manager or ETERNUS SF Storage Cruiser

This appendix explains advisory notes for use of Resource Orchestrator in combination with Systemwalker Centric Manager or ETERNUS SF Storage Cruiser.

Installation [Linux]

When using the following products on servers that a manager has been installed on, in order to share SNMP Traps between servers ServerView Trap Server for Linux (trpsrvd) is necessary.

- Systemwalker Centric Manager (Operation management servers and section admin servers)
- ETERNUS SF Storage Cruiser Manager 14.1 or earlier

ServerView Trap Server for Linux (trpsrvd) is used to transfer snmp traps received at UDP port number 162 to other UDP port numbers. The ServerView Trap Server for Linux is included in some versions of ServerView Operations Manager. In this case, install ServerView Trap Server for Linux referring to the ServerView Operations Manager manual.

If ServerView Trap Server for Linux is not included with ServerView Operations Manager, download it from the following web site, and install it referring to the documents provided with it.

URL: http://download.ts.fujitsu.com/prim_supportcd/SVSSoftware/html/ServerView_e.html (As of February 2012)

After installing ServerView Trap Server for Linux, perform the following settings.

1. Log in as the OS administrator (root).
2. Edit the /etc/services file, and add the following line.

```
mpwksttr-trap    49162/udp
```

3. Edit the /usr/share/SMAWtrpsv/conf/trpsrvtargets file, and add port 49162.

Before editing

```
#############################################################################
# Copyright (C) Fujitsu Siemens Computers 2007
# All rights reserved
# Configuration File for trpsrv (SMAWtrpsv)
#############################################################################

# Syntax
# port [(address | -) [comment]]

# examples
# 8162
# 9162 - test
# 162 145.25.124.121
```

After editing

```
#############################################################################
# Copyright (C) Fujitsu Siemens Computers 2007
# All rights reserved
# Configuration File for trpsrv (SMAWtrpsv)
#############################################################################
```

```
# Syntax
# port [(address | -) [comment]]

# examples
# 8162
# 9162 - test
# 162 145.25.124.121

#Transfer to UDP port 49162.
49162
```

4. Restart the system.

Upgrading from Earlier Versions

- When upgrading managers of V2.1.3 or earlier versions

  [Windows]
  The SNMP trap service (SystemWalker MpWksttr service) installed by the manager of V2.1.3 or earlier versions will be deleted by upgrading Resource Orchestrator.
  As the SystemWalker MpWksttr service is shared in environments where the following software exists, if the SystemWalker MpWksttr service is deleted when upgrading to Resource Orchestrator, perform installation and setup operation of the SystemWalker MpWksttr service referring to the manual of the following software.

  - Systemwalker Centric Manager (Operation management servers and department admin servers)
  - ETERNUS SF Storage Cruiser Manager 14.1 or earlier

  [Linux]
  The SNMP trap service (SystemWalker MpWksttr service) installed by the manager of V2.1.3 or earlier versions will be deleted by upgrading Resource Orchestrator.
  As the SystemWalker MpWksttr service is shared in environments where the following software exists, if the SystemWalker MpWksttr service is deleted when upgrading to Resource Orchestrator, perform installation and setup operation of the SystemWalker MpWksttr service referring to the manual of the following software.

  - Systemwalker Centric Manager (Operation management servers and department admin servers)

  In environments where the above software has not been installed but the following software has, when upgrading managers of V2.1.3 or earlier versions, the SystemWalker MpWksttr service will remain even after upgrading, but the SystemWalker MpWksttr service is not required.

  - ETERNUS SF Storage Cruiser Manager 14.1 or later

  In this case, execute the following command as the OS administrator (root) and delete the SystemWalker MpWksttr service.

```
# rpm -e FJSVswstt <RETURN>
```

Appendix B Manager Cluster Operation Settings and Deletion

This section explains the settings necessary for operating Resource Orchestrator in cluster systems and the procedures for deleting this product from cluster systems.

Note

When coordination with VIOM is being used, or when Single Sign-On is configured, clustered manager operation is not supported.
When coordination with ESC is being used, clustered operation of Windows managers is not supported.

B.1 What are Cluster Systems

In cluster systems, two or more servers are operated as a single virtual server in order to enable high availability.

If a system is run with only one server, and the server or an application operating on it fails, all operations would stop until the server is rebooted.

In a cluster system where two or more servers are linked together, if one of the servers becomes unusable due to trouble with the server or an application being run, by restarting the applications on the other server it is possible to resume operations, shortening the length of time operations are stopped.
Switching from a failed server to another, operational server in this kind of situation is called failover.

In cluster systems, groups of two or more servers are called clusters, and the servers comprising a cluster are called nodes.

Clusters are classified into the following types:

- Standby clusters

  This type of cluster involves standby nodes that stand ready to take over from operating nodes. The mode can be one of the following modes:

  - 1:1 hot standby

    A cluster consisting of one operating node and one standby node. The operating node is operational and the standby node stands ready to take over if needed.

  - *n*:1 hot standby

    A cluster consisting of *n* operating nodes and one standby node. The *n* operating nodes run different operations and the standby node stands ready to take over from all of the operating nodes.

  - *n*:*i* hot standby

    A cluster consisting of *n* operating nodes and *i* standby nodes. The style is similar to *n*:1 hot standby, only there are i standby nodes standing ready to take over from all of the operating nodes.

  - Mutual standby

    A cluster consisting of two nodes with both operating and standby applications. The two nodes each run different operations and stand ready to take over from each other. If one node fails, the other node runs both of the operations.

  - Cascade

    A cluster consisting of three or more nodes. One of the nodes is the operating node and the others are the standby nodes.

- Scalable clusters

  This is a cluster that allows multiple server machines to operate concurrently for performance improvement and reduced degrading during trouble. It differs from standby clusters as the nodes are not divided into operating and standby types. If the system fails on one of the nodes in the cluster, the other servers take over the operations.

Resource Orchestrator managers support failover clustering of Microsoft(R) Windows Server(R) 2008 Enterprise (x86, x64) and 1:1 hot standby of PRIMECLUSTER.

When operating managers in cluster systems, the HBA address rename setup service can be started on the standby node.
Using this function enables starting of managed servers without preparing a dedicated server for the HBA address rename setup service, even when managers and managed servers cannot communicate due to problems with the manager or the failure of the NIC used for connection to the admin LAN.

Information

For details of failover clustering, refer to the Microsoft web site.

For PRIMECLUSTER, refer to the PRIMECLUSTER manual.

B.2 Installation

This section explains installation of managers on cluster systems.

Perform installation only after configuration of the cluster system.

Note

In order to distinguish between the two physical nodes, one is referred to as the primary node and the other the secondary node. The primary node is the node that is active when the cluster service (cluster application) is started. The secondary node is the node that is in standby when the cluster service (cluster application) is started.

B.2.1 Preparations

This section explains the resources necessary before installation.

[Windows]

- Client Access Point

  An access point is necessary in order to enable communication between the ROR console, managed servers, and managers. The IP addresses and network names used for access are allocated.

  - When the same access point will be used for access by the ROR console and the admin LAN

    Prepare a single IP address and network name.

  - When different access points will be used for access by the ROR console and the admin LAN

    Prepare a pair of IP addresses and network names.

- Shared Disk for Managers

  Prepare at least one storage volume (LUN) to store data shared by the managers.

  For the necessary disk space for the shared disk, total the values for *Installation_folder* and *Image_file_storage_folder* indicated for managers in "Table 1.48 Dynamic Disk Space" in "1.4.2.5 Dynamic Disk Space" in the "Setup Guide CE", and secure the necessary amount of disk space.

- Generic Scripts for Manager Services

  Create the generic script files for (starting and stopping) the following manager services:

  - Resource Coordinator Web Server(Apache)
  - Resource Coordinator Sub Web Server(Mongrel)
  - Resource Coordinator Sub Web Server(Mongrel2)
  - Resource Coordinator Sub Web Server(Mongrel3)
  - Resource Coordinator Sub Web Server(Mongrel4)
  - Resource Coordinator Sub Web Server(Mongrel5)

Create a script file with the following content for each of the services.

The name of the file is optional, but the file extension must be ".vbs".

```
Function Online()

    Dim objWmiProvider
    Dim objService
    Dim strServiceState

    ' Check to see if the service is running
    set objWmiProvider = GetObject("winmgmts:/root/cimv2")
    set objService = objWmiProvider.get("win32_service='Service_name'")
    strServiceState = objService.state

    If ucase(strServiceState) = "RUNNING" Then
        Online = True
    Else

        ' If the service is not running, try to start it.
        response = objService.StartService()

        ' response = 0  or 10 indicates that the request to start was accepted
        If ( response <> 0 ) and ( response <> 10 ) Then
            Online = False
        Else
            Online = True
        End If
    End If
End Function

Function Offline()

    Dim objWmiProvider
    Dim objService
    Dim strServiceState

    ' Check to see if the service is running
    set objWmiProvider = GetObject("winmgmts:/root/cimv2")
    set objService = objWmiProvider.get("win32_service='Service_name'")
    strServiceState = objService.state

    If ucase(strServiceState) = "RUNNING" Then

        response = objService.StopService()

        If ( response <> 0 ) and ( response <> 10 ) Then
            Offline = False
        Else
            Offline = True
        End If
    Else
            Offline = True
    End If
End Function

Function LooksAlive()

    Dim objWmiProvider
    Dim objService
    Dim strServiceState

    set objWmiProvider = GetObject("winmgmts:/root/cimv2")
```

```
    set objService = objWmiProvider.get("win32_service='Service_name'")
    strServiceState = objService.state

    if ucase(strServiceState) = "RUNNING" Then
        LooksAlive = True
    Else
        LooksAlive = False
    End If
End Function

Function IsAlive()

    Dim objWmiProvider
    Dim objService
    Dim strServiceState

    set objWmiProvider = GetObject("winmgmts:/root/cimv2")
    set objService = objWmiProvider.get("win32_service='Service_name'")
    strServiceState = objService.state

    if ucase(strServiceState) = "RUNNING" Then
        IsAlive= True
    Else
        IsAlive = False
    End If

End Function
```

Specify the following service names for four occurrences of "*service_name*" in the script.

- ResourceCoordinatorWebServer(Apache)
- Resource Coordinator Sub Web Server(Mongrel)
- Resource Coordinator Sub Web Server(Mongrel2)
- Resource Coordinator Sub Web Server(Mongrel3)
- Resource Coordinator Sub Web Server(Mongrel4)
- Resource Coordinator Sub Web Server(Mongrel5)

Note

For Basic mode, create the generic script files for (starting and stopping) the following manager services:

- Resource Coordinator Web Server(Apache)
- Resource Coordinator Sub Web Server(Mongrel)
- Resource Coordinator Sub Web Server(Mongrel2)

[Linux]

- Takeover Logical IP Address for the Manager

  When operating managers in cluster systems, allocate a new, unique IP address on the network to PRIMECLUSTER GLS.
  If the IP address used for access from the ROR console differs from the above IP address, prepare another logical IP address and allocate it to PRIMECLUSTER GLS.
  When using an IP address that is already being used for an existing operation (cluster application), there is no need to allocate a new IP address for the manager.

- Shared Disk for Managers

  Prepare a PRIMECLUSTER GDS volume to store shared data for managers.

For the necessary disk space for the shared disk, total the values indicated for "Manager [Linux]" in "Table 1.48 Dynamic Disk Space" in "1.4.2.5 Dynamic Disk Space" of the "Setup Guide CE", and secure the necessary amount of disk space.

B.2.2 Installation

This section explains installation of managers on cluster systems.

Install managers on both the primary and secondary nodes.
Refer to "2.1 Manager Installation" and perform installation.

Note

- Do not install on the shared disk for managers.

[Windows]

- On the [Select Installation Folder] window, specify the same folder names on the primary node and secondary node for the installation folders and the image file storage folders.
  However, do not specify a folder on the shared disk for managers.
- On the [Administrative User Creation] window, specify the same character strings for the user account names and passwords on the primary node and the secondary node.
- On the [Admin LAN Selection] window of the installer, select the network with the same subnet for direct communication with managed servers.

[Linux]

- Specify the same directory names for both the primary node and the secondary node when entering the image file storage directory during installation.
  However, do not specify a directory on the shared disk for managers.
- Specify the same character strings for the primary node and the secondary node when entering administrative user account names and passwords during installation.
- Select a network of the same subnet from which direct communication with managed servers is possible when selecting the admin LAN network interface during installation.

After installation, stop the manager.

Stop the manager using the rcxadm mgrctl stop command.

For details of the command, refer to "1.7.8 rcxadm mgrctl" in the "Reference Guide (Resource Management) CE".

[Windows]
Change the startup type of the following manager services to "Manual".

- Resource Coordinator Task Manager
- Resource Coordinator Web Server(Apache)
- Resource Coordinator Sub Web Server(Mongrel)
- Resource Coordinator Sub Web Server(Mongrel2)
- Resource Coordinator Sub Web Server(Mongrel3)
- Resource Coordinator Sub Web Server(Mongrel4)
- Resource Coordinator Sub Web Server(Mongrel5)
- Deployment Service (*1)
- TFTP Service (*1)
- PXE Services (*1)
- Resource Coordinator DB Server (PostgreSQL)

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

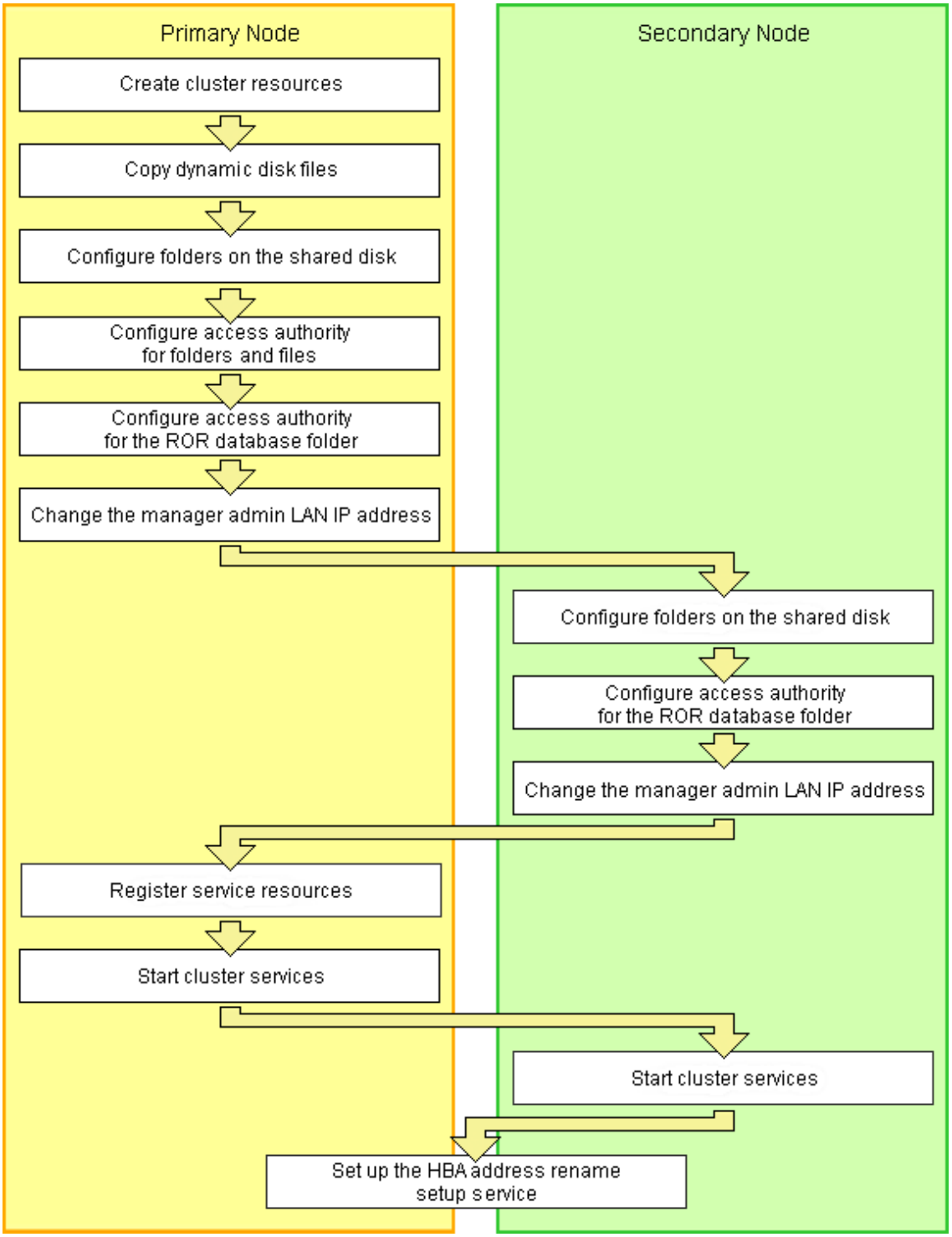
B.3 Configuration

This section explains the procedure for setting up managers as cluster services (cluster applications) in cluster systems.

B.3.1 Configuration [Windows]

Perform setup on the admin server.
The flow of setup is as shown below.

Figure B.1 Manager Service Setup Flow



Setup of managers as cluster services (cluster applications) is performed using the following procedure.
This explanation assumes that the shared disk for managers has been allocated to the primary node.

Create Cluster Resources

1. Store the generic scripts.

   Store the generic scripts created in "B.2.1 Preparations" in the manager installation folders on the primary node and the second node.
   After storing the scripts, set the access rights for the script files.
   Use the command prompt to execute the following command on each script file.

   ```
   >cacls File_name /P "NT AUTHORITY\SYSTEM:F" "BUILTIN\Administrators:F" <RETURN>
   ```

   Note

   When using the following language versions of Windows, replace the specified local system name (NT AUTHORITY\SYSTEM) and administrator group name (BUILTIN\Administrators) with those in the following list:

Language	Local system name	Administrator group name
German	NT-AUTORITÄT\SYSTEM	VORDEFINIERT\Administratoren
French	AUTORITE NT\SYSTEM	BUILTIN\Administrateurs
Spanish	NT AUTHORITY\SYSTEM	BUILTIN\Administradores
Russian	NT AUTHORITY\SYSTEM	BUILTIN\Администраторы

2. Open the [Failover Cluster Management] window and connect to the cluster system.

3. Configure a manager "service or application".

   a. Right-click [Services and Applications] on the Failover Cluster Management tree, and select [More Actions]-[Create Empty Service or Application].

      [New service or application] will be created under [Services and Applications].

   b. Right-click [New service or application], and select [Properties] from the displayed menu.

      The [New service or application properties] dialog is displayed.

   c. Change the "Name" on the [General] tab, select the resource name of the primary node from "Preferred owners:", and click <Apply>.

   d. When the settings have been applied, click <OK>.

   From this point, the explanation assumes that the name of the "service or application" for Resource Orchestrator has been configured as "RC-manager".

4. Allocate the shared disk to the manager "service or application".

   a. Right-click [Services and Applications]-[RC-manager], and select [Add storage] from the displayed menu.

      The [Add Storage] window will be displayed.

   b. From the "Available disks:", select the shared disk for managers and click <OK>.

5. Allocate the client access point to the manager "service or application".

   a. Right-click [Services and Applications]-[RC-manager], select [Add a resource]-[1 - Client Access Point] from the displayed menu.

      The [New Resource Wizard] window will be displayed.

   b. Configure the following parameters on the [General] tab and then click <Next>>.

      Name

      Set the network name prepared in "B.2.1 Preparations".

      Networks

      Check the network to use.

Address

Set the IP address prepared in "B.2.1 Preparations".

"Confirmation" will be displayed.

c. Check the information displayed for "Confirmation" and click <Next>>.

If configuration is successful, the "Summary" will be displayed.

d. Click <Finish>.

"Name: *Network_Name*" and "IP Address:*IP_Address*" will be created in the "Server Name" of the "Summary of RC-manager" displayed in the center of the window.
The specified value in step b. is displayed for *Network_Name* and *IP_Address*.

When a network other than the admin LAN has been prepared for ROR console access, perform the process in step 6.

6. Allocate the IP address to the manager "service or application".

a. Right-click [Services and Applications]-[RC-manager], select [Add a resource]-[More resources]-[4 - Add IP Address] from the displayed menu.

"IP Address: <not configured>" will be created in the "Other Resources" of the "Summary of RC-manager" displayed in the center of the window.

b. Right-click "IP Address: <not configured>", and select [Properties] from the displayed menu.

The [IP Address: <not configured> Properties] window is displayed.

c. Configure the following parameters on the [General] tab and then click <Apply>.

Resource Name

Set the network name prepared in "B.2.1 Preparations".

Network

Select the network to use from the pull-down menu.

Static IP Address

Set the IP address prepared in "B.2.1 Preparations".

d. When the settings have been applied, click <OK>.

Copy Dynamic Disk Files

Copy the files from the dynamic disk of the manager on the primary node to the shared disk for managers.

1. Use Explorer to create the "*Drive_name*:\Fujitsu\ROR\SVROR\" folder on the shared disk.
2. Use Explorer to copy the files and folders from the local disk of the primary node to the folder on the shared disk.

Table B.1 List of Files and Folders to Copy

Local Disk (Source)	Shared Disk (Target)
Installation_folder\Manager\etc\customize_data	*Drive_name*:\Fujitsu\ROR\SVROR\customize_data
Installation_folder\Manager\etc\opt\FJSVssmgr\current\certificate	*Drive_name*:\Fujitsu\ROR\SVROR\certificate
Installation_folder\Manager\Rails\config\rcx_secret.key	*Drive_name*:\Fujitsu\ROR\SVROR\rcx_secret.key
Installation_folder\Manager\Rails\config\rcx\rcxdb.pwd	*Drive_name*:\Fujitsu\ROR\SVROR\rcxdb.pwd
Installation_folder\Manager\Rails\db	*Drive_name*:\Fujitsu\ROR\SVROR\db
Installation_folder\Manager\Rails\log	*Drive_name*:\Fujitsu\ROR\SVROR\log
Installation_folder\Manager\Rails\tmp	*Drive_name*:\Fujitsu\ROR\SVROR\tmp
Installation_folder\Manager\sys\apache\conf	*Drive_name*:\Fujitsu\ROR\SVROR\conf

Local Disk (Source)	Shared Disk (Target)
Installation_folder\Manager\sys\apache\logs	*Drive_name*:\Fujitsu\ROR\SVROR\logs
Installation_folder\Manager\var	*Drive_name*:\Fujitsu\ROR\SVROR\var
Installation_folder\ScwPro\Bin\ipTable.dat (*1)	*Drive_name*:\Fujitsu\ROR\SVROR\ipTable.dat
Installation_folder\ScwPro\scwdb (*1)	*Drive_name*:\Fujitsu\ROR\SVROR\scwdb
Installation_folder\ScwPro\tftp\rcbootimg (*1)	*Drive_name*:\Fujitsu\ROR\SVROR\rcbootimg
User_specified_folder\ScwPro\depot (*1)	*Drive_name*:\Fujitsu\ROR\SVROR\depot

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

3. Release the sharing settings of the following folder:

   Not necessary when ServerView Deployment Manager is used in the same subnet.

   - *Installation_folder*\ScwPro\scwdb

     Execute the following command using the command prompt:

     ```
     >net share ScwDB$ /DELETE <RETURN>
     ```

4. Use Explorer to change the names of the folders below that were copied.

   - *Installation_folder*\Manager\etc\customize_data
   - *Installation_folder*\Manager\etc\opt\FJSVssmgr\current\certificate
   - *Installation_folder*\Manager\Rails\config\rcx_secret.key
   - *Installation_folder*\Manager\Rails\config\rcx\rcxdb.pwd
   - *Installation_folder*\Manager\Rails\db
   - *Installation_folder*\Manager\Rails\log
   - *Installation_folder*\Manager\Rails\tmp
   - *Installation_folder*\Manager\sys\apache\conf
   - *Installation_folder*\Manager\sys\apache\logs
   - *Installation_folder*\Manager\var
   - *Installation_folder*\ScwPro\Bin\ipTable.dat (*1)
   - *Installation_folder*\ScwPro\scwdb (*1)
   - *Installation_folder*\ScwPro\tftp\rcbootimg (*1)

   *1: Not necessary when ServerView Deployment Manager is used in the same subnet.

   Note

   When folders or files are in use by another program, attempts to change folder names and file names may fail.
   If attempts to change names fail, change the names after rebooting the server.

5. Delete the following file from the shared disk:

   - *Drive_name*:\Fujitsu\ROR\SVROR\db\rmc_key

Configure Folders on the Shared Disk (Primary node)

1. On the primary node, configure symbolic links to the files and folders on the shared disk.

   Use the command prompt to configure a symbolic link from the files and folders on the local disk of the primary node to the files and folders on the shared disk.

   Execute the following command.

   - Folder

     >**mklink /d** *Link_source Link_target* <RETURN>

   - File

     >**mklink** *Link_source Link_target* <RETURN>

     Specify the folders or files copied in "Copy Dynamic Disk Files" for *Link_source*.

     Specify the folders or files copied to the shared disk in "Copy Dynamic Disk Files" for *Link_target*.

   The folders and files to specify are as given below:

Table B.2 Folders to Specify

Local Disk (Link Source)	Shared Disk (Link Target)
Installation_folder\Manager\etc\customize_data	*Drive_name*:\Fujitsu\ROR\SVROR\customize_data
Installation_folder\Manager\etc\opt\FJSVssmgr\current\certificate	*Drive_name*:\Fujitsu\ROR\SVROR\certificate
Installation_folder\Manager\Rails\db	*Drive_name*:\Fujitsu\ROR\SVROR\db
Installation_folder\Manager\Rails\log	*Drive_name*:\Fujitsu\ROR\SVROR\log
Installation_folder\Manager\Rails\tmp	*Drive_name*:\Fujitsu\ROR\SVROR\tmp
Installation_folder\Manager\sys\apache\conf	*Drive_name*:\Fujitsu\ROR\SVROR\conf
Installation_folder\Manager\sys\apache\logs	*Drive_name*:\Fujitsu\ROR\SVROR\logs
Installation_folder\Manager\var	*Drive_name*:\Fujitsu\ROR\SVROR\var
Installation_folder\ScwPro\scwdb (*1)	*Drive_name*:\Fujitsu\ROR\SVROR\scwdb
Installation_folder\ScwPro\tftp\rcbootimg (*1)	*Drive_name*:\Fujitsu\ROR\SVROR\rcbootimg

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

Table B.3 Files to Specify

Local Disk (Link Source)	Shared Disk (Link Target)
Installation_folder\Manager\Rails\config\rcx_secret.key	*Drive_name*:\Fujitsu\ROR\SVROR\rcx_secret.key
Installation_folder\Manager\Rails\config\rcx\rcxdb.pwd	*Drive_name*:\Fujitsu\ROR\SVROR\rcxdb.pwd
Installation_folder\ScwPro\Bin\ipTable.dat (*1)	*Drive_name*:\Fujitsu\ROR\SVROR\ipTable.dat

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

Note

Before executing the above command, move to a folder one level higher than the link source folder.

Example

When specifying a link from "*Installation_folder*\Manager\sys\apache\logs" on the local disk to "*Drive_name*:\Fujitsu\ROR\SVROR\logs" on the shared disk

```
>cd Installation_folder\Manager\sys\apache <RETURN>
>mklink /d logs Drive_name:\Fujitsu\ROR\SVROR\logs <RETURN>
```

2. Change the registry of the primary node.

   Not necessary when ServerView Deployment Manager is used in the same subnet.

   a. Backup the registry to be changed.

      Execute the following command.

      - x64

        ```
        >reg save HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard
        scw.reg <RETURN>
        ```

      - x86

        ```
        >reg save HKEY_LOCAL_MACHINE\SOFTWARE\Fujitsu\SystemcastWizard scw.reg
        <RETURN>
        ```

   b. Change the registry.

      Execute the following command.

      - x64

        ```
        >reg add HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard
        \ResourceDepot /v BasePath /d Drive_name:\Fujitsu\ROR\SVROR\depot\ /f <RETURN>

        >reg add HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard
        \DatabaseBroker\Default /v LocalPath /d Drive_name:\Fujitsu\ROR\SVROR\scwdb /f <RETURN>

        >reg add HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard
        \DHCP /v IPtableFilePath /d Drive_name:\Fujitsu\ROR\SVROR /f <RETURN>
        ```

      - x86

        ```
        >reg add HKEY_LOCAL_MACHINE\SOFTWARE\Fujitsu\SystemcastWizard\ResourceDepot /v
        BasePath /d Drive_name:\Fujitsu\ROR\SVROR\depot\ /f <RETURN>

        >reg add HKEY_LOCAL_MACHINE\SOFTWARE\Fujitsu\SystemcastWizard\DatabaseBroker
        \Default /v LocalPath /d Drive_name:\Fujitsu\ROR\SVROR\scwdb /f <RETURN>

        >reg add HKEY_LOCAL_MACHINE\SOFTWARE\Fujitsu\SystemcastWizard\DHCP /v
        IPtableFilePath /d Drive_name:\Fujitsu\ROR\SVROR /f <RETURN>
        ```

        Change *Drive_name* based on your actual environment.

   c. If changing the registry fails, restore the registry.

      Execute the following command.

      - x64

        ```
        >reg restore HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Fujitsu
        \SystemcastWizard scw.reg <RETURN>
        ```

      - x86

```
>reg restore HKEY_LOCAL_MACHINE\SOFTWARE\Fujitsu\SystemcastWizard scw.reg
<RETURN>
```

Note

Do not use the backup registry file created using this procedure for any other purposes.

Configure Access Authority for Folders and Files

- Set the access authority for the folders and files copied to the shared disk.

  Use the command prompt to set the access authority for the folders and files on the shared disk.

  The folders and files to specify are as given below:

  - Folder

    Drive_name:\Fujitsu\ROR\SVROR\certificate
    Drive_name:\Fujitsu\ROR\SVROR\conf\ssl.key
    Drive_name:\Fujitsu\ROR\SVROR\var\log

  - Files

    Drive_name:\Fujitsu\ROR\SVROR\rcx_secret.key

  Execute the following command.

  - Folder

    ```
    >cacls Folder_name /T /P "NT AUTHORITY\SYSTEM:F" "BUILTIN\Administrators:F" <RETURN>
    ```

  - File

    ```
    >cacls File_name /P "NT AUTHORITY\SYSTEM:F" "BUILTIN\Administrators:F" <RETURN>
    ```

    Note

    When using the following language versions of Windows, replace the specified local system name (NT AUTHORITY\SYSTEM) and administrator group name (BUILTIN\Administrators) with those in the following list:

Language	Local system name	Administrator group name
German	NT-AUTORITÄT\SYSTEM	VORDEFINIERT\Administratoren
French	AUTORITE NT\SYSTEM	BUILTIN\Administrateurs
Spanish	NT AUTHORITY\SYSTEM	BUILTIN\Administradores
Russian	NT AUTHORITY\SYSTEM	BUILTIN\Администраторы

Configure Access Authority for the Resource Orchestrator Database Folder (Primary node)

Set the access authority for the folder for the Resource Orchestrator database copied to the shared disk.

Execute the following command using the command prompt of the primary node:

```
>cacls Drive_name:\Fujitsu\ROR\SVROR\db\data /T /P "NT AUTHORITY\SYSTEM:F" "BUILTIN\Administrators:F"
"rcxdb:C" <RETURN>
```

Change the Manager Admin LAN IP Address (Primary node)

Change the admin LAN IP address of the manager.

Specify the admin LAN IP address set in step 5. of "Create Cluster Resources".

1. Bring the admin LAN IP address for the manager "service or application" online.
2. Execute the following command using the command prompt of the primary node:

   >*Installation_folder***Manager\bin\rcxadm mgrctl modify -ip** *IP_address* <RETURN>

3. Allocate the shared disk to the secondary node.

   Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Move this service or application to another node]-[1 - Move to node *node_name*] from the displayed menu.

   The name of the secondary node is displayed for *node_name*.

Configure Folders on the Shared Disk (Secondary node)

- On the secondary node, configure symbolic links to the folders on the shared disk.

  a. Use Explorer to change the names of the folders and files below.

  - *Installation_folder*\Manager\etc\customize_data
  - *Installation_folder*\Manager\etc\opt\FJSVssmgr\current\certificate
  - *Installation_folder*\Manager\Rails\config\rcx_secret.key
  - *Installation_folder*\Manager\Rails\config\rcx\rcxdb.pwd
  - *Installation_folder*\Manager\Rails\db
  - *Installation_folder*\Manager\Rails\log
  - *Installation_folder*\Manager\Rails\tmp
  - *Installation_folder*\Manager\sys\apache\conf
  - *Installation_folder*\Manager\sys\apache\logs
  - *Installation_folder*\Manager\var
  - *Installation_folder*\ScwPro\Bin\ipTable.dat (*1)
  - *Installation_folder*\ScwPro\scwdb (*1)
  - *Installation_folder*\ScwPro\tftp\rcbootimg (*1)

  *1: Not necessary when ServerView Deployment Manager is used in the same subnet.

  When folders or files are in use by another program, attempts to change folder names and file names may fail.
  If attempts to change names fail, change the names after rebooting the server.

  b. Release the sharing settings of the following folder:

  Not necessary when ServerView Deployment Manager is used in the same subnet.

  - *Installation_folder*\ScwPro\scwdb

    Execute the following command using the command prompt:

    >**net share ScwDB$ /DELETE** <RETURN>

c. Use the command prompt to configure a symbolic link from the folder on the local disk of the secondary node to the folder on the shared disk.

Execute the following command.

- Folder

```
>mklink /d Link_source Link_target <RETURN>
```

- File

```
>mklink Link_source Link_target <RETURN>
```

Specify a file or folder on the local disk of the secondary node for *Link_source*.

Specify a file or folder on the shared disk of the secondary node for *Link_target*.

The folders to specify are as given below:

Table B.4 Folders to Specify

Local Disk (Link Source)	Shared Disk (Link Target)
Installation_folder\Manager\etc\customize_data	*Drive_name*:\Fujitsu\ROR\SVROR\customize_data
Installation_folder\Manager\etc\opt\FJSVssmgr\current\certificate	*Drive_name*:\Fujitsu\ROR\SVROR\certificate
Installation_folder\Manager\Rails\db	*Drive_name*:\Fujitsu\ROR\SVROR\db
Installation_folder\Manager\Rails\log	*Drive_name*:\Fujitsu\ROR\SVROR\log
Installation_folder\Manager\Rails\tmp	*Drive_name*:\Fujitsu\ROR\SVROR\tmp
Installation_folder\Manager\sys\apache\conf	*Drive_name*:\Fujitsu\ROR\SVROR\conf
Installation_folder\Manager\sys\apache\logs	*Drive_name*:\Fujitsu\ROR\SVROR\logs
Installation_folder\Manager\var	*Drive_name*:\Fujitsu\ROR\SVROR\var
Installation_folder\ScwPro\scwdb (*1)	*Drive_name*:\Fujitsu\ROR\SVROR\scwdb
Installation_folder\ScwPro\tftp\rcbootimg (*1)	*Drive_name*:\Fujitsu\ROR\SVROR\rcbootimg

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

Table B.5 Files to Specify

Local Disk (Link Source)	Shared Disk (Link Target)
Installation_folder\Manager\Rails\config\rcx_secret.key	*Drive_name*:\Fujitsu\ROR\SVROR\rcx_secret.key
Installation_folder\Manager\Rails\config\rcx\rcxdb.pwd	*Drive_name*:\Fujitsu\ROR\SVROR\rcxdb.pwd
Installation_folder\ScwPro\Bin\ipTable.dat (*1)	*Drive_name*:\Fujitsu\ROR\SVROR\ipTable.dat

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

Note

Before executing the above command, move to a folder one level higher than the link source folder.

Example

When specifying a link from "*Installation_folder*\Manager\sys\apache\logs" on the local disk to "*Drive_name*:\Fujitsu\ROR\SVROR\logs" on the shared disk

```
>cd Installation_folder\Manager\sys\apache <RETURN>
>mklink /d logs Drive_name:\Fujitsu\ROR\SVROR\logs <RETURN>
```

Configure Access Authority for the Resource Orchestrator Database Folder (Secondary node)

Set the access authority for the folder for the Resource Orchestrator database copied to the shared disk.

Execute the following command using the command prompt of the secondary node:

```
>cacls Drive_name:\Fujitsu\ROR\SVROR\db\data /T /G "rcxdb:C" /E <RETURN>
```

Change the Manager Admin LAN IP Address (Secondary node)

Change the admin LAN IP address of the manager.

Specify the admin LAN IP address set in step 5. of "Create Cluster Resources".

1. Execute the following command using the command prompt of the secondary node:

   ```
   >Installation_folder\Manager\bin\rcxadm mgrctl modify -ip IP_address <RETURN>
   ```

2. Allocate the shared disk to the primary node.

   Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Move this service or application to another node]-[1 - Move to node *node_name*] from the displayed menu.
   The name of the primary node is displayed for *node_name*.

Register Service Resources

1. Add the manager service to the manager "service or application".
   Add the following six services.

   - Resource Coordinator Manager
   - Resource Coordinator Task Manager
   - Deployment Service (*1)
   - TFTP Service (*1)
   - PXE Services (*1)
   - Resource Coordinator DB Server (PostgreSQL)

   *1: Not necessary when ServerView Deployment Manager is used in the same subnet.

   Perform the following procedure for each of the above services:

   a. Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Add a resource]-[4 - Generic Service] from the displayed menu.

      The [New Resource Wizard] window will be displayed.

   b. Select the above services on "Select Service" and click <Next>>.

      "Confirmation" will be displayed.

   c. Check the information displayed for "Confirmation" and click <Next>>.

      If configuration is successful, the "Summary" will be displayed.

d. Click <Finish>.

After completing the configuration of all of the services, check that the added services are displayed in "Other Resources" of the "Summary of RC-manager" displayed in the center of the window.

2. Configure registry replication as a service in the manager "service or application".

Not necessary when ServerView Deployment Manager is used in the same subnet.

Configure the registry replication of resources based on the following table.

- x64

Resource for Configuration	Registry Key
Deployment Service	[HKEY_LOCAL_MACHINE\]SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard\ResourceDepot
	[HKEY_LOCAL_MACHINE\]SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard\DatabaseBroker\Default
PXE Services	[HKEY_LOCAL_MACHINE\]SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard\DHCP
	[HKEY_LOCAL_MACHINE\]SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard\PXE\ClientBoot\

- x86

Resource for Configuration	Registry Key
Deployment Service	[HKEY_LOCAL_MACHINE\]SOFTWARE\Fujitsu\SystemcastWizard\ResourceDepot
	[HKEY_LOCAL_MACHINE\]SOFTWARE\Fujitsu\SystemcastWizard\DatabaseBroker\Default
PXE Services	[HKEY_LOCAL_MACHINE\]SOFTWARE\Fujitsu\SystemcastWizard\DHCP
	[HKEY_LOCAL_MACHINE\]SOFTWARE\Fujitsu\SystemcastWizard\PXE\ClientBoot\

During configuration, enter the section of the registry keys after the brackets ([ ]).

Perform the following procedure for each of the above resources:

a. Right-click the target resource on "Other Resources" on the "Summary of RC-manager" displayed in the middle of the [Failover Cluster Management] window, and select [Properties] from the displayed menu.

The [*target_resource* Properties] window will be displayed.

b. Click <Add> on the [Registry Replication] tab.

The [Registry Key] window will be displayed.

c. Configure the above registry keys on "Root registry key" and click <OK>.

When configuring the second registry key, repeat b. and c.

d. After configuration of the registry keys is complete, click <Apply>.

e. When the settings have been applied, click <OK> and close the dialog.

3. Add the generic scripts to the manager "service or application".

Add the three generic scripts from the script files that were created in step 1. of "Create Cluster Resources". Perform the following procedure for each generic script.

a. Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Add a resource]-[3 - Generic Script] from the displayed menu.

   The [New Resource Wizard] window will be displayed.

b. Set the script files created in step 1. of "Create Cluster Resources" in the "Script file path" of the "Generic Script Info", and click <Next>>.

   "Confirmation" will be displayed.

c. Check the information displayed for "Confirmation" and click <Next>>.

   If configuration is successful, the "Summary" will be displayed.

d. Click <Finish>.

   After completing the configuration of all of the generic scripts, check that the added generic scripts are displayed in "Other Resources" of the "Summary of RC-manager" displayed in the center of the window.

4. Configure the dependencies of the resources of the manager "service or application".

   Configure the dependencies of resources based on the following table.

Table B.6 Configuring Resource Dependencies

Resource for Configuration	Dependent Resource
Resource Coordinator Manager	Shared Disks
Resource Coordinator Task Manager	Shared Disks
Resource Coordinator Sub Web Server (Mongrel) Script	Resource Coordinator Task Manager
Resource Coordinator Sub Web Server (Mongrel2) Script	Resource Coordinator Task Manager
Resource Coordinator Sub Web Server (Mongrel3) script	Resource Coordinator Task Manager
Resource Coordinator Sub Web Server (Mongrel4) script	Resource Coordinator Task Manager
Resource Coordinator Sub Web Server (Mongrel5) script	Resource Coordinator Task Manager
Resource Coordinator Web Server (Apache) Script	Shared Disks
Deployment Service (*1)	PXE Services
TFTP Service (*1)	Deployment Service
PXE Services (*1)	Admin LAN IP Address
Resource Coordinator DB Server (PostgreSQL)	Shared Disks

   *1: Not necessary when ServerView Deployment Manager is used in the same subnet.

   Perform the following procedure for each of the above resources:

a. Right-click the target resource on "Other Resources" on the "Summary of RC-manager" displayed in the middle of the [Failover Cluster Management] window, and select [Properties] from the displayed menu.

   The [*target_resource* Properties] window will be displayed.

b. From the "Resource" of the [Dependencies] tab select the name of the "Dependent Resource" from "Table B.6 Configuring Resource Dependencies" and click <Apply>.

c. When the settings have been applied, click <OK>.

Start Cluster Services

1. Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Bring this service or application online] from the displayed menu.

   Confirm that all resources have been brought online.

2. Switch the manager "service or application" to the secondary node.

   Confirm that all resources of the secondary node have been brought online.

Note

When registering the admin LAN subnet, additional settings are required.

For the setting method, refer to "Settings for Clustered Manager Configurations" in "2.10 Registering Admin LAN Subnets [Windows]" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Set up the HBA address rename Setup Service

When configuring managers and the HBA address rename setup service in cluster systems, perform the following procedure.

Not necessary when ServerView Deployment Manager is used in the same subnet.

Performing the following procedure starts the HBA address rename setup service on the standby node in the cluster.

1. Switch the manager "service or application" to the primary node.

   Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select the primary node using [Move this service or application to another node] from the displayed menu.
   Switch the "Current Owner" of the "Summary of RC-manager" displayed in the center of the window to the primary node.

2. Configure the startup settings of the HBA address rename setup service of the secondary node.

   a. Execute the following command using the command prompt:

      >"*Installation_folder***WWN Recovery\opt\FJSVrcxrs\bin\rcxhbactl.exe**" <RETURN>

      The [HBA address rename setup service] dialog is displayed.

   b. Configure the following parameters.

      IP address of admin server

      Specify the admin LAN IP address set in step 5. of "Create Cluster Resources".

      Port number

      Specify the port number for communication with the admin server. The port number during installation is 23461.
      When the port number for "rcxweb" on the admin server has been changed, specify the new port number.

   c. Click <Run>.

      Confirm that the "Status" becomes "Running".

   d. Click <Stop>.

      Confirm that the "Status" becomes "Stopping".

   e. Click <Cancel> and close the [HBA address rename setup service] dialog.

3. Switch the manager "service or application" to the secondary node.

   Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select the resource name of the secondary node from the [Move this service or application to another node] from the displayed menu.
   The "Current Owner" of the "Summary of RC-manager" switches to the secondary node.

4. Configure the startup settings of the HBA address rename setup service of the primary node.

   The procedure is the same as step 2.

5. Take the manager "service or application" offline.

   Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Take this service or application offline] from the displayed menu.

6. Configure a "service or application" for the HBA address rename service.

   a. Right-click [Services and Applications] on the Failover Cluster Management tree, and select [More Actions]-[Create Empty Service or Application].

      [New service or application] will be created under [Services and Applications].

   b. Right-click [New service or application], and select [Properties] from the displayed menu.

      The [New service or application properties] dialog is displayed.

   c. Change the "Name" on the [General] tab, select the resource name of the primary node from "Preferred owners", and click <Apply>.

   d. When the settings have been applied, click <OK>.

   From this point, this explanation assumes that the name of the "service or application" for the HBA address rename setup service has been configured as "RC-HBAar".

7. Add the generic scripts to the manager "service or application" for the HBA address rename service.

   a. Right-click [Services and Applications]-[RC-HBAar] on the Failover Cluster Management tree, and select [Add a resource]-[3 - Generic Script] from the displayed menu.

      The [New Resource Wizard] window will be displayed.

   b. Set the script files in the "Script file path" of the "Generic Script Info", and click <Next>>.

      "Confirmation" will be displayed.

      Script File Path
      Installation_folder\Manager\cluster\script\HBAarCls.vbs

   c. Check the information displayed for "Confirmation" and click <Next>>.

      The "Summary" will be displayed.

   d. Click <Finish>.

      Check that the added "HBAarCls Script" is displayed in "Other Resources" of the "Summary of RC-manager" displayed in the center of the window.

8. Add the generic scripts for the coordinated starting of the "service or application" for the HBA address rename setup service, to the "service or application" for the manager.

   a. Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Add a resource]-[3 - Generic Script] from the displayed menu.

      The [New Resource Wizard] window will be displayed.

   b. Set the script files in the "Script file path" of the "Generic Script Info", and click <Next>>.

      "Confirmation" will be displayed.

      Script File Path
      Installation_folder\Manager\cluster\script\HBAarClsCtl.vbs

   c. Check the information displayed for "Confirmation" and click <Next>>.

      The "Summary" will be displayed.

   d. Click <Finish>.

      Check that the added "HBAarClsCtl Script" is displayed in "Other Resources" of the "Summary of RC-manager" displayed in the center of the window.

9. Configure the dependencies of the resources of the manager "service or application".

   Configure the dependencies of resources based on the following table.

Table B.7 Configuring Resource Dependencies

Resource for Configuration	Dependent Resource
PXE Services (*1)	HBAarClsCtl Script
HBAarClsCtl Script	Admin LAN IP Address

*1: The PXE Services have been configured in step 4, "Register Service Resources", but change them using the above procedure.

Configure the dependencies of resources based on the following table for each of the above resources:
Refer to step 4, "Register Service Resources" for how to perform the settings of Resource Dependencies.

10. Configure the property to refer to when executing the "HBAarClsCtl Script".

    Execute the following command using the command prompt of the primary node:

    >**CLUSTER RES "***HBAarClsCtl_Script***" /PRIV HBAGroupName="***RC-HBAar***"**<RETURN>

    Note

    Specify the name of the generic script added in step 8 for *HBAarClsCtl_Script*, and the name of the "service or application" for the HBA address rename service for *RC-HBAar*.

11. Bring the manager "service or application" online.

    a. Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Bring this service or application online] from the displayed menu.

       Confirm that all resources of the "RC-manager" have been brought online.

    b. Click [Services and Applications]-[RC-HBAar] on the Failover Cluster Management tree.

       Check that the "Status" of the "Summary of RC-HBAar" is online, and the "Current Owner" is the primary node.

12. Configure the startup settings of the HBA address rename setup service of the primary node.

    a. Execute the following command using the command prompt:

       >"*Installation_folder***WWN Recovery\opt\FJSVrcxrs\bin\rcxhbactl.exe**" <RETURN>

       The [HBA address rename setup service] dialog is displayed.

    b. Confirm that the "Status" is "Running".

    c. Click <Cancel> and close the [HBA address rename setup service] dialog.

13. Switch the manager "service or application" to the primary node.

    a. Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select the primary node using [Move this service or application to another node] from the displayed menu.

       The "Current Owner" of the "Summary of RC-manager" switches to the primary node.

    b. Click [Services and Applications]-[RC-HBAar] on the Failover Cluster Management tree.

       Check that the "Status" of the "Summary of RC-HBAar" is online, and the "Current Owner" is the secondary node.

14. Confirm the status of the HBA address rename setup service of the secondary node.

    The procedure is the same as step 12.

Note

- Set the logging level of Failover Cluster to 3 (the default) or higher.

  It is possible to confirm and change the logging level by executing the following command using the command prompt:

  Logging level confirmation

>**CLUSTER /PROP:ClusterLogLevel** <RETURN>

Changing the logging level (Specifying level 3)

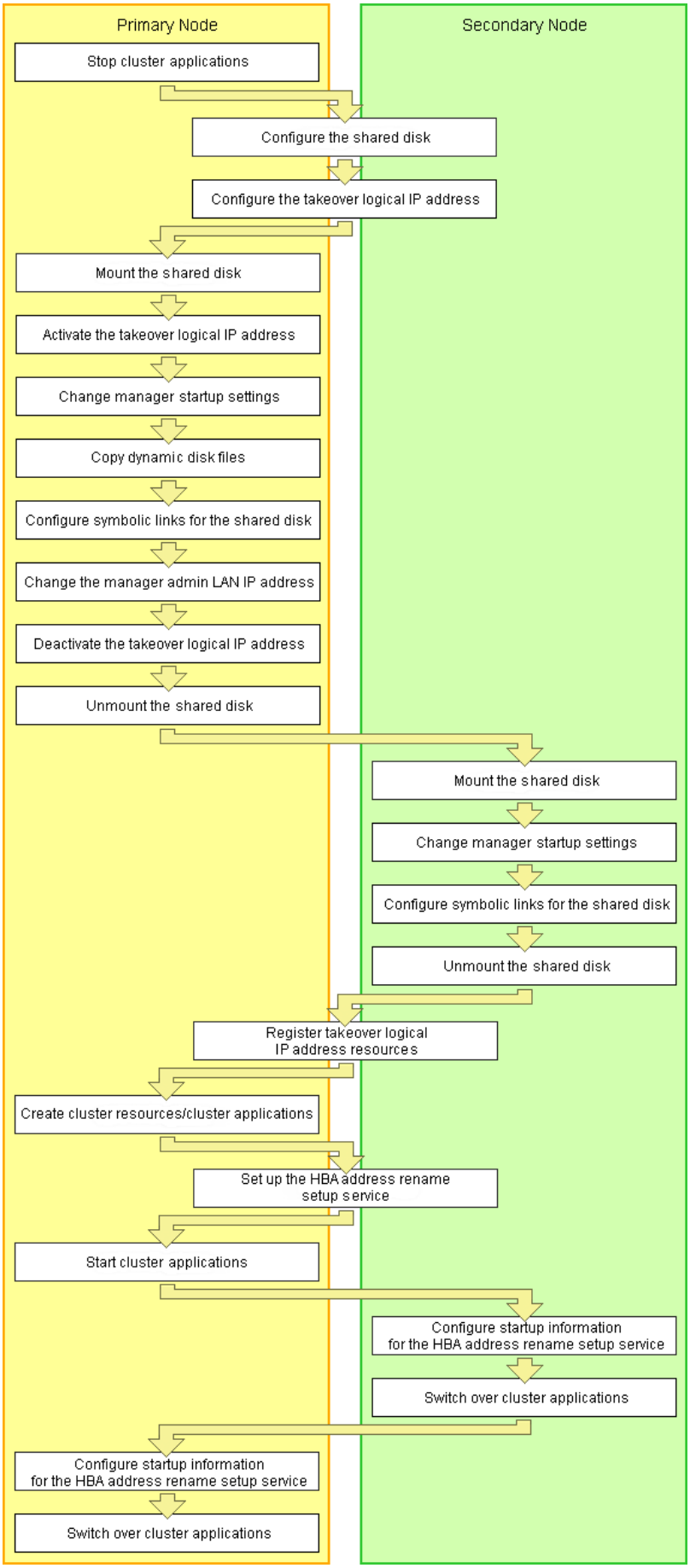
>**CLUSTER LOG /LEVEL:3** <RETURN>

- The "service or application" configured in "Set up the HBA address rename Setup Service" for the HBA address rename setup service, is controlled so that it is online on the other node, and online processing is performed in coordination with the manager "service or application".
  For "service or application" for the HBA address rename setup service, do not move the node using operations from the [Failover Cluster Management] window.

B.3.2 Settings [Linux]

Perform setup on the admin server.
The flow of setup is as shown below.

Figure B.2 Manager Service Setup Flow



Setup of managers as cluster services (cluster applications) is performed using the following procedure.
Perform setup using OS administrator authority.
If the image file storage directory is changed from the default directory (/var/opt/FJSVscw-deploysv/depot) during installation, in a. of step 6 perform settings so that the image file storage directory is also located in the shared disk.

Not necessary when ServerView Deployment Manager is used in the same subnet.

1. Stop cluster applications (Primary node)

   When adding to existing operations (cluster applications)
   When adding a manager to an existing operation (cluster application), use the cluster system's operation management view (Cluster Admin) and stop operations (cluster applications).

2. Configure the shared disk and takeover logical IP address (Primary node/Secondary node)

   a. Shared disk settings

      Use PRIMECLUSTER GDS and perform settings for the shared disk.
      For details, refer to the PRIMECLUSTER Global Disk Services manual.

   b. Configure the takeover logical IP address

      Use PRIMECLUSTER GLS and perform settings for the takeover logical IP address.
      As it is necessary to activate the takeover logical IP address using the following procedure, do not perform registration of resources with PRIMECLUSTER (by executing the /opt/FJSVhanet/usr/sbin/hanethvrsc create command) at this point.

      When adding to existing operations (cluster applications)
      When using an existing takeover logical IP address, delete the PRIMECLUSTER GLS virtual interface information from the resources for PRIMECLUSTER.
      For details, refer to the PRIMECLUSTER Global Link Services manual.

3. Mount the shared disk (Primary node)

   Mount the shared disk for managers on the primary node.

4. Activate the takeover logical IP address (Primary node)

   On the primary node, activate the takeover logical IP address for the manager.
   For details, refer to the PRIMECLUSTER Global Link Services manual.

5. Change manager startup settings (Primary node)

   Perform settings so that the startup process of the manager is controlled by the cluster system, not the OS.
   Execute the following command on the primary node.

   ```
   # /opt/FJSVrcvmr/cluster/bin/rcxclchkconfig setup <RETURN>
   ```

6. Copy dynamic disk files (Primary node)

   Copy the files from the dynamic disk of the manager on the primary node to the shared disk for managers.

   a. Create the directory "*shared_disk_mount_point*/Fujitsu/ROR/SVROR" on the shared disk.

   b. Copy the directories and files on the local disk of the primary node to the created directory.
      Execute the following command.

      ```
      # tar cf - copy_target | tar xf - -C shared_disk_mount_point/Fujitsu/ROR/SVROR/ <RETURN>
      ```

      Note

      The following messages may be output when the tar command is executed. They have no effect on operations, so ignore them.

      - tar: Removing leading `/' from member names
      - tar: *file_name*: socket ignored

Directories and Files to Copy

- /opt/FJSVrcvmr/rails/config/rcx/rcxdb.pwd
- /etc/opt/FJSVrcvmr/customize_data
- /etc/opt/FJSVrcvmr/opt/FJSVssmgr/current/certificate
- /etc/opt/FJSVrcvmr/rails/config/rcx_secret.key
- /etc/opt/FJSVrcvmr/sys/apache/conf
- /var/opt/FJSVrcvmr
- /etc/opt/FJSVscw-common (*1)
- /var/opt/FJSVscw-common (*1)
- /etc/opt/FJSVscw-tftpsv (*1)
- /var/opt/FJSVscw-tftpsv (*1)
- /etc/opt/FJSVscw-pxesv (*1)
- /var/opt/FJSVscw-pxesv (*1)
- /etc/opt/FJSVscw-deploysv (*1)
- /var/opt/FJSVscw-deploysv (*1)
- /etc/opt/FJSVscw-utils (*1)
- /var/opt/FJSVscw-utils (*1)

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

c. Change the names of the copied directories and files listed below.

Execute the following command. Make sure a name such as *source_file_name(source_directory_name)*_old is specified for the *target_file_name(target_directory_name)*.

```
# mv -i source_file_name(source_directory_name) target_file_name(target_directory_name) <RETURN>
```

- /opt/FJSVrcvmr/rails/config/rcx/rcxdb.pwd
- /etc/opt/FJSVrcvmr/customize_data
- /etc/opt/FJSVrcvmr/opt/FJSVssmgr/current/certificate
- /etc/opt/FJSVrcvmr/rails/config/rcx_secret.key
- /etc/opt/FJSVrcvmr/sys/apache/conf
- /var/opt/FJSVrcvmr
- /etc/opt/FJSVscw-common (*1)
- /var/opt/FJSVscw-common (*1)
- /etc/opt/FJSVscw-tftpsv (*1)
- /var/opt/FJSVscw-tftpsv (*1)
- /etc/opt/FJSVscw-pxesv (*1)
- /var/opt/FJSVscw-pxesv (*1)
- /etc/opt/FJSVscw-deploysv (*1)
- /var/opt/FJSVscw-deploysv (*1)
- /etc/opt/FJSVscw-utils (*1)
- /var/opt/FJSVscw-utils (*1)

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

7. Configure symbolic links for the shared disk (Primary node)

   a. Configure symbolic links for the copied directories and files.

      Configure symbolic links from the directories and files on the local disk of the primary node for the directories and files on the shared disk.
      Execute the following command.

      ```
      # ln -s shared_disk local_disk <RETURN>
      ```

      For *shared_disk* specify the shared disk in "Table B.8 Directories to Link" or "Table B.9 Files to Link".
      For *local_disk*, specify the local disk in "Table B.8 Directories to Link" or "Table B.9 Files to Link".

Table B.8 Directories to Link

Shared Disk	Local Disk
Shared_disk_mount_point/Fujitsu/ROR/SVROR/etc/opt/FJSVrcvmr/customize_data	/etc/opt/FJSVrcvmr/customize_data
shared_disk_mount_point/Fujitsu/ROR/SVROR/etc/opt/FJSVrcvmr/opt/FJSVssmgr/current/certificate	/etc/opt/FJSVrcvmr/opt/FJSVssmgr/current/certificate
shared_disk_mount_point/Fujitsu/ROR/SVROR/etc/opt/FJSVrcvmr/sys/apache/conf	/etc/opt/FJSVrcvmr/sys/apache/conf
Shared_disk_mount_point/Fujitsu/ROR/SVROR/var/opt/FJSVrcvmr	/var/opt/FJSVrcvmr
Shared_disk_mount_point/Fujitsu/ROR/SVROR/etc/opt/FJSVscw-common (*1)	/etc/opt/FJSVscw-common
Shared_disk_mount_point/Fujitsu/ROR/SVROR/var/opt/FJSVscw-common (*1)	/var/opt/FJSVscw-common
Shared_disk_mount_point/Fujitsu/ROR/SVROR/etc/opt/FJSVscw-tftpsv (*1)	/etc/opt/FJSVscw-tftpsv
Shared_disk_mount_point/Fujitsu/ROR/SVROR/var/opt/FJSVscw-tftpsv (*1)	/var/opt/FJSVscw-tftpsv
Shared_disk_mount_point/Fujitsu/ROR/SVROR/etc/opt/FJSVscw-pxesv (*1)	/etc/opt/FJSVscw-pxesv
Shared_disk_mount_point/Fujitsu/ROR/SVROR/var/opt/FJSVscw-pxesv (*1)	/var/opt/FJSVscw-pxesv
Shared_disk_mount_point/Fujitsu/ROR/SVROR/etc/opt/FJSVscw-deploysv (*1)	/etc/opt/FJSVscw-deploysv
Shared_disk_mount_point/Fujitsu/ROR/SVROR/var/opt/FJSVscw-deploysv (*1)	/var/opt/FJSVscw-deploysv
Shared_disk_mount_point/Fujitsu/ROR/SVROR/etc/opt/FJSVscw-utils (*1)	/etc/opt/FJSVscw-utils
Shared_disk_mount_point/Fujitsu/ROR/SVROR/var/opt/FJSVscw-utils (*1)	/var/opt/FJSVscw-utils

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

Table B.9 Files to Link

Shared Disk	Local Disk
Shared_disk_mount_point/Fujitsu/ROR/SVROR/opt/FJSVrcvmr/rails/config/rcx/rcxdb.pwd	/opt/FJSVrcvmr/rails/config/rcx/rcxdb.pwd

Shared Disk	Local Disk
Shared_disk_mount_point/Fujitsu/ROR/SVROR/etc/opt/FJSVrcvmr/rails/config/rcx_secret.key	/etc/opt/FJSVrcvmr/rails/config/rcx_secret.key

b. When changing the image file storage directory, perform the following.

When changing the image file storage directory, refer to "1.7.2 rcxadm imagemgr" in the "Reference Guide (Resource Management) CE", and change the path for the image file storage directory.

Also, specify a directory on the shared disk for the new image file storage directory.

Not necessary when ServerView Deployment Manager is used in the same subnet.

8. Change the manager admin LAN IP Address (Primary node)

Change the admin LAN IP address of the manager.
Execute the following command.

```
# /opt/FJSVrcvmr/bin/rcxadm mgrctl modify -ip IP_address <RETURN>
```

For *IP_address*, specify the admin LAN IP address activated in step 4.

9. Deactivate the takeover logical IP address (Primary node)

On the primary node, deactivate the takeover logical IP address for the manager.
For details, refer to the PRIMECLUSTER Global Link Services manual.

10. Unmount the shared disk (Primary node)

Unmount the shared disk for managers from the primary node.

11. Mount the shared disk (Secondary node)

Mount the shared disk for managers on the secondary node.

12. Change manager startup settings (Secondary node)

Perform settings so that the startup process of the manager is controlled by the cluster system, not the OS.
On the secondary node, execute the same command as used in step 5.

13. Configure symbolic links for the shared disk (Secondary node)

a. Change the directory names and file names given in c. of step 6.

b. Configure symbolic links for the shared disk.

Configure symbolic links from the directories and files on the local disk of the secondary node for the directories and files on the shared disk.
The directories and files to set symbolic links for are the same as those for "Table B.8 Directories to Link" and "Table B.9 Files to Link".

14. Unmount the shared disk (Secondary node)

Unmount the shared disk for managers from the secondary node.

15. Register takeover logical IP address resources (Primary node/Secondary node)

On PRIMECLUSTER GLS, register the takeover logical IP address as a PRIMECLUSTER resource.

Note

When using an existing takeover logical IP address, as it was deleted in step 2., registration as a resource is necessary.

For details, refer to the PRIMECLUSTER Global Link Services manual.

16. Create cluster resources/cluster applications (Primary node)

a. Use the RMS Wizard of the cluster system to create the necessary PRIMECLUSTER resources on the cluster service (cluster application).

When creating a new cluster service (cluster application), select Application-Create and create the settings for primary node as Machines[0] and the secondary node as Machines[1]. Then create the following resources on the created cluster service (cluster application).

Perform the RMS Wizard settings for any of the nodes comprising the cluster.
For details, refer to the PRIMECLUSTER manual.

- Cmdline resources

  Create the Cmdline resources for Resource Orchestrator.
  On RMS Wizard, select "CommandLines" and perform the following settings.

  - Start script: /opt/FJSVrcvmr/cluster/cmd/rcxclstartcmd

  - Stop script: /opt/FJSVrcvmr/cluster/cmd/rcxclstopcmd

  - Check script: /opt/FJSVrcvmr/cluster/cmd/rcxclcheckcmd

  Note

  When specifying a value other than nothing for the attribute value StandbyTransitions of a cluster service (cluster application), enable the Flag of ALLEXITCODES(E) and STANDBYCAPABLE(O).

  When adding to existing operations (cluster applications)
  When adding Cmdline resources to existing operations (cluster applications), decide the startup priority order considering the restrictions of the other components that will be used in combination with the operation (cluster application).

- Gls resources

  Configure the takeover logical IP address to use for the cluster system.
  On the RMS Wizard, select "Gls:Global-Link-Services", and set the takeover logical IP address.
  When using an existing takeover logical IP address this operation is not necessary.

- Fsystem resources

  Set the mount point of the shared disk.
  On the RMS Wizard, select "LocalFileSystems", and set the file system. When no mount point has been defined, refer to the PRIMECLUSTER manual and perform definition.

- Gds resources

  Specify the settings created for the shared disk.
  On the RMS Wizard, select "Gds:Global-Disk-Services", and set the shared disk. Specify the settings created for the shared disk.

b. Set the attributes of the cluster application.

When you have created a new cluster service (cluster application), use the cluster system's RMS Wizard to set the attributes.

- In the Machines+Basics settings, set "yes" for AutoStartUp.

- In the Machines+Basics settings, set "HostFailure|ResourceFailure|ShutDown" for AutoSwitchOver.

- In the Machines+Basics settings, set "yes" for HaltFlag.

- When using hot standby for operations, in the Machines+Basics settings, set "ClearFaultRequest|StartUp|SwitchRequest" for StandbyTransitions.
  When configuring the HBA address rename setup service in cluster systems, ensure that hot standby operation is configured.

c. After settings are complete, save the changes and perform Configuration-Generate and Configuration-Activate.

17. Set up the HBA address rename setup service (Primary node/Secondary node)

    Configuring the HBA address rename setup service for cluster systems
    When configuring managers and the HBA address rename setup service in cluster systems, perform the following procedure.

    Not necessary when ServerView Deployment Manager is used in the same subnet.

    Performing the following procedure starts the HBA address rename setup service on the standby node in the cluster.

    a. HBA address rename setup service startup settings (Primary node)

       Configure the startup settings of the HBA address rename setup service.
       Execute the following command.

       ```
       # /opt/FJSVrcvhb/cluster/bin/rcvhbclsetup <RETURN>
       ```

    b. Configuring the HBA address rename setup service (Primary node)

       Configure the settings of the HBA address rename setup service.
       Execute the following command on the primary node.

       ```
       # /opt/FJSVrcvhb/bin/rcxhbactl modify -ip IP_address <RETURN>
       # /opt/FJSVrcvhb/bin/rcxhbactl modify -port port_number <RETURN>
       ```

       IP Address

       Specify the takeover logical IP address for the manager.

       Port number

       Specify the port number for communication with the manager. The port number during installation is 23461.

    c. HBA address rename setup service Startup Settings (Secondary node)

       Configure the startup settings of the HBA address rename setup service.
       On the secondary node, execute the same command as used in step a.

    d. Configuring the HBA address rename setup service (Secondary node)

       Configure the settings of the HBA address rename setup service.
       On the secondary node, execute the same command as used in step b.

18. Start cluster applications (Primary node)

    Use the cluster system's operation management view (Cluster Admin) and start the manager cluster service (cluster application).

19. Set up the HBA address rename setup service startup information (Secondary node)

    a. Execute the following command.

       ```
       # nohup /opt/FJSVrcvhb/bin/rcxhbactl start& <RETURN>
       ```

       The [HBA address rename setup service] dialog is displayed.

    b. Click <Stop>.

       Confirm that the "Status" becomes "Stopping".

    c. Click <Run>.

       Confirm that the "Status" becomes "Running".

    d. Click <Stop>.

       Confirm that the "Status" becomes "Stopping".

    e. Click <Cancel> and close the [HBA address rename setup service] dialog.

20. Switch over cluster applications (Secondary node)

    Use the cluster system's operation management view (Cluster Admin) and switch the manager cluster service (cluster application) to the secondary node.

21. Set up the HBA address rename setup service startup information (Primary node)

    The procedure is the same as step 19.

22. Switch over cluster applications (Primary node)

    Use the cluster system's operation management view (Cluster Admin) and switch the manager cluster service (cluster application) to the primary node.

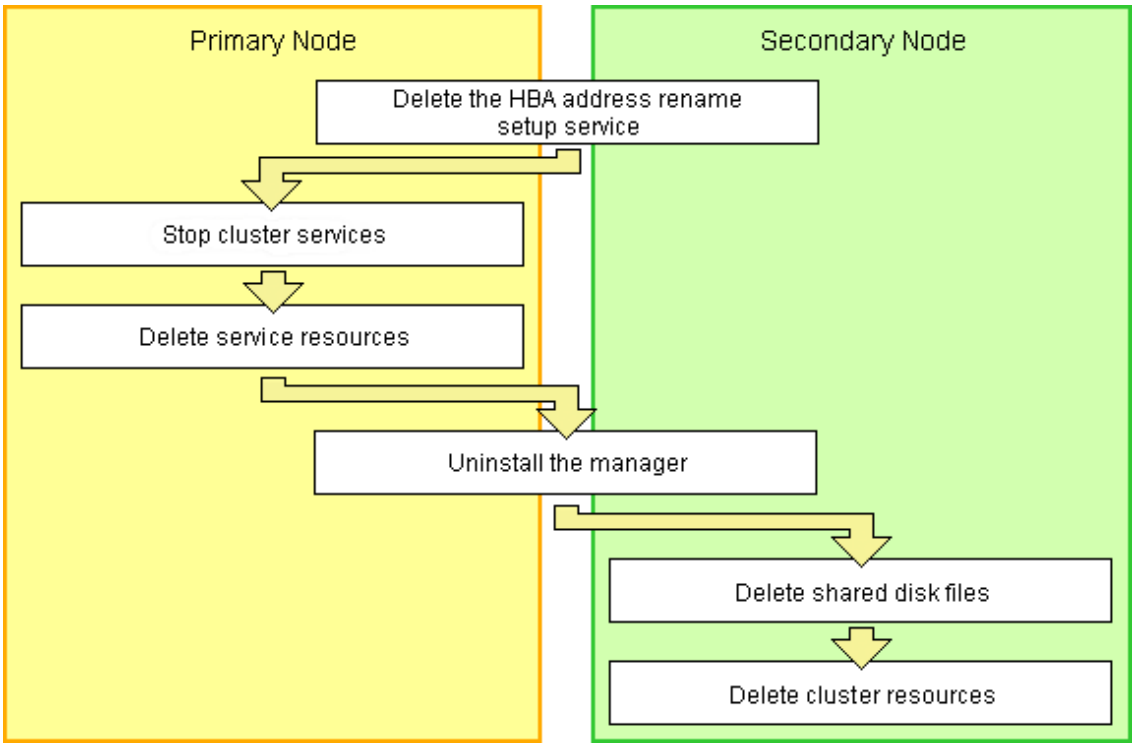
B.4 Releasing Configuration

This section explains how to delete the cluster services of managers being operated on cluster systems.

B.4.1 Releasing Configuration [Windows]

The flow of deleting cluster services of managers is as indicated below.

Figure B.3 Flow of Deleting Manager Service Settings



Delete settings for manager cluster services using the following procedure.
This explanation assumes that the manager is operating on the primary node.

Delete the HBA address rename Setup Service

When the HBA address rename setup service and managers in cluster systems have been configured, perform the following procedure.

Not necessary when ServerView Deployment Manager is used in the same subnet.

1. Take the "service or application" for the HBA address rename setup service offline.

   a. Open the [Failover Cluster Management] window and connect to the cluster system.

   b. Right-click [Services and Applications]-[RC-HBAar] on the Failover Cluster Management tree, and select [Take this service or application offline] from the displayed menu.

2. Take the manager "service or application" offline.

   Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Take this service or application offline] from the displayed menu.

3. Delete the scripts of the "service or application" for the HBA address rename service.

    a. Click [Services and Applications]-[RC-HBAar] on the Failover Cluster Management tree.

    b. Right-click the "HBAarCls Script" of the "Other Resources" on the "Summary of RC-HBAar" displayed in the middle of the [Failover Cluster Management] window, and select [Delete] from the displayed menu.

4. Delete the "service or application" for the HBA address rename setup service.

    Right-click [Services and Applications]-[RC-HBAar] on the Failover Cluster Management tree, and select [Delete] from the displayed menu.

5. Configure the dependencies of the resources in the "service or application" for the manager back to the status they were in before setting up the HBA address rename setup service.

    a. Right-click the "PXE Services" on "Other Resources" on the "Summary of RC-manager" displayed in the middle of the [Failover Cluster Management] window, and select [Properties] from the displayed menu.

    The [PXE Services Properties] window will be displayed.

    b. In the "Resource" of the [Dependencies] tab, select the name of the Admin LAN IP Address and click <Apply>.

    c. When the settings have been applied, click <OK>.

6. Delete the generic scripts for the coordinated boot of the "service or application" for the HBA address rename service from the "service or application" for the manager.

    a. Click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree.

    b. Right-click the "HBAarCls Script" of the "Other Resources" on the "Summary of RC-manager" displayed in the middle of the [Failover Cluster Management] window, and select [Delete] from the displayed menu.

Stop Cluster Services

When configuring the "Delete the HBA address rename Setup Service", perform from step 3.

1. Open the [Failover Cluster Management] window and connect to the cluster system.

2. Take the manager "service or application" offline.

    Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Take this service or application offline] from the displayed menu.

3. Bring the shared disk for the manager "service or application" online.

    Right-click the shared disk on "Disk Drives" on the "Summary of RC-manager" displayed in the middle of the [Failover Cluster Management] window, and select [Bring this resource online] from the displayed menu.

Delete Service Resources

Delete the services, scripts, and IP address of the manager "service or application".
Using the following procedure, delete all the "Other Resources".

1. Click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree.

2. Right-click the resources on "Other Resources" on the "Summary of RC-manager" displayed in the middle of the [Failover Cluster Management] window, and select [Delete] from the displayed menu.

3. Using the following procedure, delete the resources displayed in the "Server Name" of the "Summary of RC-manager" in the middle of the [Failover Cluster Management] window.

    a. Right-click "IP Address: *IP_address*", and select [Delete] from the displayed menu.

    b. Right-click "Name: *Network_name*", and select [Delete] from the displayed menu.

    When registering the admin LAN subnet, delete the "DHCP Service" using the following procedure.

4. Set the path of the "DHCP Service".

   a. Right-click the resources of the "DHCP Service" on the "Summary of RC-manager" displayed in the middle of the [Failover Cluster Management] window, and select [Properties] from the displayed menu.

      The [New DHCP Service Properties] window will be displayed.

   b. Configure the path on the [General] tab based on the following table.

Items	Value to Specify
Database path	%SystemRoot%\System32\dhcp\
Audit file path	%SystemRoot%\System32\dhcp\
Backup path	%SystemRoot%\System32\dhcp\backup\

5. Right-click the resources of the "DHCP Service" on the "Summary of RC-manager" displayed in the middle of the [Failover Cluster Management] window, and select [Delete] from the displayed menu.

Uninstall the Manager

1. Refer to "3.1.3 Uninstallation [Windows]", and uninstall the manager on the primary node.
2. Allocate the shared disk to the secondary node.

   Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Move this service or application to another node]-[1 - Move to node *node_name*] from the displayed menu.
   The name of the secondary node is displayed for *node_name*.
3. Uninstall the manager of the secondary node.

Delete Shared Disk Files

Use Explorer to delete the "*Drive_name*:\Fujitsu\ROR\SVROR\" folder on the shared disk.

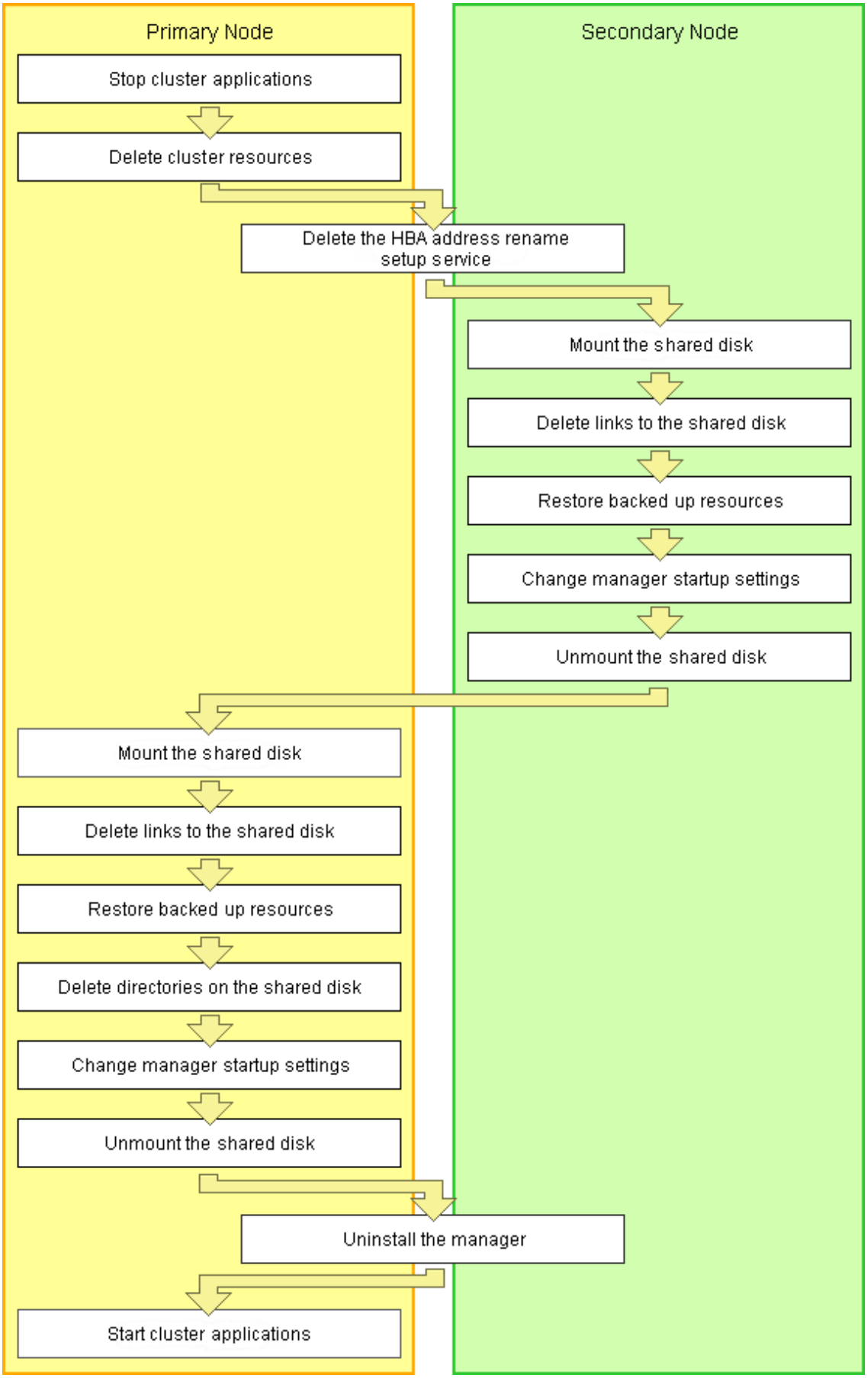
Delete Cluster Resources

Delete the manager "service or application".
Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Delete] from the displayed menu.

B.4.2 Releasing Configuration [Linux]

The flow of deleting cluster services (cluster applications) of managers is as indicated below.

Figure B.4 Flow of Deleting Manager Service Settings



Releasing of manager cluster services (cluster applications) is performed using the following procedure.
Perform releasing of configuration using OS administrator authority.

1. Stop cluster applications (Primary node)

   Use the cluster system's operation management view (Cluster Admin) and stop the cluster service (cluster application) of manager operations.

2. Delete cluster resources (Primary node)

   Use the RMS Wizard of the cluster system, and delete manager operation resources registered on the target cluster service (cluster application).

   When a cluster service (cluster application) is in a configuration that only uses resources of Resource Orchestrator, also delete the cluster service (cluster application).

   On the RMS Wizard, if only deleting resources, delete the following:

   - Cmdline resources (Only script definitions for Resource Orchestrator)
   - Gls resources (When they are no longer used)
   - Gds resources (When they are no longer used)
   - Fsystem resources (The mount point for the shared disk for managers)

   Release the RMS Wizard settings for any of the nodes comprising the cluster.
   For details, refer to the PRIMECLUSTER manual.

3. Delete the HBA address rename setup service (Primary node/Secondary node)

   When the HBA address rename setup service has been configured for a cluster system
   When the HBA address rename setup service and managers in cluster systems have been configured, perform the following procedure.

   Not necessary when ServerView Deployment Manager is used in the same subnet.

   a. Stopping the HBA address rename setup service (Secondary node)

      Stop the HBA address rename setup service.
      Execute the following command, and check if the process of the HBA address rename setup service is indicated.

      ```
      # ps -ef | grep rcvhb | grep -v grep <RETURN>
      ```

      When processes are output after the command above is executed, execute the following command and stop the HBA address rename setup service. If no processes were output, this procedure is unnecessary.

      ```
      # /etc/init.d/rcvhb stop <RETURN>
      ```

   b. Releasing HBA address rename setup service Startup Settings (Secondary node)

      Release the startup settings of the HBA address rename setup service.
      Execute the following command.

      ```
      # /opt/FJSVrcvhb/cluster/bin/rcvhbclunsetup <RETURN>
      ```

   c. Deleting links (Secondary node)

      If processes of the HBA address rename setup service were not indicated in step a., this procedure is unnecessary.
      Execute the following command and delete symbolic links.

      ```
      # rm symbolic_link <RETURN>
      ```

      - Symbolic Links to Delete
        - /var/opt/FJSVscw-common
        - /var/opt/FJSVscw-tftpsv

- /etc/opt/FJSVscw-common

- /etc/opt/FJSVscw-tftpsv

d. Reconfiguring symbolic links

If processes of the HBA address rename setup service were not indicated in step a., this procedure is unnecessary.
Execute the following command, and reconfigure the symbolic links from the directory on the local disk for the directory on the shared disk.

```
# ln -s shared_disk local_disk <RETURN>
```

For *shared_disk*, specify the shared disk in "Table B.10 Directories to Relink".
For *local_disk*, specify the local disk in "Table B.10 Directories to Relink".

Table B.10 Directories to Relink

Shared Disk	Local Disk
Shared_disk_mount_point/Fujitsu/ROR/SVROR/var/opt/FJSVscw-common	/var/opt/FJSVscw-common
Shared_disk_mount_point/Fujitsu/ROR/SVROR/var/opt/FJSVscw-tftpsv	/var/opt/FJSVscw-tftpsv
Shared_disk_mount_point/Fujitsu/ROR/SVROR/etc/opt/FJSVscw-common	/etc/opt/FJSVscw-common
Shared_disk_mount_point/Fujitsu/ROR/SVROR/etc/opt/FJSVscw-tftpsv	/etc/opt/FJSVscw-tftpsv

e. Stopping the HBA address rename setup service (Primary node)

Stop the HBA address rename setup service.
On the primary node, execute the same command as used in step a.

f. Releasing the HBA address rename setup service Startup Settings (Primary node)

Release the startup settings of the HBA address rename setup service.
On the primary node, execute the same command as used in step b.

g. Deleting links (Primary node)

If processes of the HBA address rename setup service were not indicated in step e., this procedure is unnecessary.
On the primary node, execute the same command as used in step c.

h. Reconfiguring symbolic links

If processes of the HBA address rename setup service were not indicated in step e., this procedure is unnecessary.
On the primary node, execute the same command as used in step d.

4. Mount the shared disk (Secondary node)

When it can be confirmed that the shared disk for managers has been unmounted from the primary node and the secondary node, mount the shared disk for managers on the secondary node.

5. Delete links to the shared disk (Secondary node)

Delete the symbolic links specified for the directories and files on the shared disk from the directories and files on the local disk of the secondary node.

Execute the following command.

```
# rm symbolic_link <RETURN>
```

- Symbolic links to directories to delete

  - /etc/opt/FJSVrcvmr/customize_data

  - /etc/opt/FJSVrcvmr/opt/FJSVssmgr/current/certificate

  - /etc/opt/FJSVrcvmr/sys/apache/conf

  - /var/opt/FJSVrcvmr

  - /etc/opt/FJSVscw-common (*1)

- /var/opt/FJSVscw-common (*1)
- /etc/opt/FJSVscw-tftpsv (*1)
- /var/opt/FJSVscw-tftpsv (*1)
- /etc/opt/FJSVscw-pxesv (*1)
- /var/opt/FJSVscw-pxesv (*1)
- /etc/opt/FJSVscw-deploysv (*1)
- /var/opt/FJSVscw-deploysv (*1)
- /etc/opt/FJSVscw-utils (*1)
- /var/opt/FJSVscw-utils (*1)

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

- Symbolic links to files to delete
  - /opt/FJSVrcvmr/rails/config/rcx/rcxdb.pwd
  - /etc/opt/FJSVrcvmr/rails/config/rcx_secret.key

6. Restore backed up resources (Secondary node)

Restore the directories and files that were backed up when configuring the cluster environment.
Execute the following command. Specify the files and directories that were backed up when configuring the cluster environment using names such as *source_file_name(source_directory_name)*_old for the *source_restoration_file_name(source_restoration_directory_name*). For *restoration_target_file_name(restoration_target_directory_name)*, specify file names or directory names corresponding to the *source_restoration_file_name(source_restoration_directory_name)*.

```
# mv -i source_restoration_file_name(source_restoration_directory_name)
restoration_target_file_name(restoration_target_directory_name) <RETURN>
```

Restore the following directory names and file names.

- /opt/FJSVrcvmr/rails/config/rcx/rcxdb.pwd
- /etc/opt/FJSVrcvmr/opt/FJSVssmgr/current/certificate
- /etc/opt/FJSVrcvmr/rails/config/rcx_secret.key
- /etc/opt/FJSVrcvmr/sys/apache/conf
- /var/opt/FJSVrcvmr
- /etc/opt/FJSVscw-common (*1)
- /var/opt/FJSVscw-common (*1)
- /etc/opt/FJSVscw-tftpsv (*1)
- /var/opt/FJSVscw-tftpsv (*1)
- /etc/opt/FJSVscw-pxesv (*1)
- /var/opt/FJSVscw-pxesv (*1)
- /etc/opt/FJSVscw-deploysv (*1)
- /var/opt/FJSVscw-deploysv (*1)
- /etc/opt/FJSVscw-utils (*1)
- /var/opt/FJSVscw-utils (*1)

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

7. Change manager startup settings (Secondary node)

   Perform settings so that the startup process of the manager is controlled by the OS, not the cluster system.
   Execute the following command on the secondary node.

   ```
   # /opt/FJSVrcvmr/cluster/bin/rcxclchkconfig unsetup <RETURN>
   ```

8. Unmount the shared disk (Secondary node)

   Unmount the shared disk for managers from the secondary node.

9. Mount the shared disk (Primary node)

   Mount the shared disk for managers on the primary node.

10. Delete links to the shared disk (Primary node)

    Delete the symbolic links specified for the directories and files on the shared disk from the directories and files on the local disk of the primary node.

    The directories and files to delete are the same as those for "Symbolic links to directories to delete" and "Symbolic links to files to delete" in step 5.

11. Restore backed up resources (Primary node)

    Restore the directories and files that were backed up when configuring the cluster environment.
    Refer to step 6. for the procedure.

12. Delete directories on the shared disk (Primary node)

    Delete the created directory "*Shared_disk_mount_point*/Fujitsu/ROR/SVROR" on the shared disk.
    Execute the following command.

    ```
    # rm -r shared_disk_mount_point/Fujitsu/ROR/SVROR <RETURN>
    ```

    When there is no need to check with the rm command, add the -f option. For the rm command, refer to the manual for the OS.

13. Change manager startup settings (Primary node)

    Perform settings so that the startup process of the manager is controlled by the OS, not the cluster system.
    Refer to step 7. for the command to execute on the primary node.

14. Unmount the shared disk (Primary node)

    Unmount the shared disk for managers from the primary node.

15. Uninstall the manager (Primary node/Secondary node)

    Refer to "3.1.4 Uninstallation [Linux]", and uninstall the managers on the primary node and the secondary node.
    When releasing the cluster configuration and returning to a single configuration, uninstall the manager from one of the nodes.

    When operating managers in cluster environments, if the admin server settings are modified, change the admin server settings before using it in a single configuration.

    For the method for changing the admin server settings, refer to "3.1 Changing Admin Server Settings" of the "User's Guide for Infrastructure Administrators (Resource Management) CE".

16. Start cluster applications (Primary node)

    When there are other cluster services (cluster applications), use the cluster system's operation management view (Cluster Admin) and start the cluster services (cluster applications).

B.5 Advisory Notes

This section explains advisory notes regarding the settings for managers in cluster operations, and their deletion.

Switching Cluster Services (Cluster Applications)

Events that occur when switching cluster services (cluster applications) cannot be displayed.
Also, "Message number 65529" may be displayed on the ROR console.
Perform login again.

For message details, refer to "Message number 65529" of the "Messages VE".

Troubleshooting Information

Refer to "4.1 Collecting Troubleshooting Data" of the "Reference Guide (Resource Management) CE".

Commands

Do not use the start or stop subcommand of rcxadm mgrctl to start or stop the manager.
Right-click the manager "service or application" on the Failover Cluster Management tree, and select [Bring this service or application online] or [Take this service or application offline] from the displayed menu.
Other commands can be executed as they are in normal cluster operation.

ROR Console

The registration state of server resources on the resource tree when an admin server is included in a chassis is as indicated below.

- The server resources being operated by the manager on the cluster node are displayed as "[Admin Server]".
- The server resources not being operated by the manager on the cluster node are displayed as "[Unregistered]".

Do not register the server resources of the cluster node that are displayed as "[Unregistered]".

Services (Daemons) Managed with PRIMECLUSTER [Linux]

The following services (daemons) are managed with the Check script provided by Resource Orchestrator.

- /etc/init.d/scwdepsvd
- /etc/init.d/scwpxesvd
- /etc/init.d/scwtftpd
- /opt/FJSVrcvmr/opt/FJSVssmgr/bin/cimserver
- /opt/FJSVrcvmr/sys/rcxtaskmgr
- /opt/FJSVrcvmr/sys/rcxmongrel1
- /opt/FJSVrcvmr/sys/rcxmongrel2
- /opt/FJSVrcvmr/sys/rcxmongrel3
- /opt/FJSVrcvmr/sys/rcxmongrel4
- /opt/FJSVrcvmr/sys/rcxmongrel5
- /opt/FJSVrcvmr/sys/rcxhttpd

In Basic mode, the following services (daemons) are managed.

- /etc/init.d/scwdepsvd
- /etc/init.d/scwpxesvd
- /etc/init.d/scwtftpd
- /opt/FJSVrcvmr/opt/FJSVssmgr/bin/cimserver
- /opt/FJSVrcvmr/sys/rcxtaskmgr

- /opt/FJSVrcvmr/sys/rcxmongrel1
- /opt/FJSVrcvmr/sys/rcxmongrel2
- /opt/FJSVrcvmr/sys/rcxhttpd

Glossary

access path

A logical path configured to enable access to storage volumes from servers.

active mode

The state where a managed server is performing operations.
Managed servers must be in active mode in order to use Auto-Recovery.
Move managed servers to maintenance mode in order to perform backup or restoration of system images, or collection or deployment of cloning images.

active server

A physical server that is currently operating.

admin client

A terminal (PC) connected to an admin server, which is used to operate the GUI.

admin LAN

A LAN used to manage resources from admin servers.
It connects managed servers, storage, and network devices.

admin server

A server used to operate the manager software of Resource Orchestrator.

affinity group

A grouping of the storage volumes allocated to servers. A function of ETERNUS.

Equivalent to the LUN mapping of EMC.

agent

The section (program) of Resource Orchestrator that operates on managed servers.

aggregate

A unit for managing storage created through the aggregation of a RAID group.

Aggregates can contain multiple FlexVols.

alias name

A name set for each ETERNUS LUN to distinguish the different ETERNUS LUNs.

Auto Deploy

A function for deploying VMware ESXi5.0 to servers using the PXE boot mechanism.

Automatic Storage Layering

A function that optimizes perform and cost by automatically rearranging data in storage units based on the frequency of access.

Auto-Recovery

A function which continues operations by automatically switching over the system image of a failed server to a spare server and restarting it in the event of server failure.
This function can be used when managed servers are in a local boot configuration, SAN boot configuration, or a configuration such as iSCSI boot where booting is performed from a disk on a network.

- When using a local boot configuration

  The system is recovered by restoring a backup of the system image of the failed server onto a spare server.

- When booting from a SAN or a disk on a LAN

  The system is restored by having the spare server inherit the system image on the storage.
  Also, when a VLAN is set for the public LAN of a managed server, the VLAN settings of adjacent LAN switches are automatically switched to those of the spare server.

backup site

An environment prepared in a different location, which is used for data recovery.

BACS (Broadcom Advanced Control Suite)

An integrated GUI application (comprised from applications such as BASP) that creates teams from multiple NICs, and provides functions such as load balancing.

BASP (Broadcom Advanced Server Program)

LAN redundancy software that creates teams of multiple NICs, and provides functions such as load balancing and failover.

blade server

A compact server device with a thin chassis that can contain multiple server blades, and has low power consumption.
As well as server blades, LAN switch blades, management blades, and other components used by multiple server blades can be mounted inside the chassis.

blade type

A server blade type.
Used to distinguish the number of server slots used and servers located in different positions.

BladeViewer

A GUI that displays the status of blade servers in a style similar to a physical view and enables intuitive operation.
BladeViewer can also be used for state monitoring and operation of resources.

BMC (Baseboard Management Controller)

A Remote Management Controller used for remote operation of servers.

boot agent

An OS for disk access that is distributed from the manager to managed servers in order to boot them when the network is started during image operations.

CA (Channel Adapter)

An adapter card that is used as the interface for server HBAs and fibre channel switches, and is mounted on storage devices.

CCM (ETERNUS SF AdvancedCopy Manager Copy Control Module)

This is a module that does not require installation of the ETERNUS SF AdvancedCopy Manager agent on the server that is the source of the backup, but rather uses the advanced copy feature of the ETERNUS disk array to make backups.

chassis

A chassis used to house server blades and partitions.
Sometimes referred to as an enclosure.

cloning

Creation of a copy of a system disk.

cloning image

A backup of a system disk, which does not contain server-specific information (system node name, IP address, etc.), made during cloning.
When deploying a cloning image to the system disk of another server, Resource Orchestrator automatically changes server-specific information to that of the target server.

Cloud Edition

The edition which can be used to provide private cloud environments.

data center

A facility that manages client resources (servers, storage, networks, etc.), and provides internet connections and maintenance/operational services.

directory service

A service for updating and viewing the names (and associated attributes) of physical/logical resource names scattered across networks, based on organizational structures and geographical groups using a systematic (tree-shaped structure) management methodology.

disk resource

The unit for resources to connect to an L-Server. An example being a virtual disk provided by LUN or VM management software.

DN (Distinguished Name)

A name defined as a line of an RDN, which contains an entry representing its corresponding object and higher entry.

Domain

A system that is divided into individual systems using partitioning. Also used to indicate a partition.

DR Option

The option that provides the function for remote switchover of servers or storage in order to perform disaster recovery.

Dual-Role Administrators

The administrators with both infrastructure administrator's and tenant administrator's role.

dynamic LUN mirroring

This is a feature whereby a mirror volume is generated at the remote site when a volume is generated at the local site, and copies are maintained by performing REC.

dynamic memory

A function that optimizes physical memory allocation for virtual machines, depending on their execution status on Hyper-V.

end host mode

This is a mode where the uplink port that can communicate with a downlink port is fixed at one, and communication between uplink ports is blocked.

environmental data

Measured data regarding the external environments of servers managed using Resource Orchestrator.
Measured data includes power data collected from power monitoring targets.

ESC (ETERNUS SF Storage Cruiser)

Software that supports stable operation of multi-vendor storage system environments involving SAN, DAS, or NAS. Provides configuration management, relation management, trouble management, and performance management functions to integrate storage related resources such as ETERNUS.

ETERNUS SF AdvancedCopy Manager

This is storage management software that makes highly reliable and rapid backups, restorations and replications using the advanced copy feature of the ETERNUS disk array.

Express

The edition which provides server registration, monitoring, and visualization.

FC switch (Fibre Channel Switch)

A switch that connects Fibre Channel interfaces and storage devices.

Fibre Channel

A method for connecting computers and peripheral devices and transferring data.

Generally used with servers requiring high-availability, to connect computers and storage systems.

Fibre Channel port

The connector for Fibre Channel interfaces.

When using ETERNUS storage, referred to as an FC-CA port, when using NetApp storage, referred to as an FC port, when using EMC CLARiiON, referred to as an SP port, when using EMC Symmetrix DMX or EMC Symmetrix VMAX, referred to as a DIRECTOR port.

fibre channel switch blade

A fibre channel switch mounted in the chassis of a blade server.

FlexVol

A function that uses aggregates to provide virtual volumes.

Volumes can be created in an instant.

FTRP

The pool for physical disks created by Automatic Storage Layering for ETERNUS.
In Resource Orchestrator, FTRPs are used as virtual storage resources on which Thin Provisioning attributes are configured.

FTV

The virtual volumes created by Automatic Storage Layering for ETERNUS.
In Resource Orchestrator, FTVs are used as disk resources on which Thin Provisioning attributes are configured.

global pool

A resource pool that contains resources that can be used by multiple tenants.
It is located in a different location from the tenants.
By configuring a global pool with the attributes of a tenant, it becomes possible for tenant administrators to use the pool.

GLS (Global Link Services)

Fujitsu network control software that enables high availability networks through the redundancy of network transmission channels.

GSPB (Giga-LAN SAS and PCI_Box Interface Board)

A board which mounts onboard I/O for two partitions and a PCIe (PCI Express) interface for a PCI box.

GUI (Graphical User Interface)

A user interface that displays pictures and icons (pictographic characters), enabling intuitive and easily understandable operation.

HA (High Availability)

The concept of using redundant resources to prevent suspension of system operations due to single problems.

hardware initiator

A controller which issues SCSI commands to request processes.
In iSCSI configurations, NICs fit into this category.

hardware maintenance mode

In the maintenance mode of PRIMEQUEST servers, a state other than Hot System Maintenance.

HBA (Host Bus Adapter)

An adapter for connecting servers and peripheral devices.
Mainly used to refer to the FC HBAs used for connecting storage devices using Fibre Channel technology.

HBA address rename setup service

The service that starts managed servers that use HBA address rename in the event of failure of the admin server.

HBAAR (HBA address rename)

I/O virtualization technology that enables changing of the actual WWN possessed by an HBA.

host affinity

A definition of the server HBA that is set for the CA port of the storage device and the accessible area of storage.
It is a function for association of the Logical Volume inside the storage which is shown to the host (HBA) that also functions as security internal to the storage device.

Hyper-V

Virtualization software from Microsoft Corporation.

Provides a virtualized infrastructure on PC servers, enabling flexible management of operations.

I/O virtualization option

An optional product that is necessary to provide I/O virtualization.
The WWNN address and MAC address provided is guaranteed by Fujitsu Limited to be unique.
Necessary when using HBA address rename.

IBP (Intelligent Blade Panel)

One of operation modes used for PRIMERGY switch blades.
This operation mode can be used for coordination with ServerView Virtual I/O Manager (VIOM), and relations between server blades and switch blades can be easily and safely configured.

ICT governance

A collection of principles and practices that encourage desirable behavior in the use of ICT (Information and Communication Technology) based on an evaluation of the impacts and risks posed in the adoption and application of ICT within an organization or community.

ILOM (Integrated Lights Out Manager)

The name of the Remote Management Controller for SPARC Enterprise T series servers.

image file

A system image or a cloning image. Also a collective term for them both.

infrastructure administrator

A user who manages the resources comprising a data center.
infra_admin is the role that corresponds to the users who manage resources.
Infrastructure administrators manage all of the resources comprising a resource pool (the global pool and local pools), provide tenant administrators with resources, and review applications by tenant users to use resources.

IPMI (Intelligent Platform Management Interface)

IPMI is a set of common interfaces for the hardware that is used to monitor the physical conditions of servers, such as temperature, power voltage, cooling fans, power supply, and chassis.
These functions provide information that enables system management, recovery, and asset management, which in turn leads to reduction of overall TCO.

IQN (iSCSI Qualified Name)

Unique names used for identifying iSCSI initiators and iSCSI targets.

iRMC (integrated Remote Management Controller)

The name of the Remote Management Controller for Fujitsu's PRIMERGY servers.

iSCSI

A standard for using the SCSI protocol over TCP/IP networks.

iSCSI boot

A configuration function that enables the starting and operation of servers via a network.

The OS and applications used to operate servers are stored on iSCSI storage, not the internal disks of servers.

iSCSI storage

Storage that uses an iSCSI connection.

LAG (Link Aggregation Group)

A single logical port created from multiple physical ports using link aggregation.

LAN switch blades

A LAN switch that is mounted in the chassis of a blade server.

LDAP (Lightweight Directory Access Protocol)

A protocol used for accessing Internet standard directories operated using TCP/IP.

LDAP provides functions such as direct searching and viewing of directory services using a web browser.

license

The rights to use specific functions.
Users can use specific functions by purchasing a license for the function and registering it on the manager.

link aggregation

Function used to multiplex multiple ports and use them as a single virtual port.
By using this function, it becomes possible to use a band equal to the total of the bands of all the ports.
Also, if one of the multiplexed ports fails its load can be divided among the other ports, and the overall redundancy of ports improved.

local pool

A resource pool that contains resources that can only be used by a specific tenant.

They are located in tenants.

logical volume

A logical disk that has been divided into multiple partitions.

L-Platform

A resource used for the consolidated operation and management of systems such as multiple-layer systems (Web/AP/DB) comprised of multiple L-Servers, storage, and network devices.

L-Platform template

A template that contains the specifications for servers, storage, network devices, and images that are configured for an L-Platform.

LSB (Logical System Board)

A system board that is allocated a logical number (LSB number) so that it can be recognized from the domain, during domain configuration.

L-Server

A resource defined using the logical specifications (number of CPUs, amount of memory, disk capacity, number of NICs, etc.) of the servers, and storage and network devices connected to those servers.
An abbreviation of Logical Server.

L-Server template

A template that defines the number of CPUs, memory capacity, disk capacity, and other specifications for resources to deploy to an L-Server.

LUN (Logical Unit Number)

A logical unit defined in the channel adapter of a storage unit.

MAC address (Media Access Control address)

A unique identifier that is assigned to Ethernet cards (hardware).

Also referred to as a physical address.

Transmission of data is performed based on this identifier. Described using a combination of the unique identifying numbers managed by/assigned to each maker by the IEEE, and the numbers that each maker assigns to their hardware.

maintenance mode

The state where operations on managed servers are stopped in order to perform maintenance work.
In this state, the backup and restoration of system images and the collection and deployment of cloning images can be performed.
However, when using Auto-Recovery it is necessary to change from this mode to active mode. When in maintenance mode it is not possible to switch over to a spare server if a server fails.

managed server

A collective term referring to a server that is managed as a component of a system.

management blade

A server management unit that has a dedicated CPU and LAN interface, and manages blade servers.
Used for gathering server blade data, failure notification, power control, etc.

Management Board

The PRIMEQUEST system management unit.
Used for gathering information such as failure notification, power control, etc. from chassis.

manager

The section (program) of Resource Orchestrator that operates on admin servers.
It manages and controls resources registered with Resource Orchestrator.

master slot

A slot that is recognized as a server when a server that occupies multiple slots is mounted.

member server

A collective term that refers to a server in a Windows network domain that is not a domain controller.

migration

The migration of a VM guest to a different VM host. The following two types of migration are available:

- Cold migration

  Migration of an inactive (powered-off) VM guest.

- Live migration

  Migration of an active (powered-on) VM guest.

multi-slot server

A server that occupies multiple slots.

NAS (Network Attached Storage)

A collective term for storage that is directly connected to a LAN.

network device

The unit used for registration of network devices.
L2 switches and firewalls fit into this category.

network map

A GUI function for graphically displaying the connection relationships of the servers and LAN switches that compose a network.

network view

A window that displays the connection relationships and status of the wiring of a network map.

NFS (Network File System)

A system that enables the sharing of files over a network in Linux environments.

NIC (Network Interface Card)

An interface used to connect a server to a network.

OS

The OS used by an operating server (a physical OS or VM guest).

overcommit

A function to virtually allocate more resources than the actual amount of resources (CPUs and memory) of a server.
This function is used to enable allocation of more disk resources than are mounted in the target server.

PDU (Power Distribution Unit)

A device for distributing power (such as a power strip).
Resource Orchestrator uses PDUs with current value display functions as Power monitoring devices.

physical LAN segment

A physical LAN that servers are connected to.
Servers are connected to multiple physical LAN segments that are divided based on their purpose (public LANs, backup LANs, etc.).
Physical LAN segments can be divided into multiple network segments using VLAN technology.

physical network adapter

An adapter, such as a LAN, to connect physical servers or VM hosts to a network.

physical OS

An OS that operates directly on a physical server without the use of server virtualization software.

physical server

The same as a "server". Used when it is necessary to distinguish actual servers from virtual servers.

pin-group

This is a group, set with the end host mode, that has at least one uplink port and at least one downlink port.

Pool Master

On Citrix XenServer, it indicates one VM host belonging to a Resource Pool.
It handles setting changes and information collection for the Resource Pool, and also performs operation of the Resource Pool.
For details, refer to the Citrix XenServer manual.

port backup

A function for LAN switches which is also referred to as backup port.

port VLAN

A VLAN in which the ports of a LAN switch are grouped, and each LAN group is treated as a separate LAN.

port zoning

The division of ports of fibre channel switches into zones, and setting of access restrictions between different zones.

power monitoring devices

Devices used by Resource Orchestrator to monitor the amount of power consumed.
PDUs and UPSs with current value display functions fit into this category.

power monitoring targets

Devices from which Resource Orchestrator can collect power consumption data.

pre-configuration

Performing environment configuration for Resource Orchestrator on another separate system.

primary server

The physical server that is switched from when performing server switchover.

primary site

The environment that is usually used by Resource Orchestrator.

private cloud

A private form of cloud computing that provides ICT services exclusively within a corporation or organization.

public LAN

A LAN used for operations by managed servers.
Public LANs are established separately from admin LANs.

rack

A case designed to accommodate equipment such as servers.

rack mount server

A server designed to be mounted in a rack.

RAID (Redundant Arrays of Inexpensive Disks)

Technology that realizes high-speed and highly-reliable storage systems using multiple hard disks.

RAID management tool

Software that monitors disk arrays mounted on PRIMERGY servers.
The RAID management tool differs depending on the model or the OS of PRIMERGY servers.

RDM (Raw Device Mapping)

A function of VMware. This function provides direct access from a VMware virtual machine to a LUN.

RDN (Relative Distinguished Name)

A name used to identify the lower entities of a higher entry.

Each RDN must be unique within the same entry.

Remote Management Controller

A unit used for managing servers.
Used for gathering server data, failure notification, power control, etc.

- For Fujitsu PRIMERGY servers

  iRMC2

- For SPARC Enterprise

  ILOM (T series servers)
  XSCF (M series servers)

- For HP servers

  iLO2 (integrated Lights-Out)

- For Dell/IBM servers

  BMC (Baseboard Management Controller)

Remote Server Management

A PRIMEQUEST feature for managing partitions.

Reserved SB

Indicates the new system board that will be embedded to replace a failed system board if the hardware of a system board embedded in a partition fails and it is necessary to disconnect the failed system board.

resource

General term referring to the logical definition of the hardware (such as servers, storage, and network devices) and software that comprise a system.

resource folder

An arbitrary group of resources.

resource pool

A unit for management of groups of similar resources, such as servers, storage, and network devices.

resource tree

A tree that displays the relationships between the hardware of a server and the OS operating on it using hierarchies.

role

A collection of operations that can be performed.

ROR console

The GUI that enables operation of all functions of Resource Orchestrator.

ruleset

A collection of script lists for performing configuration of network devices, configured as combinations of rules based on the network device, the purpose, and the application.

SAN (Storage Area Network)

A specialized network for connecting servers and storage.

SAN boot

A configuration function that enables the starting and operation of servers via a SAN.

The OS and applications used to operate servers are stored on SAN storage, not the internal disks of servers.

SAN storage

Storage that uses a Fibre Channel connection.

script list

Lists of scripts for the automation of operations such as status and log display, and definition configuration of network devices.
Used to execute multiple scripts in one operation. The scripts listed in a script list are executed in the order that they are listed.
As with individual scripts, they can are created by the infrastructure administrator, and can be customized to meet the needs of tenant administrators.
They are used to configure virtual networks for VLANs on physical networks, in cases where it is necessary to perform auto-configuration of multiple switches at the same time, or to configure the same rules for network devices in redundant configurations.
The script lists contain the scripts used to perform automatic configuration.
There are the following eight types of script lists:

- script lists for setup
- script lists for setup error recovery
- script lists for modification
- script lists for modification error recovery
- script lists for setup (physical server added)
- script lists for setup error recovery (physical server added)
- script lists for deletion (physical server deleted)
- script lists for deletion

server

A computer (operated with one operating system).

server blade

A server blade has the functions of a server integrated into one board.
They are mounted in blade servers.

server management unit

A unit used for managing servers.
A management blade is used for blade servers, and a Remote Management Controller is used for other servers.

server name

The name allocated to a server.

server NIC definition

A definition that describes the method of use for each server's NIC.
For the NICs on a server, it defines which physical LAN segment to connect to.

server virtualization software

Basic software which is operated on a server to enable use of virtual machines. Used to indicate the basic software that operates on a PC server.

ServerView Deployment Manager

Software used to collect and deploy server resources over a network.

ServerView Operations Manager

Software that monitors a server's (PRIMERGY) hardware state, and notifies of errors by way of the network.
ServerView Operations Manager was previously known as ServerView Console.

ServerView RAID

One of the RAID management tools for PRIMERGY.

ServerView Update Manager

This is software that performs jobs such as remote updates of BIOS, firmware, drivers, and hardware monitoring software on servers being managed by ServerView Operations Manager.

ServerView Update Manager Express

Insert the ServerView Suite DVD1 or ServerView Suite Update DVD into the server requiring updating and start it.

This is software that performs batch updates of BIOS, firmware, drivers, and hardware monitoring software.

Single Sign-On

A system among external software which can be used without login operations, after authentication is executed once.

slave slot

A slot that is not recognized as a server when a server that occupies multiple slots is mounted.

SMB (Server Message Block)

A protocol that enables the sharing of files and printers over a network.

SNMP (Simple Network Management Protocol)

A communications protocol to manage (monitor and control) the equipment that is attached to a network.

software initiator

An initiator processed by software using OS functions.

Solaris Container

Solaris server virtualization software.
On Solaris servers, it is possible to configure multiple virtual Solaris servers that are referred to as a Solaris zone.

Solaris zone

A software partition that virtually divides a Solaris OS space.

SPARC Enterprise Partition Model

A SPARC Enterprise model which has a partitioning function to enable multiple system configurations, separating a server into multiple areas with operating OS's and applications in each area.

spare server

A server which is used to replace a failed server when server switchover is performed.

storage blade

A blade-style storage device that can be mounted in the chassis of a blade server.

storage management software

Software for managing storage units.

storage resource

Collective term that refers to virtual storage resources and disk resources.

storage unit

Used to indicate the entire secondary storage as one product.

surrogate pair

A method for expressing one character as 32 bits.
In the UTF-16 character code, 0xD800 - 0xDBFF are referred to as "high surrogates", and 0xDC00 - 0xDFFF are referred to as "low surrogates". Surrogate pairs use "high surrogate" + "low surrogate".

switchover state

The state in which switchover has been performed on a managed server, but neither failback nor continuation have been performed.

System Board

A board which can mount up to 2 Xeon CPUs and 32 DIMMs.

system disk

The disk on which the programs (such as the OS) and files necessary for the basic functions of servers (including booting) are installed.

system image

A copy of the contents of a system disk made as a backup.
Different from a cloning image as changes are not made to the server-specific information contained on system disks.

tenant

A unit for the division and segregation of management and operation of resources based on organizations or operations.

tenant administrator

A user who manages the resources allocated to a tenant.
tenant_admin is the role for performing management of resources allocated to a tenant.
Tenant administrators manage the available space on resources in the local pools of tenants, and approve or reject applications by tenant users to use resources.

tenant folder

A resource folder that is created for each tenant, and is used to manage the resources allocated to a tenant.

L-Servers and local pools are located in tenant folders. Also, it is possible to configure a global pool that tenant administrators can use.

tenant user

A user who uses the resources of a tenant, or creates and manages L-Platforms, or a role with the same purpose.

Thick Provisioning

Allocation of the actual requested capacity when allocating storage resources.

Thin Provisioning

Allocating of only the capacity actually used when allocating storage resources.

tower server

A standalone server with a vertical chassis.

TPP (Thin Provisioning Pool)

One of resources defined using ETERNUS. Thin Provisioning Pools are the resource pools of physical disks created using Thin Provisioning.

TPV (Thin Provisioning Volume)

One of resources defined using ETERNUS. Thin Provisioning Volumes are physical disks created using the Thin Provisioning function.

UNC (Universal Naming Convention)

Notational system for Windows networks (Microsoft networks) that enables specification of shared resources (folders, files, shared printers, shared directories, etc.).

Example

\\hostname\dir_name

UPS (Uninterruptible Power Supply)

A device containing rechargeable batteries that temporarily provides power to computers and peripheral devices in the event of power failures.
Resource Orchestrator uses UPSs with current value display functions as power monitoring devices.

URL (Uniform Resource Locator)

The notational method used for indicating the location of information on the Internet.

VIOM (ServerView Virtual-IO Manager)

The name of both the I/O virtualization technology used to change the MAC addresses of NICs and the software that performs the virtualization.
Changes to values of WWNs and MAC addresses can be performed by creating a logical definition of a server, called a server profile, and assigning it to a server.

Virtual Edition

The edition that can use the server switchover function.

Virtual I/O

Technology that virtualizes the relationship of servers and I/O devices (mainly storage and network) thereby simplifying the allocation of and modifications to I/O resources to servers, and server maintenance.
For Resource Orchestrator it is used to indicate HBA address rename and ServerView Virtual-IO Manager (VIOM).

virtual server

A virtual server that is operated on a VM host using a virtual machine.

virtual storage resource

This refers to a resource that can dynamically create a disk resource.
An example being RAID groups or logical storage that is managed by server virtualization software (such as VMware datastores).
In Resource Orchestrator, disk resources can be dynamically created from ETERNUS RAID groups, NetApp aggregates, and logical storage managed by server virtualization software.

virtual switch

A function provided by server virtualization software to manage networks of VM guests as virtual LAN switches.
The relationships between the virtual NICs of VM guests and the NICs of the physical servers used to operate VM hosts can be managed using operations similar to those of the wiring of normal LAN switches.

A function provided by server virtualization software in order to manage L-Server (VM) networks as virtual LAN switches.
Management of relationships between virtual L-Server NICs, and physical server NICs operating on VM hosts, can be performed using an operation similar to the connection of a normal LAN switch.

VLAN (Virtual LAN)

A splitting function, which enables the creation of virtual LANs (seen as differing logically by software) by grouping ports on a LAN switch.
Using a Virtual LAN, network configuration can be performed freely without the need for modification of the physical network configuration.

VLAN ID

A number (between 1 and 4,095) used to identify VLANs.
Null values are reserved for priority tagged frames, and 4,096 (FFF in hexadecimal) is reserved for mounting.

VM (Virtual Machine)

A virtual computer that operates on a VM host.

VM guest

A virtual server that operates on a VM host, or an OS that is operated on a virtual machine.

VM Home Position

The VM host that is home to VM guests.

VM host

A server on which server virtualization software is operated, or the server virtualization software itself.

VM maintenance mode

One of the settings of server virtualization software, that enables maintenance of VM hosts.
For example, when using high availability functions (such as VMware HA) of server virtualization software, by setting VM maintenance mode it is possible to prevent the moving of VM guests on VM hosts undergoing maintenance.
For details, refer to the manuals of the server virtualization software being used.

VM management software

Software for managing multiple VM hosts and the VM guests that operate on them.
Provides value adding functions such as movement between the servers of VM guests (migration).

VMware

Virtualization software from VMware Inc.
Provides a virtualized infrastructure on PC servers, enabling flexible management of operations.

VMware DPM (VMware Distributed Power Management)

A function of VMware. This function is used to reduce power consumption by automating power management of servers in VMware DRS clusters.

VMware DRS (VMware Distributed Resource Scheduler)

A function of VMware. This function is used to monitor the load conditions on an entire virtual environment and optimize the load dynamically.

VMware Teaming

A function of VMware. By using VMware Teaming it is possible to perform redundancy by connecting a single virtual switch to multiple physical network adapters.

Web browser

A software application that is used to view Web pages.

WWN (World Wide Name)

A 64-bit address allocated to an HBA.
Refers to a WWNN or a WWPN.

WWNN (World Wide Node Name)

A name that is set as a common value for the Fibre Channel ports of a node. However, the definitions of nodes vary between manufacturers, and may also indicate devices or adapters. Also referred to as a node WWN.

WWPN (World Wide Port Name)

A name that is a unique value and is set for each Fibre Channel port (HBA, CA, fibre channel switch ports, etc.), and is the IEEE global MAC address.

As the Fibre Channel ports of the same WWPN are unique, they are used as identifiers during Fibre Channel port login. Also referred to as a port WWN.

WWPN zoning

The division of ports into zones based on their WWPN, and setting of access restrictions between different zones.

Xen

A type of server virtualization software.

XSB (eXtended System Board)

Unit for domain creation and display, composed of physical components.

XSCF (eXtended System Control Facility)

The name of the Remote Management Controller for SPARC Enterprise M series servers.

zoning

A function that provides security for Fibre Channels by grouping the Fibre Channel ports of a Fibre Channel switch into zones, and only allowing access to ports inside the same zone.