

ServerView Resource Orchestrator Cloud Edition V3.1.1

Setup Guide

Windows/Linux

J2X1-7610-05ENZ0(05)
August 2013

Preface

Purpose of This Document

This manual provides information on the operations and settings required for setup of ServerView Resource Orchestrator Cloud Edition (hereinafter Resource Orchestrator).

Intended 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.

Structure of This Document

This manual is composed as follows:

[Chapter 1 Flow of Setup for Resource Orchestrator](#)

Explains the overall flow of setup operations when using Resource Orchestrator.

[Chapter 2 Installation](#)

Explains how to install Resource Orchestrator.

[Chapter 3 SSL Communication Environment Settings for the ROR Console](#)

Explains the environment settings necessary for SSL communications.

[Chapter 4 Login to the ROR Console](#)

Explains how to open and close the ROR console.

[Chapter 5 License Setup and Confirmation](#)

Explains how to set up and confirm the licenses necessary to use Resource Orchestrator.

[Chapter 6 Importing a Certificate to a Browser](#)

Explains how to import the site certificate necessary when using a test site, to a browser.

[Chapter 7 Registering Infrastructure Administrators](#)

Explains how to set up Resource Orchestrator after installation.

[Chapter 8 Creating Definition Files](#)

This section explains how to use Resource Orchestrator to create the definition files required to manage (monitor and automatically configure, etc.) network devices.

[Chapter 9 Registering Resources with Resource Orchestrator](#)

Explains how to register, change, and delete resources used by Resource Orchestrator.

[Chapter 10 Settings for the HBA address rename Setup Service](#)

Explains how to configure the HBA address rename setup service.

[Chapter 11 Installing Software and Registering Agents on VM Hosts](#)

Explains the installation of software and registration of agents on VM hosts.

[Chapter 12 Registering Resources to the Global Pool](#)

Explains how to register resources to resource pools.

[Chapter 13 Creating L-Server Templates](#)

Explains how to create L-Server templates.

[Chapter 14 Creating an L-Server for an Infrastructure Administrator](#)

Explains how to create L-Servers for infrastructure administrators.

[Chapter 15 Collecting and Registering Cloning Images](#)

Explains how to collect and register cloning images used for the entire system.

[Chapter 16 Creating L-Platform Templates](#)

Explains how to create L-Server templates.

[Chapter 17 Creating Tenants, Tenant Administrators, or Tenant Users](#)

Explains the creation of tenants, tenant administrators, and tenant users.

[Chapter 18 Post-Installation Procedures](#)

Explains how to post-installation procedures.

[Chapter 19 Saving Environment Settings](#)

Explains how to save environment settings.

[Chapter 20 Uninstallation](#)

Explains how to uninstall Resource Orchestrator.

[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 Configuration when Creating Physical L-Servers](#)

Explains how to perform configuration when creating a physical L-Server.

[Appendix C Configuration when Creating Virtual L-Servers](#)

Explains how to perform configuration when creating a virtual L-Server.

[Appendix D Installing VM Hosts on Physical L-Servers](#)

Explains how to install VM hosts on physical L-Servers.

[Appendix E To Customize Dashboard](#)

Explains how to customize the dashboard.

[Appendix F Upgrading from Earlier Versions](#)

Explains how to upgrade from earlier versions of Resource Coordinator.

[Appendix G Compatibility with Earlier Versions](#)

Explains compatibility with earlier versions of Resource Orchestrator.

[Appendix I Coordination with Other Products](#)

Explains how to coordinate use of Resource Orchestrator and other products.

[Appendix J Co-Existence with ServerView Deployment Manager](#)

Explains how to use both Resource Orchestrator and ServerView Deployment Manager on the same network.

[Appendix H Configuration when Using Ethernet Fabrics](#)

Explains how to configure the settings when using an Ethernet Fabric as a network device.

Document Conventions

The notation in this manual conforms to the following conventions.

- When there is different information for the different versions of Resource Orchestrator, it is indicated as follows:

[All Editions]	Sections relevant for all editions
[Cloud Edition]	Sections related to Cloud Edition
[Virtual Edition]	Sections related to Virtual Edition

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

[Windows Manager]	Sections related to Windows manager
[Linux Manager]	Sections related to Linux manager
[Windows]	Sections related to Windows
[Linux]	Sections related to Linux
[Solaris]	Sections related to Solaris
[VMware]	Sections related to VMware
[Hyper-V]	Sections related to Hyper-V
[Xen]	Sections related to RHEL5-Xen
[KVM]	Sections related to RHEL-KVM
[Solaris Zones]	Sections related to Solaris zones
[OVM for x86 2.2]	Sections related to Oracle VM Server for x86 2.2
[OVM for x86 3.2]	Sections related to Oracle VM Server for x86 3.2
[OVM for SPARC]	Sections related to Oracle VM Server for SPARC
[Citrix Xen]	Sections related to Citrix XenServer
[Physical Servers]	Sections related to physical servers

- 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.
- Oracle Solaris Zones may also be indicated as Solaris Containers or Solaris Container.
- Oracle VM Server for x86 may also be indicated as Oracle VM.
- In Resource Orchestrator the following servers are referred to as SPARC Enterprise.
 - SPARC Enterprise M3000/M4000/M5000/M8000/M9000
 - SPARC Enterprise T5120/T5140/T5220/T5240/T5440
- In Resource Orchestrator the following servers are referred to as Fujitsu M10.
 - FUJITSU M10-1/M10-4/M10-4S
- Fujitsu M10 is sold as SPARC M10 by Fujitsu in Japan. Fujitsu M10 and SPARC M10 are identical products.
- 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.

- The ">" used in Windows is included in usage examples. When using Linux, read ">" as meaning "#".
- If using Windows 8 or Windows Server 2012, please note the following:
Operations descriptions in this manual use examples assuming operating systems up to Windows 7 and Windows Server 2008 - if using this product with Windows 8 or Windows Server 2012, read instructions regarding the [Start] menu as if they were instructions for the [Apps] page.
Display the [Apps] page by right-clicking in the [Start] screen, and then clicking on [All apps].

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.

Regarding Installation Folder Paths

The installation folder path may be given as C:\Fujitsu\ROR in this manual.

Replace it as shown below.

- When using Windows 64-bit (x64)
C:\Program Files (x86)\Resource Orchestrator
- When using Windows 32-bit (x86)
C:\Program Files\Resource Orchestrator

Command Examples

The paths used in command examples are abbreviated. When executing commands, do so using the path given in "Name".

Web Site URLs

URLs provided as reference sources within the main text are correct as of August 2013.

Please understand that they are subject to change without notice.

Abbreviations

The following abbreviations are used in this manual:

Abbreviation	Products
Windows	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 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) 2012 Standard Microsoft(R) Windows Server(R) 2012 Datacenter Microsoft(R) Windows(R) XP Professional operating system Windows Vista(R) Business Windows Vista(R) Enterprise Windows Vista(R) Ultimate

Abbreviation	Products
	Windows(R) 7 Professional Windows(R) 7 Ultimate Windows(R) 8 Pro Windows(R) 8 Enterprise
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 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 2012	Microsoft(R) Windows Server(R) 2012 Standard Microsoft(R) Windows Server(R) 2012 Datacenter
Windows PE	Microsoft(R) Windows(R) Preinstallation Environment
Windows XP	Microsoft(R) Windows(R) XP Professional operating system
Windows Vista	Windows Vista(R) Business Windows Vista(R) Enterprise Windows Vista(R) Ultimate
Windows 7	Windows(R) 7 Professional Windows(R) 7 Ultimate
Windows 8	Windows(R) 8 Pro Windows(R) 8 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) 5.8 (for x86) Red Hat(R) Enterprise Linux(R) 5.8 (for Intel64) Red Hat(R) Enterprise Linux(R) 6.2 (for x86) Red Hat(R) Enterprise Linux(R) 6.2 (for Intel64) Red Hat(R) Enterprise Linux(R) 6.3 (for x86)

Abbreviation	Products
	Red Hat(R) Enterprise Linux(R) 6.3 (for Intel64) Red Hat(R) Enterprise Linux(R) 6.4 (for x86) Red Hat(R) Enterprise Linux(R) 6.4 (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) 5.8 (for x86) Red Hat(R) Enterprise Linux(R) 5.8 (for Intel64) Red Hat(R) Enterprise Linux(R) 6.2 (for x86) Red Hat(R) Enterprise Linux(R) 6.2 (for Intel64) Red Hat(R) Enterprise Linux(R) 6.3 (for x86) Red Hat(R) Enterprise Linux(R) 6.3 (for Intel64) Red Hat(R) Enterprise Linux(R) 6.4 (for x86) Red Hat(R) Enterprise Linux(R) 6.4 (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(R) Enterprise Linux(R) 5.8 (for x86) Red Hat(R) Enterprise Linux(R) 5.8 (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) Red Hat(R) Enterprise Linux(R) 6.3 (for x86) Red Hat(R) Enterprise Linux(R) 6.3 (for Intel64) Red Hat(R) Enterprise Linux(R) 6.4 (for x86) Red Hat(R) Enterprise Linux(R) 6.4 (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 Red Hat(R) Enterprise Linux(R) 6.3 (for x86) Virtual Machine Function Red Hat(R) Enterprise Linux(R) 6.3 (for Intel64) Virtual Machine Function Red Hat(R) Enterprise Linux(R) 6.4 (for x86) Virtual Machine Function Red Hat(R) Enterprise Linux(R) 6.4 (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
OVM for x86 2.2	Oracle(R) VM Server for x86 2.2
OVM for x86 3.2	Oracle(R) VM Server for x86 3.2
OVM for SPARC	Oracle(R) VM Server for SPARC
Oracle VM Manager	Oracle(R) VM Manager
Citrix XenServer	Citrix XenServer(R) 6.0 Citrix XenServer(R) 6.0.2 Citrix XenServer(R) 6.1.0
ESC	ETERNUS SF Storage Cruiser
GLS	PRIMECLUSTER GLS
Navisphere	EMC Navisphere Manager
Solutions Enabler	EMC Solutions Enabler
MSFC	Microsoft Failover Cluster
Solaris	Oracle Solaris10 05/09 (Update7) Media Pack Oracle Solaris11 11/11 Media Pack Oracle Solaris11.1 Media Pack
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 vSphere(R) 5.1
VMware ESX	VMware(R) ESX(R)
VMware ESX 4	VMware(R) ESX(R) 4
VMware ESXi	VMware(R) ESXi(TM)
VMware ESXi 5.0	VMware(R) ESXi(TM) 5.0
VMware ESXi 5.1	VMware(R) ESXi(TM) 5.1
VMware Tools	VMware(R) Tools
VMware vSphere 4.0	VMware vSphere(R) 4.0
VMware vSphere 4.1	VMware vSphere(R) 4.1
VMware vSphere 5	VMware vSphere(R) 5
VMware vSphere 5.1	VMware vSphere(R) 5.1
VMware vSphere Client	VMware vSphere(R) Client
VMware vCenter Server	VMware(R) vCenter(TM) Server

Abbreviation	Products
VMware vClient	VMware(R) vClient(TM)
VMware FT	VMware(R) Fault Tolerance
VMware DRS	VMware(R) Distributed Resource Scheduler
VMware DPM	VMware(R) Distributed Power Management
VMware vDS	VMware(R) vNetwork Distributed Switch
VMware Storage VMotion	VMware(R) Storage VMotion
VIOM	ServerView Virtual-IO Manager
BladeLogic	BMC BladeLogic Server Automation
Internet Explorer	Windows(R) Internet Explorer(R) 8 Windows(R) Internet Explorer(R) 9 Windows(R) Internet Explorer(R) 10
ServerView Agent	ServerView SNMP Agents for MS Windows (32bit-64bit) ServerView Agents Linux ServerView Agents VMware for VMware ESX Server
RCVE	ServerView Resource Coordinator VE
ROR	ServerView Resource Orchestrator
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 Flow of Setup for Resource Orchestrator

This chapter explains the overall flow of setup when using Resource Orchestrator.

Setup operations when using Resource Orchestrator are performed by the users below.

System Administrators

System administrators manage the entire system. They install Resource Orchestrator and configure the necessary settings.

OS administrator privileges are required for these operations. Usually, the roles of infrastructure administrator and system administrator are performed by the person.

Infrastructure Administrators

Infrastructure administrators manage ICT resources such as servers, storage, networks, and images.

They collectively manage ICT resources in resource pools, and perform addition, configuration modification, and maintenance of ICT resources when necessary.

In Resource Orchestrator, the following roles can be assigned to infrastructure administrators:

- infra_admin (infrastructure administrator)

Tenant Administrators

Provide tenant users with L-Platform templates based on their needs.

In Resource Orchestrator, the following roles can be assigned to tenant administrators:

- tenant_admin (tenant administrator)

Tenant Users

Tenant users create L-Platforms and use them.

In Resource Orchestrator, the following roles can be assigned to tenant users:

- tenant_user (tenant user)
- lplatform_user (L-Platform user)

Dual-role Administrators

The following role combines the roles of infrastructure administrators and tenant administrators.

In Resource Orchestrator, the following roles can be assigned to dual-role administrators:

- administrator (administrator)

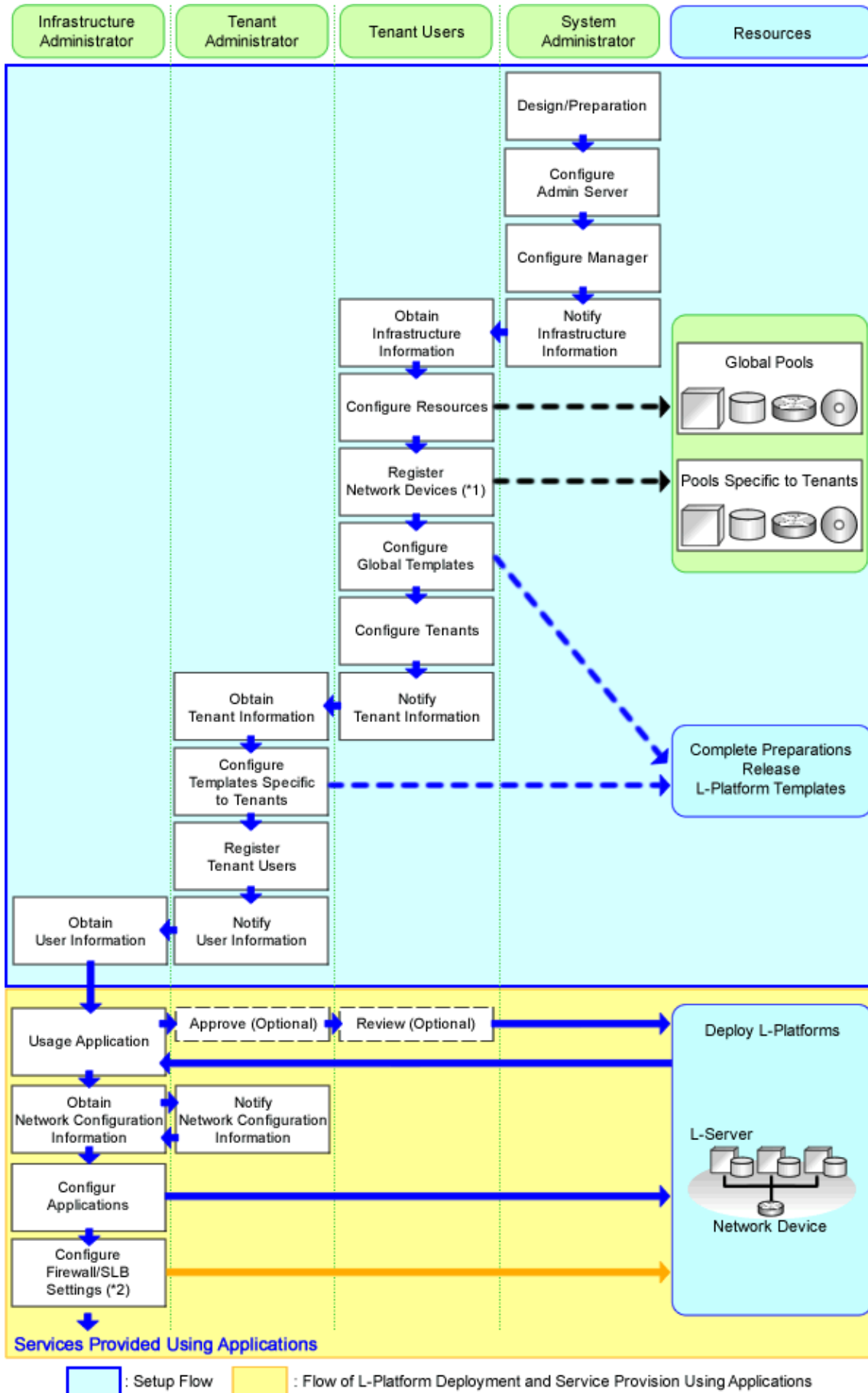
For details on roles, refer to "5.1 Restricting Access Using Roles" in the "Design Guide CE".

An overview of setup operations when using Resource Orchestrator is given below.

Flow of Setup and Service Provision Using Business Applications

In Resource Orchestrator, the flow of setup and services provision using business applications is as shown below.

Figure 1.1 Flow of Setup and Service Provision Using Business Applications



*1: Necessary when using firewalls, server load balancers (SLB), or L2 switches.

*2: Necessary when using firewalls or server load balancers (SLB).

The flow of setup is as follows:

Table 1.1 Flow of Setup

Operator	Operation Overview	Details	Reference
System Administrators	Design	<ul style="list-style-type: none"> - Designing the system configuration - Defining user accounts - Defining tenants and resource pools - Defining high availability and Disaster Recovery - Defining the server environment - Defining the network - Defining the storage environment - Deciding server virtualization software 	Refer to "1.1 Flow of Setup for System Administrators".
	Preconfiguration	<ul style="list-style-type: none"> - Configuring the server environment - Configuring the network environment - Configuring the storage environment - Settings for server virtualization software - Installing and defining Single Sign-On - Deciding and configuring the power monitoring environment 	
	Software installation on admin servers	<ul style="list-style-type: none"> - Installing an OS - Installing required software 	
	Manager installation and configuration	<ul style="list-style-type: none"> - Installing the manager - Configuring SSL communications on the ROR console (*1) - Logging in to the ROR Console - License setup - Importing a certificate to a browser (*2) - Registering infrastructure administrators - Creating definition files 	
	Notification of infrastructure information	<ul style="list-style-type: none"> - Notifying the infrastructure information 	
Infrastructure Administrators	Obtaining infrastructure information	<ul style="list-style-type: none"> - Obtaining the infrastructure information 	Refer to "1.2 Flow of Setup for Infrastructure Administrators".
	Resource configuration	<ul style="list-style-type: none"> - Registering resources with Resource Orchestrator - Settings for the HBA address rename setup service (*4) - Installing software and registering agents on VM hosts (*5) - Registering Resources to the Global Pool - Creating L-Server templates - Collecting and registering cloning images 	
	Registration of network devices	<ul style="list-style-type: none"> - Creating the network configuration information (XML definition) - Creating scripts for network device auto-configuration settings - Registering network device resources - Registering network pools for network devices (*3) 	
	Global template configuration	<ul style="list-style-type: none"> - Creating and releasing global templates and registering accounting information (*6) 	
	Tenant configuration	<ul style="list-style-type: none"> - Creating tenants - Creating tenant administrators - Registering resources to a dedicated pool for the tenant 	

Operator	Operation Overview	Details	Reference
	Notification of Tenant Information	<ul style="list-style-type: none"> - User IDs and passwords for the tenant administrator - Information of tenants which can be used by the tenant administrator and resources allocated to tenants - Global template information - Notifying the information to configure on a firewall or a server load balancer (*3) 	
Tenant Administrators	Obtaining tenant information	<ul style="list-style-type: none"> - Obtaining available tenant and resource information - Obtaining the global template information - Obtaining the information to configure on a firewall or a server load balancer (*3) 	Refer to "1.3 Flow of Setup for Tenant Administrators".
	Configuration of a template specific to the tenant	<ul style="list-style-type: none"> - Copying and editing a template specific to the tenant - Releasing and retracting a template specific to the tenant 	
	User registration	<ul style="list-style-type: none"> - Registering tenant users 	
	Notification of the user information	<ul style="list-style-type: none"> - Notifying the user information 	
	Notification of the network settings	<ul style="list-style-type: none"> - Notifying the segment settings - Notifying the information to configure on a firewall or a server load balancer (*3) 	

*1: Necessary when replacing the test certificate set up by default with another certificate. For details, refer to "Chapter 3 SSL Communication Environment Settings for the ROR Console".

*2: Necessary when using the site certificate for tests.

*3: Necessary when using a firewall or a server load balancer.

*4: Necessary when using HBA address rename.

*5: Necessary when using server virtualization software

*6: It is necessary to register accounting information when using accounting.

The flow of service provision using business applications is as shown below.

Table 1.2 Flow of Service Provision Using Business Applications

Operator	Operation Overview	Details	Reference
Tenant Users	Obtaining the user information	<ul style="list-style-type: none"> - Obtaining the user information 	Refer to "1.4 Flow of Operations for Tenant Users".
	L-Platform deployment	<ul style="list-style-type: none"> - Applying for L-Platform usage - Checking L-Platform usage application status 	
	Configuration of business applications	<ul style="list-style-type: none"> - Configuring business applications 	
	Configuration of firewalls or server load balancers	<ul style="list-style-type: none"> - Configuring a firewall - Configuring a server load balancer 	
	Service provision using business applications	<ul style="list-style-type: none"> - Providing services using business applications 	

* Note: Necessary when using firewalls or server load balancers.

1.1 Flow of Setup for System Administrators

This section explains flow of setup for system administrators.

Table 1.3 Overview of Setup for System Administrators

Operation Overview		Tabs Used on the ROR Console	Reference
Design		-	Refer to " Design for Resource Orchestrator Setup ".
Preconfiguration		-	Refer to " 1.2 Flow of Setup for Infrastructure Administrators ".
Software installation on admin servers		-	Refer to " 1.1.2 Installing Software on Admin Servers ".
Manager installation and configuration	Manager installation	-	Refer to " 1.1.3 Manager Installation ".
	Login to the ROR Console	-	Refer to " 1.1.4 Login to the ROR Console ".
	License Setup	[Resource]	Refer to " 1.1.5 License Setup ".
	Configuration after manager installation	-	Refer to " 1.1.6 Configuration after Manager Installation ".
Notification of infrastructure configuration information		-	Refer to " 1.1.7 Notifying the Infrastructure Administrator of Infrastructure Configuration Information ".

-: There are no tabs that can be used on the ROR console.

1.1.1 Design and Preconfiguration for Resource Orchestrator Setup

This section explains the design and preconfiguration necessary when installing this product.

Design for Resource Orchestrator Setup

The following operations have to be performed to install this product.

- Defining the System Configuration
Refer to "Chapter 4 System Configuration Design" in the "Design Guide CE".
- Defining and Configuring User Accounts
Refer to "Chapter 5 Defining User Accounts" in the "Design Guide CE".
- Defining Tenants and Resource Pools
Refer to "Chapter 6 Defining Tenants and Resource Pools" in the "Design Guide CE".
- Defining High Availability and Disaster Recovery
Refer to "Chapter 7 Defining High Availability and Disaster Recovery" in the "Design Guide CE", and the "DR Option Instruction".
- Defining the Server Environment
Refer to "8.1 Defining the Server Environment" in the "Design Guide CE".
- Defining the Network Environment
Refer to "Chapter 9 Defining and Configuring the Network Environment" in the "Design Guide CE".
- Defining the Storage Environment
Refer to "10.1 Deciding the Storage Environment" in the "Design Guide CE".
- Deciding Server Virtualization Software
Refer to "11.1 Deciding Server Virtualization Software" in the "Design Guide CE".
- Deciding the Power Monitoring Environment
Refer to "13.1 Deciding the Power Monitoring Environment" in the "Design Guide CE".

Preconfiguration for Resource Orchestrator Setup

Perform preconfiguration for setup of Resource Orchestrator.

- Configuring the Server Environment
Refer to "8.2 Configuring the Server Environment" in the "Design Guide CE".
- Configuring the Network Environment
Refer to "Chapter 9 Defining and Configuring the Network Environment" in the "Design Guide CE".
- Configuring the Storage Environment
Refer to "10.2 Configuring the Storage Environment" in the "Design Guide CE".
- Settings for Server Virtualization Software
Refer to "11.2 Settings for Server Virtualization Software" in the "Design Guide CE".
- Installing and Defining Single Sign-On
Refer to "Chapter 12 Installing and Defining Single Sign-On" in the "Design Guide CE".
- Configuring the Power Monitoring Environment
Refer to "13.2 Configuring the Power Monitoring Environment" in the "Design Guide CE".

1.1.2 Installing Software on Admin Servers

Configure an admin server.

Perform installation of software on the admin server.

1. Install an OS
2. Install Required Software

1.1.3 Manager Installation

1. Install the manager. Configure the SSL communication environment settings for log in to the ROR console.
2. Install the Manager
Install the manager of Resource Orchestrator.
For details, refer to "[2.1 Manager Installation](#)".
3. Configure SSL Communications on the ROR Console
Use SSL communications when accessing the ROR console from a browser.
When changing the certificate used for SSL communication from the test certificate set up by default to another certificate, refer to "[Chapter 3 SSL Communication Environment Settings for the ROR Console](#)".
When using the test certificate, it is not necessary to change the certificates.

1.1.4 Login to the ROR Console

Log in to Resource Orchestrator.

Refer to "[Chapter 4 Login to the ROR Console](#)" and "Chapter 2 Login and Logout" in the "User's Guide for Infrastructure Administrators CE".

1.1.5 License Setup

Configure licenses.

For details, refer to "[Chapter 5 License Setup and Confirmation](#)".

1.1.6 Configuration after Manager Installation

Configure the license for the manager, after installing the manager.

1. Import a Certificate to a Browser

In order to use a test site certificate, the certificate must be installed to the Web browser.

For details, refer to "[Chapter 6 Importing a Certificate to a Browser](#)".

2. Register Infrastructure Administrators

The administrator role, which is the role that combines infrastructure administrator and tenant administrator roles, is assigned to the user created when installing Resource Orchestrator.

Resource Orchestrator can be configured and operated by this user or another user registered with the infrastructure administrator role, in order to prevent the operation of an L-Platform from being stopped by erroneous operations.

For details on how to register network resources, refer to "3.1 Registering User Accounts" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Create Definition Files

Create the Definition Files

For details, refer to "[Chapter 8 Creating Definition Files](#)".

1.1.7 Notifying the Infrastructure Administrator of Infrastructure Configuration Information

The system administrator notifies the infrastructure administrator of the details designed for Resource Orchestrator setup or the following infrastructure configuration information that has been configured in advance.

- Physical system configuration of hardware managed by the infrastructure administrator (servers, storage, and networks)
 - Connection information between devices (connection ports, connection types, etc.)
- Hardware information managed by the infrastructure administrator
 - Vendor name
 - Model name

- Resource information managed in Resource Orchestrator

To manage resources in Resource Orchestrator, it is necessary to register them.

For details, refer to "[Chapter 9 Registering Resources with Resource Orchestrator](#)".

- Information such as segments or IP addresses used in an L-Platform

For details on the segments or IP addresses allocated to an L-Platform, refer to "9.1.3 Physical Network Design for the Public LAN and iSCSI LAN" in the "Design Guide CE".

- Configuration information when using a firewall or a server load balancer on an L-Platform
 - When using the firewall address conversion functions, the virtual IP address used in the function
 - When using the server load balancer, the virtual IP addresses used in the server load balancing functions

1.2 Flow of Setup for Infrastructure Administrators

This section explains flow of setup for infrastructure administrators.

Procedures differ depending on the type of L-Server which comprises an L-Platform or the server hardware being used, and the network configuration which is connected to an L-Server.

Table 1.4 Overview of Setup for Infrastructure Administrators

Operation Overview	Tabs Used on the ROR Console	Reference
Obtaining infrastructure configuration information	-	Refer to " 1.2.1 Obtaining Infrastructure Configuration Information ".
Resource configuration	[Resource]	Refer to " 1.2.2 Configuring Resources ".
Network device registration (*1)	[Resource]	Refer to " 1.2.3 Registering Network Devices ".
Global template configuration	[Template] [Usage Charge]	Refer to " 1.2.4 Creating and Releasing Global Templates and Registering Accounting Information ". (*2)
Tenant configuration	[Tenant]	Refer to " 1.2.5 Configuring Tenants ".
Notification of Tenant Information	-	Refer to " 1.2.6 Notification of tenant information ".

*1: Necessary when using firewalls, server load balancers, or L2 switches.

*2: It is necessary to register accounting information when using accounting.

1.2.1 Obtaining Infrastructure Configuration Information

The infrastructure administrator obtains the information necessary for installing Resource Orchestrator from the system administrator.

1.2.2 Configuring Resources

Select the [Resource] tab of the ROR console and configure resource settings.

Procedures differ depending on the type of L-Server which comprises an L-Platform and the server hardware being used.

1.2.2.1 When Creating Physical L-Servers

This section explains how to configure resources when creating physical L-Servers.

The settings for resources when creating a physical L-Server are different when using a blade server, rack-mount server, or tower server.

The overview of configuration of resources when creating a physical L-Server is as follows.

Table 1.5 Resource Settings when Creating Physical L-Servers

Settings	Details	When Using Blade Servers	When Using Rack Mount or Tower Servers
Resource Registration	Register VIOM	Yes	Yes (*1)
	Register storage management software	Yes	Yes
	Register chassis	Yes	No
	Register admin LAN subnets (when there are multiple admin LAN subnets)	Yes	Yes
	Register managed servers (within chassis)	Yes	No
	Register managed servers	No	Yes
	Register LAN switch blades	Yes	No
	Configure VLANs for LAN switch blades manually	Yes (*2)	No
	Configure power monitoring devices	Yes (*3)	Yes (*3)
Settings for the HBA address rename Setup Service	No	Yes (*4)	
Resource Registration for Resource Pools	Register physical server resources to resource pools	Yes	Yes

Settings	Details	When Using Blade Servers	When Using Rack Mount or Tower Servers
	Register network resources to network pools	Yes	Yes
	Register virtual storage resources to storage pools	Yes	Yes
	Register disk resources to storage pools	Yes	Yes
	Register MAC addresses and WWNs to address pools	Yes	Yes
L-Server Template Creation	Create an L-Server template	Yes	Yes
Collection and Registration of Cloning Images	Create an L-Server for the Infrastructure Administrator	Yes	Yes
	Install OSs on physical L-Servers	Yes	Yes
	Install required software on physical L-Servers	Yes	Yes
	Install agents on physical L-Servers	Yes	Yes
	Install agents (Dashboard Function) on physical L-Servers	Yes	Yes
	Create and Register Cloning Images	Yes	Yes

Yes: Required

No: Not required

*1: Necessary when using rack mount servers which are supported by VIOM.

*2: Necessary when not using automatic VLAN configuration for LAN switch blades.

*3: Necessary when monitoring power consumption.

*4: Necessary only when using rack mount servers which are not supported by VIOM.

1.2.2.1.1 When Using Blade Servers

The procedure when using blade servers is as follows.

1. Resource Registration

Register the required resources in Resource Orchestrator.

For details, refer to "[Chapter 9 Registering Resources with Resource Orchestrator](#)".

2. Resource Registration for Resource Pools

Register resources in a resource pool.

For details, refer to "[Chapter 12 Registering Resources to the Global Pool](#)".

3. Create an L-Server Template

Create an L-Server template.

For details, refer to "[Chapter 13 Creating L-Server Templates](#)".

4. Create an L-Server for the Infrastructure Administrator

Create an L-Server for the infrastructure administrator.

For details, refer to "[Chapter 14 Creating an L-Server for an Infrastructure Administrator](#)".

5. Install software on physical L-Servers for infrastructure administrators, and register agents

Install software on the physical L-Server for infrastructure administrators created in step 4, and register agents in Resource Orchestrator.

- a. Install OSs on physical L-Servers for infrastructure administrators

- b. Install required software on physical L-Servers for infrastructure administrators
 - c. Install agents on physical L-Servers for infrastructure administrators
Refer to "[2.2 Agent Installation](#)".
 - d. Install agents (Dashboard Function) on physical L-Servers for infrastructure administrators
Refer to "[2.3 Agent \(Dashboard Function\) Installation](#)".
 - e. Register the Agent
6. Create and Register Cloning Images
Create and register cloning images.
For details, refer to "[Chapter 15 Collecting and Registering Cloning Images](#)".

1.2.2.1.2 When Using Rack Mount or Tower Servers

The procedure when using rack-mount or tower servers is as follows.

1. Resource Registration
Register the required resources in Resource Orchestrator.
For details, refer to "[Chapter 9 Registering Resources with Resource Orchestrator](#)".
2. Resource Registration for Resource Pools
Register resources in a resource pool.
For details, refer to "[Chapter 12 Registering Resources to the Global Pool](#)".
3. Create an L-Server Template
Create an L-Server template.
For details, refer to "[Chapter 13 Creating L-Server Templates](#)".
4. Create an L-Server for the Infrastructure Administrator
Create an L-Server for the infrastructure administrator.
For details, refer to "[Chapter 14 Creating an L-Server for an Infrastructure Administrator](#)".
5. Install software on physical L-Servers for infrastructure administrators, and register agents
Install software on the physical L-Server for infrastructure administrators created in step 4, and register agents in Resource Orchestrator.
 - a. Install OSs on physical L-Servers for infrastructure administrators
 - b. Install required software on physical L-Servers for infrastructure administrators
 - c. Install agents on physical L-Servers for infrastructure administrators
Refer to "[2.2 Agent Installation](#)".
 - d. Install agents (Dashboard Function) on physical L-Servers for infrastructure administrators
Refer to "[2.3 Agent \(Dashboard Function\) Installation](#)".
 - e. Register the Agent
6. Create and Register Cloning Images
Create and register cloning images.
For details, refer to "[Chapter 15 Collecting and Registering Cloning Images](#)".

1.2.2.2 When Creating a Virtual L-Server

This section explains how to configure resources when creating virtual L-Servers.

The settings for resources when creating a virtual L-Server differ depending on the server virtualization software that is used.

1.2.2.2.1 Resource Registration

Register the required resources in Resource Orchestrator.

Resource registration when creating a virtual L-Server is as follows.

For details, refer to "[Chapter 9 Registering Resources with Resource Orchestrator](#)".

Table 1.6 Resource Registration when Creating Virtual L-Servers

Settings	Details	When Using Blade Servers	When Using Rack Mount or Tower Servers
Resource Registration	Register VM Management software	Yes (*1)	Yes (*1)
	Register Server Management software	No	Yes (*2)
	Register storage management software	Yes (*3)	Yes (*3)
	Register chassis	Yes	No
	Register admin LAN subnets (when there are multiple admin LAN subnets)	Yes	Yes
	Register managed servers (within chassis)	Yes	No
	Register managed servers	No	Yes
	Register LAN switch blades	Yes	No
	Configure VLANs for LAN switch blades manually	Yes (*4)	No
	Configure power monitoring devices	Yes (*5)	Yes (*5)
	Register Disk Resources	Yes (*6)	Yes (*2, *6)

Yes: Required

No: Not required

*1: Register when using VMware, Hyper-V, OVM for x86 2.2, or OVM for x86 3.2.

*2: Necessary when using Solaris Zones or OVM for SPARC.

*3: It is necessary to register storage management software when using RHEL5-Xen.

*4: Necessary when not using automatic VLAN configuration for LAN switch blades.

*5: Necessary when using.

*6: Necessary when using RHEL-KVM.

1.2.2.2.2 Installing Software and Registering Agents on VM Hosts

Install software on VM hosts and register agents in Resource Orchestrator.

1. Install OSs on VM Hosts
2. Install Required Software on VM Hosts
3. Install Agents and Agents (Dashboard Function) on VM Hosts
Refer to "[2.2 Agent Installation](#)".
4. Register the Agent

1.2.2.2.3 Registering Resources to the Global Pool

Register resources to the global pool.

The overview of registration of resources to the global pool when creating a virtual L-Server is as follows.

For details, refer to "[Chapter 12 Registering Resources to the Global Pool](#)".

Table 1.7 Resource Registration in Global Pools when Creating Virtual L-Servers

Settings	VMware	Hyper-V	OVN for x86 2.2	RHEL 5-Xen	KVM	Solaris Zones	OVN for SPARC	Citrix XenServer	OVN for x86 3.2
Register VM host resources to VM pools	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pre-configure network resources	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Register network resources to network pools	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Register virtual storage resources to storage pools	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes
Register disk resources to storage pools	No	No	No	No	Yes	Yes	Yes	No	No
Register MAC addresses to address pools	No	No	No	Yes	Yes	No	No	Yes	No

Yes: Required
 No: Not required

1.2.2.2.4 Creating L-Server Templates

Create an L-Server template.

For details, refer to "[Chapter 13 Creating L-Server Templates](#)".



When using OVN for SPARC, this operation is not necessary.

1.2.2.2.5 Creating and Registering Cloning Images

Create a cloning image and register it in Resource Orchestrator.

1. Create an L-Server for the Infrastructure Administrator

Create an L-Server for the infrastructure administrator.

For details, refer to "[Chapter 14 Creating an L-Server for an Infrastructure Administrator](#)".

2. Install Software on Virtual L-Servers for Infrastructure Administrators

Install software on the virtual L-Server for the infrastructure administrator created in step 1.

3. Create and Register Cloning Images

Create and register cloning images.

For details, refer to "[Chapter 15 Collecting and Registering Cloning Images](#)".



When using OVN for SPARC, this operation is not necessary.



When using Solaris Zones, create cloning images using BladeLogic.

For details, refer to the BladeLogic manual.

1.2.3 Registering Network Devices

Register network devices when necessary.

1. Create the network configuration information (XML definition) necessary for registering network device as resources.

For details, refer to "9.4.8 When Registering Network Devices as Resources" in the "Design Guide CE".

2. When automatically configuring or operating the network device, prepare a script.

For details, refer to "Appendix F Preparing for Automatic Configuration and Operation of Network Devices" in the "Design Guide CE".

3. Register network devices as network device resources.

For details, refer to "5.7 Registering Network Devices" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

4. Register the network device resources in the network pool.

Among the network devices registered as resources, the network devices with "Firewall" or "SLB" set for their resource type must be registered in the network pool.

For details, refer to "14.4 Network Devices" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

1.2.4 Creating and Releasing Global Templates and Registering Accounting Information

Create and release a global template and register the accounting information.

A global template is an L-Platform template which can be used for all tenants.

1. Create L-Platform templates using the [Template] tab of the ROR console.

For details, refer to "8.3.1 Creating New L-Platform Template" and "8.3.2 Copying L-Platform Template" in the "User's Guide for Infrastructure Administrators CE".

2. When using accounting, register the accounting information using the registration function of the product master maintenance command.

For details, refer to "15.3.1 Register Accounting Information" in the "Operation Guide CE".

3. Release L-Platform templates using the [Template] tab of the ROR console.

For details, refer to "8.3.5 Publishing and Hiding L-Platform Template" in the "User's Guide for Infrastructure Administrators CE".

1.2.5 Configuring Tenants

Create tenants and tenant administrators, and register resources in a dedicated pool for the tenant.

1. Create Tenants

Create tenants.

For details, refer to "11.3 Creating a Tenant" in the "User's Guide for Infrastructure Administrators CE".

2. Create Tenant Administrators

Create tenant administrators.

For details, refer to "11.7 Registering a User" in the "User's Guide for Infrastructure Administrators CE".

3. Register resources in a dedicated pool for the tenant

Register resources in a dedicated pool for the tenant (local pool).

For details, refer to "Chapter 14 Registering Resources in Resource Pools" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

1.2.6 Notification of tenant information

The infrastructure administrator notifies the tenant administrator of the following tenant information.

- User IDs and Passwords for the tenant administrator
- Information of tenants which can be used by the tenant administrator and resources allocated to tenants
- Global template information

When Using Firewalls or Server Load Balancers

When using a firewall or a server load balancer, the infrastructure administrator notifies the tenant administrator of the information necessary to configure a firewall or a server load balancer.

Note the following, when a firewall or a server load balancer is included in the L-Platform template to create.

- It is necessary to configure a firewall or a server load balancer after deploying an L-Platform.

Inform the tenant administrator of this fact.

- Configure Firewalls

Inform the tenant user of the values of virtual IP addresses used for the firewall address conversion functions, and the parameters and values for other firewall settings.

- Configure Server Load Balancers

Inform the tenant user of the values of virtual IP addresses used for server load balancing functions of the server load balancer and the parameters or values for other server load balancer settings.

- Use the ruleset for server load balancer operations

Inform the tenant administrator of the ruleset used during operations. Inform the tenant administrator of the parameters and the values set for the ruleset and the operation logs.

1.3 Flow of Setup for Tenant Administrators

Operation by the tenant administrator is shown as below.

1. Obtain Tenant Information

The tenant administrator obtains the information necessary for installing Resource Orchestrator from the infrastructure administrator.

2. Edit a Template Specific to the Tenant

Edit a template specific to the tenant.

A template specific to the tenant is an L-Platform template used only for that specific tenant.

When a template specific to the tenant is required, edit the template specific to the tenant.

For details, refer to "7.3.2 Copying L-Platform Template" or "7.3.3 Editing L-Platform Template" in the "User's Guide for Tenant Administrators CE".

3. Release a Template Specific to the Tenant

Release a template specific to the tenant to the tenant user.

For details, refer to "7.3.5 Publishing and Hiding L-Platform Template" in the "User's Guide for Tenant Administrators CE".

4. Register the Tenant User

Register the tenant user.

For details, refer to "10.3 Registering a User" in the "User's Guide for Tenant Administrators CE".

5. Notify the Tenant User of Network Configuration Information

- Notify the tenant user of the segment information

The tenant administrator notifies the tenant user of the segment information specified in an L-Platform.

- Notify the tenant user of the information to configure in a firewall or a server load balancer

When using a firewall or a server load balancer, the tenant administrator notifies the tenant user of the information necessary to configure a firewall or a server load balancer.

Note the following, when a firewall or a server load balancer is included in the L-Platform template edited in step 1.

- It is necessary to configure a firewall or a server load balancer after deploying an L-Platform.

Inform the tenant user of this fact.

- Configure Firewalls

Inform the tenant user of the values of virtual IP addresses used for the firewall address conversion functions, and the parameters and values for other firewall settings.

- Configure Server Load Balancers

Inform the tenant user of the values of virtual IP addresses used for server load balancing functions of the server load balancer and the parameters or values for other server load balancer settings.

- Use the ruleset for server load balancer operations

Inform the tenant user of the ruleset used during operations. Inform the tenant user of the parameters and the values set for the ruleset and the operation logs.

1.4 Flow of Operations for Tenant Users

The details of operations by the tenant user until starting to provide services using business applications are as shown below.

1. Apply for L-Platform Usage

Apply for L-Platform usage.

For details, refer to "5.2 Subscribe to an L-Platform" in the "User's Guide for Tenant Users CE".

2. Check L-Platform Usage Application Status

Check L-Platform usage application status.

For details, refer to "5.3 L-Platform Management" in the "User's Guide for Tenant Users CE".

3. Obtain Network Configuration Information

The tenant user obtains the information necessary for configuring business applications from the tenant administrator.

4. Configure Business Applications

Configure business applications.

5. Configure Firewalls

Configure a firewall when necessary.

For details, refer to "5.3.8 Setup Firewall" in the "User's Guide for Tenant Users CE".

6. Configure Server Load Balancers

Configure a server load balancer when necessary.

For details, refer to "5.3.9 Server Load Balancer (SLB) Settings" in the "User's Guide for Tenant Users CE".

7. Service provision using business applications

Provide services using business applications.

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 Manager Installation [Windows Manager]

This section explains installation of Windows managers.

2.1.1.1 Preparations

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

- [Host Name Checks](#)
- [System Time Checks](#)
- [Exclusive Software Checks](#)
- [Required Software Preparation and Checks](#)
- [Required Patch Checks](#)
- [Collecting and Checking Required Information](#)
- [Configuration Parameter Checks](#)
- [Checking Used Port Numbers](#)
- [Post-uninstallation Procedure](#)

Before installing Resource Orchestrator in an environment from which Resource Orchestrator has been deleted, perform the post-uninstallation procedure.

Refer to "[20.1.5 Post-uninstallation Procedure](#)".

2.1.1.2 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

```
System_drive\Windows\System32\drivers\etc\hosts
```



When configuring the hosts file, note the following.

- Do not set the host name (FQDN) and the computer name to "127.0.0.1".
- Confirm that "127.0.0.1" (IPv4 format) is set to "localhost".
Note that IPv6 format must not be set.

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 localhost.localdomain localhost
```

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.

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 [System Condition] tab on the ROR console.

Exclusive Software Checks

Before installing Resource Orchestrator, check that the software listed in "2.4.2.5 Exclusive Software" in the "Design 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.

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 "2.4.2.5 Exclusive Software" in the "Design 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 "[F.2 Manager](#)".

When reinstalling a manager on a system on which the same version of Resource Orchestrator has been installed, perform uninstallation referring to "[20.1 Manager Uninstallation](#)", and then perform the reinstallation.

Information

For Windows Server 2008 or later, select [Programs and Features] from the Windows Control Panel.

Note

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

Required Software Preparation and Checks

Before installing Resource Orchestrator, check that the required software, such as ServerView Operations Manager, given in "2.4.2.4 Required Software" in the "Design Guide CE" has been installed. If it has not been installed, install it before continuing.

- 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

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

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

The Microsoft LAN Manager module can be installed without extracting it in advance.

Deploy the obtained module to the folder that has been set for environment_variable%SystemRoot%.

- When installing a manager on Windows 64-bit (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 (*) for the folder name or the file name.

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

* Note: 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%SystemRoot%.

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

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.

- Changing Settings of ServerView Operations Manager

When installing ServerView Operations Manager 5.50 or an earlier version on the admin server, the ServerView Virtual-IO Manager service may not be able to be started. This can be handled by changing the settings of ServerView Operations Manager.

If ServerView Operations Manager 5.50 or later is used, this procedure is not necessary.

Before Installing Resource Orchestrator, please edit the following file of ServerView Operation Manager (hereinafter SVOM).

Files

SVOM installation folder\ServerView Suite\jboss\bin\run.conf.bat



Example

C:\Program Files (x86)\Fujitsu\ServerView Suite\jboss\bin\run.conf.bat

Change Location

```
rem set "JAVA_HOME=C:\opt\jdk1.6.0_13"
```

Uncomment this line, and set the proper path for the JRE 1.6.



Example

- Before changing

```
rem set "JAVA_HOME=C:\opt\jdk1.6.0_13"
```

- After changing

```
set "JAVA_HOME=C:\Program Files (x86)\Java\jre6"
```

If the editing procedure above is performed after installing the Resource Orchestrator manager, after that restart the SVOM services in the following order.

1. Stop the services:
 - a. ServerView Download Services
 - b. ServerView Services
 - c. ServerView JBoss Application Server 5.1
2. Start the services:
 - a. ServerView JBoss Application Server 5.1
 - b. ServerView Services
 - c. ServerView Download Services

- 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.

Set the service status to "Started".

- 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.

Depending on the functions used, it may necessary to configure the router settings. For details, refer to "9.2.4.2 Admin LAN Settings" in the "Design Guide CE".

When registering managed servers that belong to a different subnet from the admin server, they must be registered on the admin LAN subnet in advance.

For details, refer to "5.11 Registering Admin LAN Subnets" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

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 step 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.

- **Stopping the BMC BladeLogic Server Automation service [Solaris Zones] [OVM for SPARC]**

Stop the BladeLogic Application Server service in the **Services** window in **Administrative Tools**.

Required Patch Checks

Before installing Resource Orchestrator, check that the required patches for the manager listed in "2.4.2.2 Required Patches" in the "Design Guide CE" have been applied.

If they have not been applied, apply them before continuing.

User Account Checks

This product automatically creates the user accounts listed below - if an application is using these OS user accounts, ensure there is no impact on the application before deleting them:

- rcxdb (for connecting to the database)
- swrbadbuser (for starting up database services for process management)
- swrbajobuser (for starting up services for job execution control)

Single Sign-On Preparation and Checks

Before installing Resource Orchestrator, install ServerView Operations Manager.

Configure the directory service at that time.

It is also necessary to prepare certificates and perform registration of an administrator (privileged user) with the directory service.

For details, refer to "Chapter 12 Installing and Defining Single Sign-On" in the "Design 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

Right-click the certificate issued by Certification Authority, and install it using the Certificate Import Wizard.

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/>

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

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

2.1.1.3 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 "2.4.2.6 Static Disk Space" and "2.4.2.7 Dynamic Disk Space" in the "Design 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 "2.4.2.7 Dynamic Disk Space" in the "Design Guide CE".

For details of how to change the image file storage folder, refer to 5.9 rcxadm imagemgr in the "Reference Guide (Command/XML) CE".

- Port Number

For details on port numbers, refer to "2.1.1.5 Checking Used Port Numbers".

- 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

ServerView Operations Manager V6.1 and later include OpenDJ as a directory service.

In the following descriptions, when "OpenDS" is used, replace it with "OpenDJ".

Parameters Used for Installation

The following table contains the parameters used for installation.

No.	Window	Entry	Description
1	Installation Folder Selection	Installation Folder	<p>This is the folder where Resource Orchestrator is installed. (*)</p> <ul style="list-style-type: none"> - When using a 64-bit (x64) OS Default value: C:\Program Files (x86)\Resource Orchestrator - When using a 32-bit (x86) OS Default value: C:\Program Files\Resource Orchestrator <p>The installation folder can contain 45 characters or less including the drive letter and "\".</p> <p>A path starting with "\\" or a relative path cannot be specified.</p> <p>Alphanumeric characters and blank spaces (" ") can be used.</p> <p> Note</p> <p>.....</p> <p>When using 64 bit Windows Server OSs, the following folder names cannot be specified for the installation folders.</p> <ul style="list-style-type: none"> - "Program Files" Folder <p>.....</p>
2	Administrative User Creation	User Account	<p>This is the user account name to be used for logging into Resource Orchestrator as an administrative user.</p> <p>Specify the user registered in the directory service in "Single Sign-On Preparation and Checks" in "2.1.1.2 Software Preparation and Checks".</p> <p>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.</p> <p>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.</p>

No.	Window	Entry	Description
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 (32-bit mask). The minimum value is 255.255.0.0 (16-bit mask). However, 255.255.255.254 cannot be specified.
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	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 255 characters long and must be supported for name resolution.

* Note: Specify an NTFS disk.

2.1.1.4 Configuration Parameter Checks

Check configuration parameters following the procedure below:

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.

For ports with "is in use" displayed for the result of "Port status", confirm that those ports are used with the purpose of usage for Resource Orchestrator defined in C:\Windows\System32\drivers\etc\services.

For the port information used by Resource Orchestrator, refer to "Appendix A Port List" in the "Design Guide CE".

When ports being are used for something other than Resource Orchestrator, change the ports to use.

For details on how to change ports to use, refer to "Appendix A Port List" in the "Design Guide CE".

4. When configuration parameter checking is completed, the check results will be saved in the following location.

C:\temp\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.

The file containing the results of confirmation is not automatically deleted during installation. Please delete it when it is no longer necessary.

2.1.1.5 Checking Used Port Numbers

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 on how to change the port number of the manager, refer to the following:

- "6.2 Changing Port Numbers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE"
- "8.3 Settings for Port Number of Admin Servers" in the "Operation Guide CE"

ephemeral Port

When the range of ephemeral port numbers on Windows is changed, the ephemeral port and the port to use conflict. In that case, select a port number which is not included in the range of the ephemeral port numbers.

The range of ephemeral port numbers is as below.

- For Windows 2008 or later
49152 to 65535

Other Ports

Check that the following ports are not used, and they are not included in the range for ephemeral ports.

If the following ports are in use or are included in the range for ephemeral ports, contact Fujitsu technical staff.

- 7676
- 8686
- 12001
- 23600
- 23601
- 23602
- 23700

2.1.1.6 Installation

The procedure for manager installation is given below.

Before installation, check if "[2.1.1.1 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.
```

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" in the "Design 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" in the "Design Guide CE" with the port numbers changed to during installation.

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 using the Administrator account of the local computer.
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.



[Solaris Zones] [OVM for SPARC]

When BMC BladeLogic Server Automation is installed on the admin server and BMC BladeLogic Server Automation is installed after this product was installed, perform the following procedure:

1. Stop the Interstage data store service in the **Services** window in **Administrative Tools**.
2. Change the startup type from **Automatic** to **Disabled**.

It is necessary to set up the manager after installation. For details, refer to "[2.1.3 Setup](#)".

Note

- Advisory Notes for Changing the Installation Folder
 - Enter the location using 45 characters or less.
 - When using 64 bit Windows Server OSs, the following folder names cannot be specified for the installation folders.
 - "Program Files" Folder
 - 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. If the problem persists, please contact Fujitsu technical staff.
 - For uninstallation of managers, refer to "[20.1.3 Uninstallation \[Windows Manager\]](#)".
 - 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 "[20.1.3 Uninstallation \[Windows Manager\]](#)". If the problem persists even if reinstallation is performed, please collect troubleshooting information and contact Fujitsu technical staff.
 - If used ports exist when performing installation, the message "The specified port number *Port Number* selected for ServerView Resource Orchestrator is already used." will be displayed, and installation will fail. If this happens, please contact Fujitsu technical staff.
 - The following files are created under the system drive after installation.
 - F4ANsetup.log
 - swinst.err
 - swrba_inst.logThese files are the material for investigation of installation failure.
-

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.

When continuously setting up after installation, this step is not necessary.

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.
 - swrbajobuser
swrbajobuser is used as an OS account to start service for job execute control.
Do not delete this account when Resource Orchestrator has been installed.

2.1.2 Manager Installation [Linux Manager]

This section explains installation of Linux managers.

2.1.2.1 Preparations

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

- [Host Name Checks](#)
- [System Time Checks](#)
- [Exclusive Software Checks](#)
- [Required Software Preparation and Checks](#)
- [Required Patch Checks](#)
- [Required Package Checks](#)
- [Collecting and Checking Required Information](#)
- [Configuration Parameter Checks](#)
- [Checking Used Port Numbers](#)
- [Post-uninstallation Procedure](#)

Before installing Resource Orchestrator in an environment from which Resource Orchestrator has been deleted, perform the post-uninstallation procedure.

Refer to "[20.1.5 Post-uninstallation Procedure](#)".

2.1.2.2 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

```
/etc/hosts
```

Note

When configuring the hosts file, note the following.

- Do not set the host name (FQDN) and the computer name to "127.0.0.1".
- Confirm that "127.0.0.1" (IPv4 format) is set to "localhost".
Note that IPv6 format must not be set.

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 localhost.localdomain localhost
```

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.

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 [System Condition] tab on the ROR console.

Exclusive Software Checks

Before installing Resource Orchestrator, check that the software listed in "2.4.2.5 Exclusive Software" in the "Design 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.

1. Check that none of the software listed in "2.4.2.5 Exclusive Software" in the "Design 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 "[F.2 Manager](#)".

When reinstalling a manager on a system on which the same version of Resource Orchestrator has been installed, perform uninstallation referring to "[20.1 Manager Uninstallation](#)", and then perform the reinstallation.



- When uninstalling exclusive software, there are cases where other system operation 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, such as ServerView Operations Manager, given in "2.4.2.4 Required Software" in the "Design Guide CE" has been installed. If it has not been installed, install it before continuing.

- 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
```

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:



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 (*) for the folder name or the file name.

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

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

.....

After extracting the following modules, deploy them to /tmp on the system for installation.

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

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.

- SNMP Trap Daemon

In order for Resource Orchestrator 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
```

It is also necessary to enable the automatic startup setting for the snmptrapd daemon.

- DHCP server installation

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

Depending on the functions used, it may necessary to configure the router settings. For details, refer to "9.2.4.2 Admin LAN Settings" in the "Design Guide CE".

When registering managed servers that belong to a different subnet from the admin server, they must be registered on the admin LAN subnet in advance.

For details, refer to "5.11 Registering Admin LAN Subnets" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Install the DHCP server following the procedure below:

1. Install the dhcp package.
2. Execute the following command to modify the setting for automatic startup of the DHCP server service (dhcpd):

```
# chkconfig dhcpd off <RETURN>
```

3. Execute the following command to stop the DHCP server service (dhcpd):

```
# /etc/init.d/dhcpd stop <RETURN>
```

- ETERNUS SF Storage Cruiser

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

- Stopping the BMC BladeLogic Server Automation service [Solaris Zones] [OVM for SPARC]

Stop the BladeLogic Application Server service by executing the following command:

```
# /etc/init.d/blappserv stop <RETURN>
```

Required Patch Checks

Before installing Resource Orchestrator, check that the required patches for the manager listed in "2.4.2.2 Required Patches" in the "Design Guide CE" have been applied.

If they have not been applied, apply them before continuing.

Required Package Checks

Before installing Resource Orchestrator, check that the required packages for the manager [Linux Manager] listed in "2.4.2.3 Required Packages" in the "Design Guide CE" have been applied.

If they have not been installed, install them before continuing.

User Account Checks

This product automatically creates the user accounts listed below - if an application is using these OS user accounts, ensure there is no impact on the application before deleting them:

- rcxdb (for connecting to the database)
- swrbadbuser (for starting up database services for process management)
- swrbajobuser (for starting up services for job execution control)
- rcxctdbchg (for starting up database services for metering)

Single Sign-On Preparation and Checks

Before installing Resource Orchestrator, install ServerView Operations Manager.

Configure the directory service at that time.

It is also necessary to prepare certificates and perform registration of an administrator (privileged user) with the directory service.

For details, refer to "Chapter 12 Installing and Defining Single Sign-On" in the "Design 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

Right-click the certificate issued by Certification Authority, and install it using the Certificate Import Wizard.

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/>

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

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

Tuning System Parameters (Admin Server) [Linux Manager]

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	113	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	14862	Additional value
para3	Maximum number of operators for each semaphore call	50	Setup value
para4	Total number of semaphore operators in the system	2208	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	1578	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 (*)
```

* Note: 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.shmni = 4154
kernel.shmall = 4294967296
kernel.shmmax = 68719476736

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

2.1.2.3 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 "2.4.2.6 Static Disk Space" and "2.4.2.7 Dynamic Disk Space" in the "Design 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 "2.4.2.7 Dynamic Disk Space" in the "Design Guide CE".

For details of how to change the image file storage folder, refer to "5.9 rcxadm imagmgr" in the "Reference Guide (Command/XML) CE".

- Port Number

For details on port numbers, refer to "2.1.2.5 Checking Used Port Numbers".

- 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

ServerView Operations Manager V6.1 and later include OpenDJ as a directory service.

In the following descriptions, when "OpenDS" is used, replace it with "OpenDJ".

Parameters Used for Installation

The following table contains the parameters used for installation.

No.	Window	Entry	Description
1	Administrative User Creation	User Account	<p>This is the user account name to be used for logging into Resource Orchestrator as an administrative user.</p> <p>Specify the user registered in the directory service in "Single Sign-On Preparation and Checks" in "2.1.2.2 Software Preparation and Checks".</p> <p>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.</p> <p>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.</p>
2	Admin LAN Selection	Network to use for the admin LAN	<p>This is the network to be used as the admin LAN. Select it from the list.</p> <p>The maximum value for the subnet mask is 255.255.255.255 (32-bit mask). The minimum value is 255.255.0.0 (16-bit mask). However, 255.255.255.254 cannot be specified.</p>
3	Port Number Settings	Interstage Management Console	<p>This is the port number of the Interstage management console.</p> <p>Default value: 12000</p>
		Web Server (Interstage HTTP Server)	<p>This is the port number of the Web server.</p> <p>Default value: 80</p>
		CORBA Service	<p>The port number of the CORBA service used by Resource Orchestrator.</p> <p>Default value: 8002</p>
4	Admin Server Settings	FQDN for the Admin Server	<p>The FQDN of the authentication server used by Resource Orchestrator. The FQDN of the authentication server must be the FQDN of the admin server.</p> <p>The FQDN can be up to 106 characters long and must be supported for name resolution.</p>

Note

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

- /opt
- /etc/opt
- /var/opt
- /root/InstallShield

2.1.2.4 Configuration Parameter Checks

Check configuration parameters following the procedure below:

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 -t iso9660 -r /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.

For ports with "is in use" displayed for the result of "Port status", confirm that those ports are used with the purpose of usage for Resource Orchestrator defined in /etc/services.

For the port information used by Resource Orchestrator, refer to "Appendix A Port List" in the "Design Guide CE".

When ports being are used for something other than Resource Orchestrator, change the ports to use.

For details on how to change ports to use, refer to "Appendix A Port List" in the "Design Guide CE".

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

2.1.2.5 Checking Used Port Numbers

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 on how to change the port number of the manager, refer to the following:

- "6.2 Changing Port Numbers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE"
- "8.3 Settings for Port Number of Admin Servers" in the "Operation Guide CE"

Other Ports

Check that the following ports are not used, and they are not included in the range for ephemeral ports.

If the following ports are in use or are included in the range for ephemeral ports, contact Fujitsu technical staff.

- 7676
- 8686
- 12001
- 23600
- 23601
- 23602
- 23700
- 28080

2.1.2.6 Installation

Current Directory Setting

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

Settings 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 [Ctrl] + [Alt] + [Fn] keys)
- Making commands run in the background

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" in the "Design 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" in the "Design Guide CE" with the port numbers changed to during installation.

Installation

The procedure for manager installation is given below.

Before installation, check if "[2.1.2.1 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 -t iso9660 -r /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 "[2.1.2.3 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 -t iso9660 -r /dev/hdc DVD-ROM_mount_point <RETURN>
```

10. Press the [Enter] key to continue the installation.
11. Repeat steps 8 to 10 with the third DVD-ROM as well to continue the installation.

Point

[Solaris Zones] [OVM for SPARC]

When BMC BladeLogic Server Automation is installed on the admin server and BMC BladeLogic Server Automation is installed after this product was installed, perform the following procedure:

1. Execute the following command as the OS administrator (root) and stop the Interstage data store service:

```
# /opt/FJSVena/Enabler/server/bin/enablerstop <RETURN>
```

2. Execute the following command as the OS administrator (root) and disable the Interstage data store service:

```
# /sbin/chkconfig --del Enabler <RETURN>
```

It is necessary to set up the manager after installation. For details, refer to "[2.1.3 Setup](#)".

Note

- 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.
- If used ports exist when performing installation, the message "The specified port number *Port Number* selected for ServerView Resource Orchestrator is already used." will be displayed, and installation will fail. If this happens, please contact Fujitsu technical staff.

- If installation stopped before the process was complete, perform the following corrective actions.
 1. Forcibly stop the installation.
 2. Perform uninstallation.
 - Refer to "[20.1 Manager Uninstallation](#)".
 - Execute the post-uninstallation procedure.
 3. Perform installation again.
- 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.
 - swrbajobuser
 - swrbajobuser is used as an OS account to start service for job execute control. 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.

2.1.3 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

To use the `ldifde` command for automatic user registration in Active Directory, add "Active Directory Lightweight Directory Services" to the servers on which managers are operating.

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.

Setup

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

[Windows Manager]

1. Log on as the administrator.
 - Log on to the system on which the manager is to be set up.
 - Log on using the Administrator account of the local computer.
2. Execute the setup command.
 - When executing from the media

```
>Installation_medium\RcSetup.exe <RETURN>
```


- When executing from the extracted module

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

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

4. Check the execution results of the setup command.

- When setup is successful

The following message is displayed.

```
INFO : Resource Orchestrator Cloud Edition setup successfully.
```

- When setup fails

The following message is displayed.

```
ERROR : Resource Orchestrator Cloud Edition setup failed.
```

Refer to the Note, and perform setup again after resolving the problem.

If the problem persists, please contact Fujitsu technical staff.

5. Change the directory service connection information.

When using OpenDS provided with ServerView Operations Manager V5.3, it is necessary to change the information of the directory server administrator that has registered with the Resource Orchestrator.

Change directory service connection information in the following procedures.

a. Stop the manager.

Execute the rcxadm mgrctl stop command and stop the manager.

For details on the rcxadm mgrctl stop command, refer to "5.14 rcxadm mgrctl" of the "Reference Guide (Command/XML) CE".

b. Change the directory service connection information.

Execute the rcxadm authctl modify command and change the directory service connection information.



```
>rcxadm authctl modify -bind "cn=Directory Manager" -passwd admin
```

Specify the password for directory server administrator as a passwd option. The OpenDS Directory Manager's predefined password is "admin".

For details on the rcxadm authctl modify command, refer to "5.4 rcxadm authctl" of the "Reference Guide (Command/XML) CE".

c. Start the manager.

Execute the rcxadm mgrctl start command and start the manager.

For details on the rcxadm mgrctl start command, refer to "5.14 rcxadm mgrctl" of the "Reference Guide (Command/XML) CE".

[Linux Manager]

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

```
>/opt/FJSVrcvnr/sys/setup/RcSetup.sh <RETURN>
```

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

4. Check the execution results of the setup command.

- When setup is successful

The following message is displayed.

```
INFO : Resource Orchestrator Cloud Edition setup successfully.
```

- When setup fails

The following message is displayed.

```
ERROR : Resource Orchestrator Cloud Edition setup failed.
```

Refer to the Note, and perform setup again after resolving the problem.

If the problem cannot be resolved, collect troubleshooting information and contact Fujitsu technical staff.

5. Change the directory service connection information.

When using OpenDS provided with ServerView Operations Manager V5.3, it is necessary to change the information of the directory server administrator that has registered with the Resource Orchestrator.

Change directory service connection information in the following procedures.

a. Stop the manager.

Execute the `rcxadm mgrctl stop` command and stop the manager.

For details on the `rcxadm mgrctl stop` command, refer to "5.14 `rcxadm mgrctl`" of the "Reference Guide (Command/XML) CE".

b. Change the directory service connection information.

Execute the `rcxadm authctl modify` command and change the directory service connection information.



```
>rcxadm authctl modify -bind "cn=Directory Manager" -passwd admin
```

Specify the password for directory server administrator as a `passwd` option. The OpenDS Directory Manager's predefined password is "admin".

For details on the `rcxadm authctl modify` command, refer to "5.4 `rcxadm authctl`" of the "Reference Guide (Command/XML) CE".

c. Start the manager.

Execute the `rcxadm mgrctl start` command and start the manager.

For details on the `rcxadm mgrctl start` command, refer to "5.14 `rcxadm mgrctl`" of the "Reference Guide (Command/XML) CE".



When setup failed, check if there are no problems for the following cases:

- 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.
- LDAPS communications between managers and directory servers have not been established
When using Microsoft Active Directory as a directory service, check the following:
 - If the appropriate certificates have been issued by the Certification Authority
 - If the issued certificates have been correctly installed
 Use tools or ldp commands to check communications.

Advisory Notes for Post-setup

- The following users are added.
 - [Windows Manager]
 - 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.
 - [Linux Manager]
 - 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.

2.2 Agent Installation

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

The relationships of installation directories and the agents that must be installed are as follows.

Table 2.1 Relationships of Installation Directories and the Agents that must be Installed

Installation Directories		Agent (Cloud Edition)	Agent (Cloud Edition Dashboard Function)
VM Host	VMware	Yes (*1)	-
	Hyper-V	Yes	Yes
	RHEL5-Xen	Yes	-
	OVM for x86 2.2	-	-
	KVM	Yes	-
	Solaris Zones	Yes	Yes
	OVM for SPARC	Yes (*2)	-
	OVM for x86 3.2	-	-
	Citrix XenServer	-	-

Installation Directories		Agent (Cloud Edition)	Agent (Cloud Edition Dashboard Function)
Physical L- Server	Windows	Yes	Yes
	Linux	Yes	Yes
	Solaris	Yes	Yes

*1: When using VMware ESXi, there is no need to install Resource Orchestrator agents on managed servers because VMs and guest OSs are managed directly from the admin server.

Install ServerView ESXi CIM Provider.

Like with other OSs, agents must be registered.

*2: When a guest domain on OVM for SPARC is registered as a VM host, it is necessary to install agent in that guest domain.

For the installation method, refer to the following:

- Agent (Cloud Edition)
 - [2.2.2 Installation \[Windows\] \[Hyper-V\]](#)
 - [2.2.3 Installation \[Linux\] \[VMware\] \[Xen\] \[KVM\] \[OVM for x86 2.2\]](#)
 - [2.2.4 Installation \[Solaris\] \[Solaris Zones\] \[OVM for SPARC\]](#)
- Agent (Cloud Edition Dashboard Function)
 - [2.3.3 Installation \[Windows\] \[Hyper-V\]](#)
 - [2.3.4 Installation \[Linux\]](#)
 - [2.3.5 Installation \[Solaris\] \[Solaris Zones\]](#)

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](#)".
- Required Patch Checks
Refer to "[Required Patch Checks](#)".
- Required Package Checks
Refer to "[Required Package Checks \[Linux\]](#)".

Exclusive Software Checks

Before installing Resource Orchestrator, check that the software listed in "2.4.2.5 Exclusive Software" in the "Design 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 "2.4.2.5 Exclusive Software" in the "Design Guide CE" has been installed on the system, and there is no information which shows a Resource Orchestrator agent has 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 "F.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 "20.2.1 Uninstallation [Windows] [Hyper-V]", and then perform installation.

Information

For Windows Server 2008 or later, select [Programs and Features] from the Windows Control Panel.

[Linux]

1. Check that none of the software listed in "2.4.2.5 Exclusive Software" in the "Design Guide CE" are displayed. Execute the following command and check if Resource Orchestrator Agent has been installed.

```
# rpm -q FJSVssagt <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 "F.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 "20.2.2 Uninstallation [Linux] [VMware] [Xen] [KVM] [OVM for x86 2.2]" and then perform installation.

Note

- When uninstalling exclusive software, there are cases where other system operation 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.

[Solaris] [Solaris Zones]

1. Check that none of the software listed in "2.4.2.5 Exclusive Software" in the "Design Guide CE" are displayed. Execute the following command and check if Resource Orchestrator Agent has been installed.

```
# pkginfo 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 "F.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 "20.2.3 Uninstallation [Solaris] [Solaris Zones] [OVM for SPARC]" and then perform installation.

Note

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

Required Software Preparation and Checks

Before installing Resource Orchestrator, check that the required software given in "2.4.2.4 Required Software" in the "Design 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 OSs other than Windows Server 2008 and Windows Server 2012, 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 "2.4.2.4 Required Software" in the "Design 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.

Required Patch Checks

Before installing Resource Orchestrator, check that the required patches for the agent listed in "2.4.2.2 Required Patches" in the "Design Guide CE" have been applied.

If they have not been applied, apply them before continuing.

Required Package Checks [Linux]

Before installing Resource Orchestrator, check that the required packages [Linux] for the agent listed in "2.4.2.3 Required Packages" in the "Design Guide CE" have been applied.

If they have not been installed, install them before continuing.

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>
```



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 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`

Example

- 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.

- Disable NetworkManager service

1. Execute the following commands to disable the NetworkManager service.

```
# service NetworkManager stop <RETURN>
# chkconfig NetworkManager off <RETURN>
```

2. Edit the `/etc/sysconfig/network-scripts/ifcfg-ethX` files (ethX is the interface name of eth0, eth1, etc.) to change the value for `NM_CONTROLLED` to "no".

Example

- Before changing

```
DEVICE="eth0"
HWADDR="xx:xx:xx:xx:xx:xx"
NM_CONTROLLED="yes"
ONBOOT="yes"
TYPE=Ethernet
```

- After changing

```
DEVICE="eth0"
HWADDR="xx:xx:xx:xx:xx:xx"
NM_CONTROLLED="no"
ONBOOT="yes"
TYPE=Ethernet
```

3. Execute the following command to restart the network service.

```
# service network restart <RETURN>
```


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-ethX` file (ethX 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.

<http://www.suse.com/documentation/>

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 "2.4.2.6 Static Disk Space" and "2.4.2.7 Dynamic Disk Space" in the "Design 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 "7.1.6 Changing Port Numbers" in 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 details on admin LANs, refer to "9.1.1 Admin LAN Network Design" in the "Design Guide CE".

[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 "16.1 Overview" in the "User's Guide VE".

For details on disks for cloning, refer to "12.1 Overview" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- 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 or Later

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 2.2 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. Refer to "12.2 Collecting" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- 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 or later, 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 installation, check if "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 using the Administrator account.

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

Click [Agent(Cloud Edition) 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 [Choose Install Location] window is 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 using 64 bit Windows Server OSs, 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 or later, "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 or Later

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.

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 Orchestrator Agent] is displayed, uninstall it and then install the agent again.

For uninstallation, refer to "[20.2 Agent Uninstallation](#)".

Information

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

- If [ServerView Resource Orchestrator 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" in the "Design 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" in the "Design 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 "5.1 deployment_service_uninstall" in the "Reference Guide (Command/XML) CE".

2.2.3 Installation [Linux] [VMware] [Xen] [KVM] [OVM for x86 2.2]

This section explains the procedure for agent installation.

Before installation, check if "[2.2.1 Preparations](#)" have been performed.

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

Boot the managed server that this product 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 -t iso9660 -r /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. Select "4. Agent(Cloud Edition) installation".
6. Perform installation according to the installer's interactive instructions.
7. 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,"nfaagent" <RETURN>
```

For the port numbers used by Resource Orchestrator and required software, refer to "Appendix A Port List" in the "Design 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" in the "Design 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 "5.1 deployment_service_uninstall" in the "Reference Guide (Command/XML) CE".

2.2.4 Installation [Solaris] [Solaris Zones] [OVM for SPARC]

This section explains the procedure for agent installation.

Before installation, check if "2.2.1 Preparations" have been performed.

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

Boot the managed server that this product 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 agent install command (RcSetup.sh).

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

4. Select "2. Agent(Cloud Edition) installation".
5. Perform installation according to the installer's interactive instructions.

Information

When a guest domain on OVM for SPARC is registered as a VM host, it is necessary to install agent in that guest domain.

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/Agent/Solaris/agent <RETURN>
# ./rcxagtuninstall <RETURN>
```

- 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" in the "Design 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" in the "Design Guide CE" with the port numbers changed to during installation.

2.3 Agent (Dashboard Function) Installation

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

2.3.1 Preparations

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

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

2.3.2 Exclusive Software Checks

Before installing agent (Cloud Edition Dashboard Function), check that the software listed in "2.4.2.5 Exclusive Software" in the "Design Guide CE" and the agent (Cloud Edition Dashboard Function) 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 "2.4.2.5 Exclusive Software" in the "Design Guide CE" or the agent (Cloud Edition Dashboard Function) 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 or later, 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.

[Solaris]

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

```
# pkginfo FJSVsqcag <RETURN>
```

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

2.3.3 Installation [Windows] [Hyper-V]

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

Before installation, check if "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 Dashboard Function) is to be installed. Log on using the Administrator account.

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

Click "Agent(Cloud Edition for Dashboard) installation" 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 Dashboard Function) using the following procedure.

Before installation, check if "2.3.1 Preparations" have been performed.

If the target system is one of the following OSs, there is no need to install agent (Cloud Edition Dashboard Function):

- VMWare
- Xen/KVM
- OVM for x86
- SUSE Enterprise Linux Server

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

Boot the managed server that this product 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 -t iso9660 -r /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.

2.3.5 Installation [Solaris] [Solaris Zones]

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

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

Install the agent (Cloud Edition Dashboard Function) on a physical L-Server or the Oracle Solaris Zones (global zone).

It does not need to be installed in the Oracle Solaris Zones (non global zone).

Note that installation is not required in Oracle Solaris zones (global zones) on the Oracle VM guest.

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

Boot the managed server that agent (Cloud Edition Dashboard Function) 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.

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. Specify the IP address of a connected admin server for Admin Server IP Address.
6. Specify the admin LAN IP address of the managed server for Managed Server IP Address.
7. When installation is completed successfully, the following message will be displayed:

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

[Solaris Zones]

For Oracle Solaris zones, use the following procedure to add settings after installation:

8. Backup the following files.
 - /etc/opt/FJSVssqc/template.dat
 - /etc/opt/FJSVssqc/collectusage.template
9. Modify the template.dat file.
Open the following file:
/etc/opt/FJSVssqc/template.dat
10. Add NET2 to the corresponding sections listed below:

```
[ATTR: :OS]
GROUP="SAR,DF,NET,IOSTAT,VMSTAT,MPSTAT"
```

An example is shown below - italics indicate information added:

```
[ATTR: :OS]
GROUP="SAR,DF,NET,NET2,IOSTAT,VMSTAT,MPSTAT"
```

11. Modify the collectusage.template file.
Open the following file:
/etc/opt/FJSVssqc/collectusage.template
12. Add NET2 to the corresponding sections listed below:

```
[ATTR: :OS]
GROUP="SAR,DF,NET,IOSTAT,VMSTAT,MPSTAT"
```

An example is shown below - italics indicate information added:

```
[ATTR: :OS]
GROUP="SAR,DF,NET,NET2,IOSTAT,VMSTAT,MPSTAT"
```

13. Execute the following commands to reflect the settings:

```
# /opt/FJSVssqc/bin/sqcRPolicy.sh
# /opt/FJSVssqc/bin/sqcSetPolicy.sh
```

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 "2.6 System Configuration" in the "Design Guide CE".

2.4.1 Preparations

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

- Exclusive Software Checks

Refer to "[Exclusive Software Checks](#)".

- Required Software Checks

Refer to "[Required Software Checks](#)".

- Required Patch Checks

Refer to "[Required Patch Checks](#)".

- Required Package Checks

Refer to "[Required Package Checks \[Linux\]](#)".

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 "2.4.2.5 Exclusive Software" in the "Design 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 "2.4.2.5 Exclusive Software" in the "Design Guide CE" or the HBA address rename setup service have been installed.



For Windows Server 2008 or later, 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 FJSVrcvhh 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.

Required Software Checks

Before installing Resource Orchestrator, check that the required software given in "2.4.2.4 Required Software" in the "Design Guide CE" has been installed. If it has not been installed, install it before continuing.

Required Patch Checks

Before installing Resource Orchestrator, check that the required patches for the HBA address rename setup service listed in "2.4.2.2 Required Patches" in the "Design Guide CE" have been applied.

If they have not been applied, apply them before continuing.

Required Package Checks [Linux]

Before installing Resource Orchestrator, check that the required packages [Linux] for the HBA address rename setup service listed in "2.4.2.3 Required Packages" in the "Design Guide CE" have been applied.

If they have not been installed, install them before continuing.

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 "2.4.2.6 Static Disk Space" and "2.4.2.7 Dynamic Disk Space" in the "Design Guide CE".

2.4.2 Installation [Windows]

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

Before installation, check if "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 using the Administrator account.

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.



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

3. The Resource Orchestrator setup window will be displayed.

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

4. The [Choose Install Location] window is displayed.

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



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 using 64 bit Windows Server OSs, 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)")
-

5. 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>.

6. 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 "[Chapter 10 Settings for the HBA address rename Setup Service](#)", 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 "[20.4 HBA address rename Setup Service Uninstallation](#)".

Information

For Windows Server 2008 or later, 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 installation, check if "[2.4.1 Preparations](#)" have been performed.

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

Boot the managed server that this product 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 -t iso9660 -r /dev/hdc 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 SSL Communication Environment Settings for the ROR Console

SSL communication is used to access the ROR console from a browser.

During setup, a self-signed certificate (referred to as "test certificate") will be automatically created by default. This chapter describes the procedure to replace this test certificate with another certificate.

The procedures described in this chapter are not necessary if the test certificate is used.



[VMware] [Hyper-V]

When using Java(TM) Platform, Standard Edition Runtime Environment Version 7 (hereinafter JRE7) on a client, as JRE7 has improved security functions, the console connection function of L-Servers and the VM management console starting function cannot be used.

To use these functions in a JRE7 environment, as well as the procedures in this chapter, follow the procedure for "Adding the Admin Server's Certificate to Client Browsers" in "Appendix B HTTPS Communications" in the "Design Guide CE". Create a certificate corresponding to the host name (FQDN) of the admin server and install it in the web browser.

After that, export the certificate installed in the web browser and import it to JRE7.

3.1 Obtaining Certificates and Registering them with Certificate Authorities

The following procedures are required for getting a certificate from the Certificate Authority:

- [3.1.1 Creating the Interstage Certificate Environment and the Application to Obtain the Certificate that is used for SSL Communication](#)
- [3.1.2 Registering Certificates used in SSL Communication](#)

3.1.1 Creating the Interstage Certificate Environment and the Application to Obtain the Certificate that is used for SSL Communication

The CSR creation command (from now on, this is referred to as the "scsmakeenv command") is used to create the CSR that will create the Interstage certificate environment and apply for the certificate that is used for SSL communication.

The creation procedure and execution example are shown below:

Creation procedure

1. Set the JDK or JRE installation path in the JAVA_HOME environment variable. This procedure is only required for Linux. Setting of the environment variable JAVA_HOME is unnecessary for Windows.
2. Execute the scsmakeenv command.

[Windows Manager]

```
scsmakeenv -n <private key nickname> -f <output destination file name for the CSR>
```

[Linux Manager]

```
scsmakeenv -n <private key nickname> -f <output destination file name for the CSR> -g <Group that has permissions to access the Interstage certificate environment>
```

Change the CSR output destination file name if necessary.

Note

The private key nickname specified in the `scsmakeenv` command will be required when the site certificate obtained from the CA is registered.

Information

Refer to Chapter 14, "SSL Environment Setting Commands" in the "Interstage Application Server Reference Manual (Command Edition)" for information on the `scsmakeenv` command.

3. Enter a password to access the Interstage certificate environment.

The default password is "changeit".

4. Enter an identifier.

When the "What is your first and last name?" enquiry is made, specify the FQDN of the server used to apply for the certificate as the Web server host name.

5. As with step 4, enter the following items:

- Name of organizational unit
- Name of organization
- Name of City or Locality
- Name of State or Province
- Two-letter country code

6. Check the values that were entered.

To create the CSR using the values that were entered, enter **yes**. To change the values that were entered, enter **no**.

7. Send the CSR to the CA to request that a certificate be issued.

If the `scsmakeenv` command has terminated normally, the CSR will be output to the certificate output destination file name that was specified in the `-f` option of the `scsmakeenv` command. Send that file to the CA and request that a certificate be issued. Follow the request method used by the CA.

Execution example [Windows Manager]

The command execution examples shown below use the following values:

```
- Site certificate nickname: SERVERCERT
- Applicant output destination file name: C:\temp\ssocert.txt
- First and last name: rormanager.example.com
- Name of organizational unit: FUJITSU TOKYO
- Name of organization: FUJITSU
- Name of City or Locality: Shinjuku
- Name of State or Province: Tokyo
- Two-letter country code for this unit:jp
```

```
C:\>scsmakeenv -n SERVERCERT -f C:\temp\ssocert.txt
Password:

Input X.500 distinguished names.
What is your first and last name?
  [Unknown]: rormanager.example.com
What is the name of your organizational unit?
  [Unknown]: FUJITSU TOKYO
What is the name of your organization?
```



```

[Unknown]: FUJITSU
What is the name of your City or Locality?
[Unknown]: Shinjuku
What is the name of your State or Province?
[Unknown]: Tokyo
What is the two-letter country code for this unit?
[Un]: jp

Is <CN=rormanager.example.com, OU=FUJITSU TOKYO, O=FUJITSU, L=Shinjuku, ST=Tokyo,C=jp> correct?
[no]: yes
C:\>

```

Execution example [Linux Manager]

The command execution examples shown below use the following values:

```

- Site certificate nickname: SERVERCERT
- Applicant output destination file name: /tmp/ssocert.txt
- Group that has permissions to access the Interstage certificate environment: iscertg
- First and last name: rormanager.example.com
- Name of organizational unit: FUJITSU TOKYO
- Name of organization: FUJITSU
- Name of City or Locality: Shinjuku
- Name of State or Province: Tokyo
- Two-letter country code for this unit: jp

```

In the execution example, a new Interstage certificate environment is created for which "iscertg" access permissions are set, and the CSR is also created. Then set access permissions to it if necessary.

The Bourne shell has been used in the execution example.

```

# JAVA_HOME=/opt/FJSVawjbc/jdk5;export JAVA_HOME
# scsmakeenv -n SERVERCERT -f /tmp/ssocert.txt -g iscertg
Password:

Input X.500 distinguished names.
What is your first and last name?
[Unknown]: rormanager.example.com
What is the name of your organizational unit?
[Unknown]: FUJITSU TOKYO
What is the name of your organization?
[Unknown]: FUJITSU
What is the name of your City or Locality?
[Unknown]: Shinjuku
What is the name of your State or Province?
[Unknown]: Tokyo
What is the two-letter country code for this unit?
[Un]: jp

Is <CN=rormanager.example.com, OU=FUJITSU TOKYO, O=FUJITSU, L=Shinjuku, ST=Tokyo,C=jp> correct?
[no]: yes
UX:SCS: INFO: scs0180: The owners group of Interstage certificate environment was set.
#

```



Note

You will be asked for the password for the Interstage certificate environment. Enter the password for the Interstage certificate environment.

The default password is "changeit".

3.1.2 Registering Certificates used in SSL Communication

Obtain the site certificate that was issued by the CA, and the CA certificate of the issuer of that certificate, and register them using the certificate/CRL registration command (from now on, this is referred to as the "scsenter command").

Information

Depending on the CA, it might be necessary to register an intermediate CA certificate. Refer to "Registering Certificates and CRL" in Chapter 9, "Setting and Use of the Interstage Certificate Environment" in the "Interstage Application Server Security System Guide" for details.

This work is unnecessary if you created a test site certificate.

Creation procedure

1. Set the JDK or JRE installation path in the JAVA_HOME environment variable.
2. Register the CA certificate using the scsenter command.

```
scsenter -n <CA certificate nickname> -f <CA certificate>
```

Information

Refer to Chapter 14, "SSL Environment Setting Commands" in the "Interstage Application Server Reference Manual (Command Edition)" for information on the scsenter command.

3. Enter a password to access the Interstage certificate environment.

Enter the password that was specified in the scsmakeenv command to access the Interstage certificate environment.

4. Register the site certificate using the scsenter command.

```
scsenter -n <Site certificate nickname> -f <Site certificate> -o
```

To register the site certificate that was obtained from the CA, specify the nickname that was specified in the private key in the scsmakeenv command. Note that the -o option must be specified to register the site certificate.

5. Enter a password to access the Interstage certificate environment.

Enter the password that was specified in the scsmakeenv command to access the Interstage certificate environment.

Execution example [Windows Manager]

The command execution examples shown below use the following values:

```
- CA certificate: C:\temp\ca-cert.cer
- CA certificate nickname: CACERT
- Site certificate: C:\temp\server-cert.cer
- Site certificate nickname: SERVERCERT
```

Change the file names of the CA and site certificates that were obtained if necessary.

```
C:\>scsenter -n CACERT -f C:\temp\ca-cert.cer
Password:
SCS: INFO: scs0104: Certificate was imported.
C:\>scsenter -n SERVERCERT -f C:\temp\server-cert.cer -o
Password:
SCS: INFO: scs0104: Certificate was imported.
C:\>
```

Execution example [Linux Manager]

The command execution examples shown below use the following values:

```

- CA certificate: /tmp/ca-cert.cer
- CA certificate nickname: CACERT
- Site certificate: /tmp/server-cert.cer
- Site certificate nickname: SERVERCERT

```

Change the file names of the CA and site certificates that were obtained if necessary.
The Bourne shell has been used in the execution example.

```

# JAVA_HOME=/opt/FJSVawjkb/jdk5;export JAVA_HOME
# scsenter -n CACERT -f /tmp/ca-cert.cer
Password:
UX:SCS: INFO: scs0104: Certificate was imported.
# scsenter -n SERVERCERT -f /tmp/server-cert.cer -o
Password:
UX:SCS: INFO: scs0104: Certificate was imported.
#

```

3.2 Changing SSL Definitions

Change the SSL definition according to the registered certificate.

1. Start the Interstage Management Console.
 - a. Start the Web browser.
 - b. Specify the URL of the Interstage Management Console.

The URL format is as follows:
(If SSL encrypted communication is not used)

```
http://[<host name>]:[<port number>]/IsAdmin/
```

(If SSL encrypted communication is used)

```
https://[<host name>]:[<port number>]/IsAdmin/
```

- c. Log in to the Interstage Management Console.
2. Change the SSL definition.

Select **System >> Security >> SSL >> RCX-SSL**.

Set the following items, and then click the **Update** button:

Setting item	Setting value
Site Certificate Nickname	Select the nickname that was specified when the site certificate was registered in the Interstage certificate environment as described in "3.1 Obtaining Certificates and Registering them with Certificate Authorities". Registered site certificates can be viewed at the Interstage Management Console at System >> Security >> Certificates >> Site Certificates window.

3. Restart the Web server.
Select **Interstage Management Console >> Interstage Application Server >> System >> Services >> Web Server >> List**.
Stop the following Web server before starting it.

- RCXCT-acnt
- RCXCF-API
- RCXCT-ext
- RCXCT-ext2

3.3 Importing a Certificate to ServerView SSO Authentication Server

This section explains how to import a certificate to the ServerView SSO authentication server.

1. Export the registered certificate information.

Use the following command to export the registered certificate information:

```
scsexppfx -n <certificate nickname> -f <export file name>
```

The parameters to specify in the command are shown below.

Setting item	Setting value
Certificate nickname	Select the nickname that was specified when the site certificate was registered in the Interstage certificate environment as described in "3.1 Obtaining Certificates and Registering them with Certificate Authorities" . Registered site certificates can be viewed at the Interstage Management Console at System >> Security >> Certificates >> Site Certificates window.
Export file name	Specify the temporary file name used for import in Step 2.

2. Import the certificate information to the authentication server.

Use the commands shown below to import the certificate information to the authentication server.

[Windows Manager]

- ServerView Operations Manager V6.1 or later

```
<JDK6 Installation_folder>\bin\keytool.exe -importkeystore -srckeystore <export file name> -  
destkeystore "<ServerView Suite installation folder>\jboss\Standalone\svconf\pki\cacerts" -  
srcstoretype PKCS12
```

- Earlier than ServerView Operations Manager V6.1

```
<JDK6 Installation_folder>\bin\keytool.exe -importkeystore -srckeystore <export file name> -  
destkeystore "<ServerView Suite installation folder>\jboss\server\serverview\conf\pki  
\cacerts" -srcstoretype PKCS12
```

[Linux Manager]

- ServerView Operations Manager V6.1 or later

```
<JDK6 Installation_folder>/bin/keytool -importkeystore -srckeystore <export file name> -  
destkeystore /opt/fujitsu/ServerViewSuite/jboss/Standalone/svconf/pki/cacerts -srcstoretype  
PKCS12
```

- Earlier than ServerView Operations Manager V6.1

```
<JDK6 Installation_folder>/bin/keytool -importkeystore -srckeystore <export file name> -  
destkeystore /opt/fujitsu/ServerViewSuite/jboss/server/serverview/conf/pki/cacerts -  
srcstoretype PKCS12
```

3. Delete the export file.

Delete the export file specified in Step 2.

Example

[Windows Manager]

Use screen input for the following commands:

```
- Certificate nickname: testCert
- Export file name: c:\work\isas.p12
```

```
C:\>scsexppfx -n testCert -f c:\work\isas.p12
Password:<Interstage certificate environment password>
PKCS#12 Password:<Password of the certificate being exported> <- Used by the command parameters shown
below.
Retype:<Password of the certificate being exported>

C:\>cd C:\Program Files (x86)\Java\jre6\bin
C:\Program Files (x86)\Java\jre6\bin>keytool.exe -importkeystore -srckeystore c:\work\isas.p12 -
destkeystore "C:\Program Files (x86)\Fujitsu\ServerView Suite\jboss\server\serverview\conf\pki
\cacerts" -srcstoretype PKCS12

Enter destination keystore password:<jboss certificate creation environment password: The default is
changeit.>
Enter source keystore password:<Password at time of export> <- Specify the password that was specified
for the above command.

del c:\work\isas.p12
```

[Linux Manager]

Use screen input for the following commands:

```
- Certificate nickname:testCert
- Export file name: /tmp/isas.p12
```

```
# scsexppfx -n testCert -f /tmp/isas.p12
Password:<Interstage certificate environment password>
PKCS#12 Password:<Password of the certificate being exported><- Used by the command parameters shown
below.
Retype:<Password of the certificate being exported>
# cd /usr/java/jre1.6.0_02/bin
# ./keytool -importkeystore -srckeystore /tmp/isas.p12 -destkeystore /opt/fujitsu/ServerViewSuite/
jboss/server/serverview/conf/pki/cacerts -srcstoretype PKCS12

Enter destination keystore password:<jboss certificate creation environment password: The default is
changeit.>
Enter source keystore password:<Password at time of export> <- Specify the password that was specified
for the above command.

# rm /tmp/isas.p12
#
```

.....

Chapter 4 Login to the ROR Console

This chapter describes how to open and close the ROR console.

Preparations

Preparations are necessary for log in to the ROR console.

Refer to "Chapter 2 Login and Logout" in the "User's Guide for Infrastructure Administrators CE".

Opening the ROR Console

This section explains how to access the ROR console.

Add the URL of the ROR console to the "Trusted sites" of the browser.

Start a Web browser from an admin client and specify the URL of the ROR console for connection.

If the port number was changed, specify the new port number.

When the ROR console is connected, the login window is displayed.

When Single Sign-On authentication has already been performed, the ROR console can be started without displaying the login window.

For details on Single Sign-On, refer to "Chapter 12 Installing and Defining Single Sign-On" in the "Design Guide CE".

```
URL: https://Admin_server_FQDN:23461/
```

On a Windows admin server, the ROR console can also be opened by selecting [start]-[All Programs]-[Resource Orchestrator]-[ROR console].

Information

For details, refer to "Chapter 2 Login and Logout" in the "User's Guide for Infrastructure Administrators CE".

Login

In the login screen, enter the following items, and click <Login>.

The ROR console is displayed after a successful login.

- User ID
- Password

When login to the ROR console fails, configuration of the environment may have failed.

Stop the manager, and reconfigure Single Sign-On.

For details on how to reconfigure Single Sign-On, refer to "Chapter 12 Installing and Defining Single Sign-On" in the "Design Guide CE".

Logout

To log out, select "Logout" in the global header, and click <OK> in the confirmation dialog.

Note

- If the Web browser is closed without logging out, the user may stay logged in, making it possible to access the ROR console without authentication.
It is advised that the users log out properly after using the ROR console or BladeViewer.
- If the ROR console has been opened simultaneously in several Web browser windows, those login sessions may also be terminated.

Exit

To exit the ROR console, simply close the Web browser window.

Chapter 5 License Setup and Confirmation

License Setup

When using Resource Orchestrator, it is necessary to configure the license first.

Use the following procedure to configure the license:

1. After logging into Resource Orchestrator, select the [Resource] tab, then select [Tools]-[Licenses] from the menu, and click <Add> in the displayed dialog.

The [Register License] dialog is displayed.

2. In the [Register License] dialog, enter the license key to register.

3. Click <OK>.

The license will be registered.



Note

After applying the Cloud Edition license, restart the manager.

Confirming the License

Use the following procedure to confirm the registered license:

1. After logging into Resource Orchestrator, select the [Resource] tab, then select [Tools]-[Licenses] from the menu, and click the license name in the displayed dialog.

The [Licenses] dialog is displayed.



Note

- When "-" is displayed for "Number of Licenses", the same number of agents as the number of purchased licenses can be used.

Chapter 6 Importing a Certificate to a Browser

In order to use a test site certificate, the certificate must be installed to the Web browser.

Log in to the ROR Console, and perform the operations below while the [Account] dialog is open.

If these operations are not performed, the [Forward screen] dialog used by the ROR Console L-Platform application process cannot be displayed.

"Certificates" stated in this section refer to "server certificates".

Point

- The license settings must be completed, before starting operations in Resource Orchestrator. For details on how to configure licenses, refer to "License Setup" in "Chapter 5 License Setup and Confirmation".
- If multiple admin clients are used, perform this operation on each admin client.

1. Open the [Certificate] dialog.

Open the "Certificate is invalid dialog" by clicking the "Certificate Error" displayed in the address bar. This will open an "Untrusted Certificate" or "Certificate Expired" message.

Click the "View certificates" link displayed at the bottom of this dialog.

2. Confirm that the "Issued to" and "Issued by" displayed in the [Certificate] dialog are both set to the IP address or host name (FQDN) used to generate the certificate.

3. In the [Certificate] dialog, click <Install Certificate>.

4. The [Certificate Import Wizard] dialog is displayed.

Click <Next>.

5. Select "Place all certificates in the following store" and click <Browse>.

6. The [Select Certificate Store] dialog is displayed.

Select the "Trusted Root Certification Authorities" and click <OK>.

7. Click <Next>.

8. Check that "Trusted Root Certification Authorities" is selected and click <Finish>.

9. Restart the Web browser.

Note

- When the OS is Windows 7 or later version, there may be cases where the URL of the ROR console must be registered in the "Trusted sites", depending on the details of OS security policies.
- Enter the IP address or host name (FQDN) used to generate the certificate in the Web browser's URL bar. If the entered URL differs from that of the certificate, a certificate warning is displayed.
An example of how to display a warning is given below.
 - The entered URL uses an IP address while the certificate was created using a host name (FQDN)
 - The admin server is set with multiple IP addresses, and the entered URL uses an IP address different from that used to generate the certificate

Chapter 7 Registering Infrastructure Administrators

The administrator role, which is the role that combines infrastructure administrator and tenant administrator roles, is assigned to the user created when installing Resource Orchestrator.

Resource Orchestrator can be configured and operated by this user or another user registered with the infrastructure administrator role, in order to prevent the operation of an L-Platform from being stopped by erroneous operations.

For details on how to register network resources, refer to "3.1 Registering User Accounts" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Chapter 8 Creating Definition Files

This chapter explains how to create the definition files necessary to use Resource Orchestrator.

Configuration of Definition Files

To use the functions of Resource Orchestrator, it is necessary to create definition files in advance.



If you edit and save a UTF-8 text file using Windows Notepad, the Byte Order Mark (BOM) is stored in the first three bytes of the file, and the information specified on the first line of the file will not be analyzed correctly. When using Notepad, specify the information from the second line.

When the user group name is included in the name of the definition file, delete the definition file after deleting the tenant. If the definition file is not deleted, the remaining definition file is used, when a tenant with the same name as that of the deleted tenant is created.

Location of the Definition File

Definition files are created in the following location.

[Windows Manager]
Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]
/etc/opt/FJSVrcvmr/customize_data

Definition File Required for Creating a Physical L-Server

When creating a physical L-Server, it is necessary to create a definition file combining ports of SAN storage first.

For details, refer to "[B.1.1 Creating Definition Files Combining Ports of SAN Storage](#)".

For a list of the other definition files that are necessary when creating a physical L-Server, refer to "[Table 8.1 List of Functions Requiring a Definition File \(For Both Physical L-Servers and Virtual L-Servers\)](#)" and "[Table 8.2 List of Functions Requiring a Definition File \(For Physical L-Servers\)](#)".

Definition File Required for Creating a Virtual L-Server

For the definition files necessary when creating a virtual L-Server, refer to "[Table 8.1 List of Functions Requiring a Definition File \(For Both Physical L-Servers and Virtual L-Servers\)](#)" and "[Table 8.3 List of Functions Requiring a Definition File \(For Virtual L-Servers\)](#)".

Definition File Required for Network Auto-Configuration

For a list of the definition files necessary for network auto-configuration, refer to "[Table 8.12 List of Functions Requiring a Definition File \(Network\)](#)".

The network devices that are the target of auto-configuration are the network devices registered in Resource Orchestrator.

For details on how to register resources for network devices, refer to "5.7 Registering Network Devices" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

8.1 Definition Files (For Both Physical L-Servers and Virtual L-Servers)

The definition file for physical L-Servers and virtual L-Servers is as follows:

Table 8.1 List of Functions Requiring a Definition File (For Both Physical L-Servers and Virtual L-Servers)

Function	Definition File Name	Reference
When changing the location to back up configuration definition information	manager_backup.rcxprop	Refer to "9.2 Backup" in the "Operation Guide VE".
When configuring priority for resource selection on Thin Provisioning (*)	storage.rcxprop	Refer to "B.1 Creating Definition Files" and "C.1 Definition Files Commonly Shared when Creating Virtual L-Servers".
When changing the default values in the [General] tab and the [Server] tab during L-Server creation, and the operations related to L-Servers.	l_server.rcxprop	Refer to "17.8.1 Installation" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

* Note: When there is both a storage pool with thin provisioning attributes set and a storage pool without thin provisioning attributes set.

8.2 Definition Files (For Physical L-Servers)

The definition file for physical L-Servers is as follows:

Table 8.2 List of Functions Requiring a Definition File (For Physical L-Servers)

Function	Definition File Name	Reference	
When using SAN storage	Settings required for all storage units	storage_portset.rcxprop	Refer to "B.1.1 Creating Definition Files Combining Ports of SAN Storage".
	Settings when using ETERNUS storage	storage.rcxprop	Refer to "B.1 Creating Definition Files".
	Settings when using dynamic LUN mirroring	storage_mirroring.rcxprop	Refer to "B.1 Creating Definition Files".
	When using configuration of priority for resource selection on Automatic Storage Layering	storage.rcxprop	Refer to "B.1 Creating Definition Files".
	Settings when using EMC storage	emcpath.conf	Refer to "B.1 Creating Definition Files". Store the file in the following location: [Windows Manager] <i>Installation_folder</i> \SVROR\Manager\sys\usm\etc [Linux Manager] /opt/FJSVrcvmr/sys/usm/etc
When using SAN storage Settings when using Storage Server that operates FalconStor NSS	fspath.conf	Refer to "B.1 Creating Definition Files". Store the file in the following location: [Windows Manager] <i>Installation_folder</i> \SVROR\Manager\sys\usm\etc [Linux Manager] /opt/FJSVrcvmr/sys/usm/etc	
When changing the spare server switching policy and server model compatibility	spare_server_config.rcxprop	Refer to "17.1.1 High Availability of L-Servers" in the "Operation Guide CE".	
When using IBP mode with LAN switch blades	vnetwork_ibp.rcxprop	Refer to "D.4 Network Preparations" in the "Design Guide CE".	

Function	Definition File Name	Reference
When automatically specifying settings such as NIC redundancy and tagged VLAN while deploying OS images	net_info.conf	The file is automatically generated. For details, refer to " B.8 Network Redundancy and VLAN Settings of L-Servers ".
When creating a physical L-Server without specifying a model name in the L-Server template	server_spec.rcxprop	Refer to " B.1 Creating Definition Files ".
When the number of FCs fitted and their position differ depending on the physical server	fc_connection_pattern	Refer to " B.1 Creating Definition Files ".
When using L-Server alive monitoring	Physical.rcxprop Place the file directly under the alive_monitoring directory.	Refer to " B.1 Creating Definition Files ".
When using IBP	vnetwork_ibp.rcxprop	Refer to " B.1.9 Definition File for Admin LAN Uplink Set ".
When using iSCSI	- User Groups iscsi_user_group_name.rcxprop - Common on System iscsi.rcxprop	Refer to " B.1.10 Definition File for iSCSI Network ".

8.3 Definition Files (For Virtual L-Servers)

The definition file for virtual L-Servers is as follows:

Table 8.3 List of Functions Requiring a Definition File (For Virtual L-Servers)

Function	Definition File Name	Reference
When simplifying the parameter settings for an OS	- For User Groups os_setting_user_group_name.rcxprop - Common on System os_setting.rcxprop	[VMware] Refer to " C.2 VMware ". [Hyper-V] Refer to " C.3 Hyper-V ". [OVM for x86 2.2] Refer to " C.5 OVM for x86 2.2 ". [Solaris Zones] Refer to " C.7 Solaris Zones ".
When the VM host IP addresses in Resource Orchestrator do not match those in the VM management software	vmhost_ip_addresses.rcxprop	Refer to "5.2 Registering VM Management Software" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".
VM Specific Information Definition File	- For User Groups vm_user_group_name_VM_type.rcxprop - Common on System vm_VM_type.rcxprop	Refer to " C.1 Definition Files Commonly Shared when Creating Virtual L-Servers ".

Function	Definition File Name	Reference
	Place the file directly under the vm_prop directory.	
When creating a virtual L-Server using a server which cannot use ServerView Agents	server_spec.rcxprop	Refer to " C.1 Definition Files Commonly Shared when Creating Virtual L-Servers ".
When using L-Server alive monitoring	[Windows Manager] \alive_monitoring\vm_VM_type.rcxprop [Linux Manager] \alive_monitoring\vm_VM_type.rcxprop	Refer to " C.1 Definition Files Commonly Shared when Creating Virtual L-Servers ".

Note

When deploying a Linux operating system virtual server on an L-Platform, it is necessary to set the virtual server's DNS search path in os_setting.rcxprop beforehand.

8.3.1 Definition Files (VMware)

The definition file for VMware is as follows:

Table 8.4 List of Functions Requiring a Definition File (VMware)

Function	Definition File Name	Reference
When using a distributed virtual network (vDS) (port group and VLAN ID associations)	vnetwork_vmware.rcxprop	Refer to "E.1 VMware" in the "Design Guide CE".
	vds_dc	Refer to "E.1 VMware" in the "Design Guide CE". Store the file in the following location: [Windows Manager] <i>Installation_folder\SVROR\Manager\etc\vm</i>
When the Messages Notified by VM Management Software are Output in English	vm.rcxprop	Refer to " C.1 Definition Files Commonly Shared when Creating Virtual L-Servers ".
When configuring power control for VMware DRS and DPM	vm.rcxprop	Refer to " C.2.1 Creating Definition Files " in " C.2 VMware ".
When connecting to the virtual L-Server console from the admin client linking with the public LAN	vm_console.rcxprop	Refer to " C.2.1 Creating Definition Files " in " C.2 VMware ".

8.3.2 Definition Files (Hyper-V)

The definition file for Hyper-V is as follows:

Table 8.5 List of Functions Requiring a Definition File (Hyper-V)

Function	Definition File Name	Reference
When limiting the location to store cloning	- For User Groups library_share_user_group_name_deny.conf - Common on System	Refer to " C.3.8 Collecting and Deleting Cloning Images ".

Function	Definition File Name	Reference
images for each user group	library_share_deny.conf	
When deleting cloning images and also deleting related files that have no dependencies with other templates	delete_image_all_files_scvmm	Refer to " C.3.8 Collecting and Deleting Cloning Images ". Store the file in the following location: [Windows Manager] <i>Installation_folder\SVROR\Manager\etc\vm</i> [Linux Manager] <i>/etc/opt/FJSVrcvnr/vm</i>
When creating an L-Server specifying a cloning image collected from a client OS or localized version of Windows	<ul style="list-style-type: none"> - For User Groups image_admin_hyperv_user_group_name.rcxprop - Common on System image_admin_hyperv.rcxprop 	Refer to " C.3.9 [OS] Tab Configuration ".
Configuring Network Resources when Using a Physical Network Adapter Number that Differs from Configuration Patterns of VM Hosts which Support Automation of Network Configuration	vnetwork_hyperv.rcxprop	Refer to " C.3.5 Manual Network Configuration ".

8.3.3 Definition Files (RHEL5-Xen)

The definition file for RHEL5-Xen is as follows:

Table 8.6 List of Functions Requiring a Definition File (RHEL5-Xen)

Function	Definition File Name	Reference
When changing the shared class configuration of PRIMECLUSTER GDS	storage_vmhost.rcxprop	Refer to " C.4.1 Creating Definition Files ".
Relating the virtual bridge and VLAN ID	vnetwork_rhelxen.rcxprop	Refer to " C.4.4 Manual Network Configuration ".

8.3.4 Definition Files (OVM for x86 2.2)

The definition files for OVM for x86 2.2 are as follows:

Table 8.7 List of Functions Requiring a Definition File (For OVM for x86 2.2)

Function	Definition File Name	Reference
Relating the virtual bridge and VLAN ID	vnetwork_oraclevm.rcxprop	Refer to " C.5.4 Manual Network Configuration ".
Specifying SSL access for VM management software	ovmm.rcxprop	Refer to " C.5.9 Advisory Notes for OVM for x86 2.2 Usage ".

8.3.5 Definition Files (RHEL-KVM)

The definition file for RHEL-KVM is as follows:

Table 8.8 List of Functions Requiring a Definition File (RHEL-KVM)

Function	Definition File Name	Reference
Relating the virtual bridge and VLAN ID	vnetwork_rhelkvm.rcxprop	Refer to " C.6.4 Manual Network Configuration ".
When performing the following operations for a virtual L-Server, the data type to be deleted can be selected <ul style="list-style-type: none"> - Deleting Virtual L-Servers - Detaching Virtual L-Server Disks - Deleting Cloning Images 	storage.rcxprop	Refer to " C.6.1 Creating Definition Files ".
Setting the following resources reserved for VM hosts <ul style="list-style-type: none"> - CPU Capacity - Memory Capacity 	host_config_RHEL-KVM.rcxprop	Refer to " C.6.1 Creating Definition Files ".

8.3.6 Definition Files (Solaris Zones)

The definition file for Solaris Zones is as follows:

Table 8.9 List of Functions Requiring a Definition File (Solaris Zones)

Function	Definition File Name	Reference
When managing Solaris Zones resource pool except "pool_resource"	container_resource.rcxprop	Refer to " C.7.1 Creating Definition Files ".
When specifying memory size for vm host reserved	global_zone_reserved_memory.rcxprop	Refer to " C.7.1 Creating Definition Files ".
Association of VLAN IDs and network interfaces	vnetwork_solariscontainer.rcxprop	Refer to " C.7.4 Manual Network Configuration ".
When registering VM hosts of Solaris OS as Solaris Zones regardless of whether the OVM for SPARC is enabled	sparc_vm.rcxprop	Refer to " C.7.1 Creating Definition Files ".

8.3.7 Definition Files (OVM for SPARC)

The definition file for OVM for SPARC is as follows:

Table 8.10 List of Functions Requiring a Definition File (OVM for SPARC)

Function	Definition File Name	Reference
Definition of executing saving of vm guest(s) configuration or not	sparc_vm.rcxprop	Refer to "C.8.1 Creating Definition Files"

8.3.8 Definition Files (OVM for x86 3.2)

Table 8.11 List of Functions Requiring a Definition File (For OVM for x86 3.2)

Function	Definition File Name	Reference
SSL Port Specification for VM Management Software	ovmm.rcxprop	Refer to "C.10.1 Creating Definition Files".

8.4 Definition Files (Network)

The definition file for the network is as follows:

Table 8.12 List of Functions Requiring a Definition File (Network)

Function	Definition File Name	Reference
When using NICs with configurations other than the default configuration for network automatic settings when using blade servers	[Windows Manager] \nicdefctl\model\ <i>Chassis_model_name_product_name.xml</i> \nicdefctl\host\ <i>VM_host_name.xml</i> [Linux Manager] /nicdefctl/model/ <i>Chassis_model_name_product_name.xml</i> /nicdefctl/host/ <i>VM_host_name.xml</i>	Refer to "15.11 Server NIC Definition" in the "Reference Guide (Command/XML) CE".
When using VMware and deploying L-Servers, even if the service console and port group are the same	vnetwork_excluded_vmware.rcxprop	Refer to "15.12 VMware Exclusion Port Group Definition File" in the "Reference Guide (Command/XML) CE".
When configuring network devices automatically	unm_provisioning.rcxprop	Refer to "F.7 Network Device Automatic Configuration and Operation Definition Files" in the "Design Guide CE".
When using the network device file management function	unm_mon.rcxprop	Refer to "9.4.8.3 Network Device Management Function Definition File" in the "Design Guide CE".
When using the port profile configuration function	cfabric_portprofile_networkresource.rcxprop	Refer to "9.4.8.4 Port Profile Configuration Function Definition File" in the "Design Guide CE".

Chapter 9 Registering Resources with Resource Orchestrator

This chapter explains how to register, change, and delete resources used by Resource Orchestrator.

The Resource Orchestrator manager must be completely installed beforehand.

For details on the resources to manage with Resource Orchestrator, refer to "9.1 Necessity of Resource Registration".

The resources that must be registered differ depending on the type of L-Server and the type of servers to use.

For details on the required resources, refer to "9.1 Necessity of Resource Registration".

For details on the registration method and registration order for each type of L-Server, refer to "9.2 Registration Order and Registration Method for Resources".

Information

- User Accounts

When creating new user accounts, changing passwords, or modifying permission levels during setup, refer to "Chapter 3 Managing User Accounts" in the "Operation Guide CE".

- Backing up the Admin Server

The admin server should be backed up after the entire system has been completely set up, or after registering, changing, or deleting resources.

For details on backup, refer to "10.1.2 Offline Backup of the Admin Server" and "10.1.3 Online Backup of the Admin Server" in the "Operation Guide CE".

9.1 Necessity of Resource Registration

This section explains the necessity of resource registration.

The resources that must be registered differ depending on the type of L-Server and the type of servers to use.

Table 9.1 List of Resources that Require Registration

Resources that can be Registered	Necessity of Registration Based on Server Type	
	Physical L-Server	Virtual L-Server
VIOM	Yes (*1, *2)	No
VM management software	No	Yes (*3)
Server management software	No	Yes (*4)
Storage management software	Yes	Yes (*5, *6)
Chassis	Yes (*1)	
Managed servers	Yes	
LAN switch blades	Yes (*1)	
Virtual storage resources	Yes (*7)	Yes (*8)
Disk resources	Yes (*9)	Yes (*4, *10)
Network device resources	Yes (*11)	
Network resources	Yes	
Address set resources	Yes	Yes (*5, *6, *10)
Physical image resources	Yes (*12)	No
Virtual image resources	No	Yes (*12)

Resources that can be Registered	Necessity of Registration Based on Server Type	
	Physical L-Server	Virtual L-Server
Power monitoring devices	Yes (*13)	

Yes: Required

No: Not required

*1: Register when using blade servers.

*2: Register when using rack mount servers which are supported by VIOM.

*3: Register when using VMware, Hyper-V, OVM for x86 2.2, or OVM for x86 3.2.

*4: Necessary when using Solaris Zones or OVM for SPARC.

*5: Register when using RHEL5-Xen servers.

*6: Register when using Citrix XenServer.

*7: Register when using virtual storage resources such as RAID groups and aggregates.

*8: Register when using virtual storage resources such as datastores.

*9: Register when using disk resources created in advance such as LUNs.

*10: Register when using RHEL-KVM servers.

*11: Register when using firewalls, server load balancers, and L2 switches.

*12: Register when using images created in advance.

*13: Register when monitoring power consumption.

9.2 Registration Order and Registration Method for Resources

This section explains the registration order and registration method for resources.

The resources that must be registered differ depending on the type of L-Server and the type of servers to use.

When Installing Physical L-Servers

- When Using Blade Servers

Refer to "[B.2.1 When using Blade Servers](#)".

- When Using Something other than a Blade Server

Refer to "[B.2.2 When Registering Something other than a Blade Server](#)".

When Using Virtual L-Servers

[VMware]

Refer to "[C.2.2 Registering Resources with Resource Orchestrator](#)".

[Hyper-V]

Refer to "[C.3.2 Registering Resources with Resource Orchestrator](#)".

[Xen]

Refer to "[C.4.2 Registering Resources with Resource Orchestrator](#)".

[OVM for x86 2.2]

Refer to "[C.5.2 Registering Resources with Resource Orchestrator](#)".

[KVM]

Refer to "[C.6.2 Registering Resources with Resource Orchestrator](#)".

[Solaris Zones]

Refer to "[C.7.2 Registering Resources with Resource Orchestrator](#)".

[OVM for SPARC]

Refer to "[C.8.2 Registering Resources with Resource Orchestrator](#)".

[Citrix Xen]

Refer to "[C.9.2 Registering Resources with Resource Orchestrator](#)".

[OVM for x86 3.2]

Refer to "[C.10.2 Registering Resources with Resource Orchestrator](#)".

Chapter 10 Settings for the HBA address rename Setup Service

This chapter explains settings for the HBA address rename setup service.

Point

The following procedure is used only when creating a physical L-Server using a rack mount or tower server. When using rack mount servers that are supported by VIOM, target servers can be managed using VIOM.

In Resource Orchestrator, configure the WWN on the servers according to the server operations, and adopt I/O virtualization (HBA address rename) that enables I/O control on the server side.

HBA address rename is enabled by setting the WWN of the managed server HBA from the admin server when a managed server is powered on. This WWN is kept by managed servers until powered off.

However, a managed server will not be able to receive its assigned WWN unless it can communicate with the admin server. If communication with the admin server fails, because of problems on the admin server or a failure of the managed server's NIC, the managed server will not start up properly as its HBA will not be set up with the correct WWN.

This can be avoided by using the HBA address rename setup service, which acts as a backup service in case of communication issues between the admin server and managed servers. This service, which must run on a server other than the admin server, can set up managed servers HBAs WWNs in the same way the admin server does.

For details on HBA address rename settings, refer to "5.5.2 HBA address rename Settings" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

This service must be running in order to use HBA address rename.

Use the following procedure to configure the HBA address rename setup service.

1. Open the [HBA address rename setup service] dialog.

[Windows]

Select [start]-[All Programs]-[Resource Orchestrator]-[HBA address rename setup service].

[Linux]

Execute the following command while in a desktop environment.

```
# nohup /opt/FJSVrcvhb/bin/rcxhbactl start& <RETURN>
```

The [HBA address rename setup service] dialog is displayed.

2. Define the following settings:

Status

The status of the service is displayed. [Stopping] is displayed if the service is not running, and [Running] is displayed if the service is running.

IP address of admin server

Enter the IP address of the admin server.

Port number

Enter the port number that is used to communicate with the admin server. The port number at installation is 23461. If the "rcxweb" port number of the admin server is changed, specify the number that has been changed.

The latest synchronous time

Displays the latest synchronization time.

This is the last time this service synchronized its data (managed server settings) with that of the admin server.

3. Click one of the following buttons:

- To Start This Service:

Click <Run>.

- To Stop This Service:

Click <Stop>.

- To Cancel the Operation:

Click <Cancel>.

To verify that this service is running properly, power off the admin server and confirm that managed servers can still start up normally.



When the graphical mode cannot be used in a Linux environment, use the service rcvhb {stop | start | status} command to stop, start, or check the status of services after starting the HBA address rename setup service once.

When operating correctly, the descriptions are displayed as below.

```
# service rcvhb status
rservice is running...
pxeservice is running...
SystemcastWizard TFTP service is running...
```



The following remarks apply to this service.

- Keep it [Running] at all times.
- Start it on only one server for each admin server.
- OS administrator privileges are required to start and stop this service.
- Do not operate it on the server where the manager is installed.
- The admin server and the servers configured with the HBA address rename setup service must be placed in the same segment of an admin LAN.

Chapter 11 Installing Software and Registering Agents on VM Hosts

This chapter explains how to install software and register an agent on VM host.

Point

As OSs, required software, and agents are installed on physical L-Servers after their creation, the procedures in this chapter are not necessary for physical L-Servers. Simply skip the steps that were already performed.

Use the following procedure to install required software and register an agent on a VM host for .

After agent registration, the VM host on which the agent was installed will be displayed in the server resource tree. Usually, a server agent is automatically registered during server registration. In that case, this procedure can be skipped.

It is not necessary to re-install an already-setup operating system, required software, or agent. Simply skip the steps that were already performed.

1. Install an OS

- a. Install the operating system on the managed server.
- b. Set up the admin LAN.

Set up the admin IP address, the related network mask, and the default gateway for the managed servers defined in "9.2.5 Settings for Managed Servers" in the "Design Guide CE".

Using storage devices in multi-path configurations

- Install a multi-path driver on a and VM hosts. For VM hosts, use the one provided by default by either the operating system or virtualization software, when one is available.
- When using SAN boot and HBA address rename, refer to "2. Settings for the HBA address rename Function" in "5.5.2 HBA address rename Settings" in the "User's Guide for Infrastructure Administrators (Resource Management) CE" to set the number of HBA paths used with HBA address rename for the number of HBA ports.
The server is automatically restarted using a multi-path configuration.
- When using SAN boot together with VIOM, follow the procedure described in "5.1.1 Registering VIOM Server Profiles" in the "User's Guide for Infrastructure Administrators (Resource Management) CE" to configure server profiles on the Web interface of ServerView Virtual-IO Manager.
After configuration, the server will be started using a multi-path configuration.
- When using SAN boot together with ESC, follow the procedure described in "8.1 Configuring WWN Settings for ETERNUS SF Storage Cruiser Integration" in the "User's Guide for Infrastructure Administrators (Resource Management) CE", and set the path name for HBA, WWNs of each HBA and the target CA, and Affinity Group. Also, correct the settings of the OS and OBP for multi-path use.
After configuration, the server will be started using a multi-path configuration.

Note

After configuration of agents, the server name (computer name for [Hyper-V] or a system node name for [Solaris] [Solaris Zones] [VMware] [Xen] [KVM] [Citrix Xen] [OVM for x86 2.2] [OVM for x86 3.2] [OVM for SPARC]) defined during OS installation should be set according to the following guidelines.

[Hyper-V]

Specify up to 63 characters, including alphanumeric characters, underscores ("_"), and hyphens ("-").

The string cannot be composed solely of numbers.

[VMware] [Xen] [KVM] [Citrix Xen]

Specify up to 64 characters, including alphanumeric characters as well as the following symbols.

"%", "+", ":", "-", ".", "/", ":", "=", "@", "_", "~"

[Solaris] [Solaris Zones] [OVM for SPARC]

Specify up to 24 characters, including alphanumeric characters, underscores ("_"), and hyphens ("-"). This name should start with an alphabetical character.

However, it is recommended that the name is comprised of the following characters defined in RFC (Request For Comment) 952, to take into consideration communication with other servers.

- Alphanumeric Characters
- Hyphens, ("-")

It is recommended not to use duplicate names for , VM hosts, and VM guests. If duplicated names are used, those resources cannot be managed from the command-line.

[Solaris] [Solaris Zones] [OVM for SPARC]

When using Solaris 11, if creating user accounts during installation, roots are registered as roles. Therefore, the root account cannot be used for login. Log in using the user account, and use the su command to become a root user.

When using Solaris 10 or earlier versions, execute the following as root in order to change to enable direct login using the root account. In this case, the root role is recognized as a root user.

```
rolemod -K type=normal root <RETURN>
```

Use SSH connection with the root account, and check if communication with the VM host is possible. If communication fails, modify the configuration. For details, refer to the manual of the basic software.

2. Install Required Software

Install the software packages that are required for a managed server.

For details of the required software, refer to "2.4.2.4 Required Software" in the "Design Guide CE".



Note

When installing BMC BladeLogic RSCD Agent, add managed servers to BladeLogic. Specify the admin IP addresses of managed servers to add.

3. Install the Agent

Refer to "[2.2 Agent Installation](#)".

4. Register the Agent

Register the agent from the ROR console while the target server is running.

[Solaris Zones] [OVM for SPARC]

When the Logical Domains Manager daemon is enabled, VM hosts can be registered as Solaris Zones by configuring the definition files.

For details, refer to "[Chapter 8 Creating Definition Files](#)".

- In the ROR console server resource tree, right-click the target server, and select [Register]-[Agent] from the popup menu.

The [Register Agent] dialog is displayed.

b. Select the Server OS category (physical OS or VM host).

- For Servers Other than Fujitsu M10/SPARC Enterprise

For a Physical OS

Select [Windows/Linux].

For a VM Host

Select [VM Host], and enter the VM host login account information.

This login account information will be used by Resource Orchestrator to control and communicate with the registered VM host.

- For Fujitsu M10/SPARC Enterprise

For a Physical OS

Select "Solaris".

For a VM Host

Select "VM Host", and enter the VM host login account information.

This login account information will be used by Resource Orchestrator to control and communicate with the registered VM host.

User ID

Enter the user ID to log in to the VM host.

Specify the user name "root" which has VM host administrator authority.



[Solaris] [Solaris Zones] [OVM for SPARC]

When using Solaris 11, if creating user accounts during installation, roots are registered as roles. Therefore, the root account cannot be used for login. Log in using the user account, and use the su command to become a root user.

When using Solaris 10 or earlier versions, execute the following as root in order to change to enable direct login using the root account. In this case, the root role is recognized as a root user.

```
rolemod -K type=normal root <RETURN>
```

Use SSH connection with the root account, and check if communication with the VM host is possible.

If communication fails, modify the configuration. For details, refer to the manual of the basic software.

Password

Enter the password of the user to log in to the VM host.

c. Click <OK>.

The admin server starts to monitor and display server information obtained from the agent.



- If "unknown" is displayed in the server resource tree for the status of a server in which the agent is installed, refer to "2.2 "unknown" Server Status" in "Troubleshooting" to solve the problem.

- When an agent is registered on a VM host, all VM guests running on that VM host are also registered automatically. Whenever a VM guest is created, modified, deleted, or moved on a registered VM host, the changes are automatically updated in the server resource tree.

The VM guest name displayed in the ROR console is either the VM name defined in its server virtualization software or the hostname defined in the guest OS.

The timing at which the hostname of a guest OS is detected and displayed varies according its server virtualization software. For details, refer to "D.3 Functional Differences between Products" in the "Design Guide VE".

- When performing system image backup or cloning image collection, it is necessary to either reboot the managed server or restart its "Related services" (explained in the "2.2 Starting and Stopping Agents" section in the "Operation Guide CE") after server registration. For details on how to restart the agent, refer to "2.2 Starting and Stopping Agents" in the "Operation Guide CE".
 - A server running a VM host can still be registered as a physical OS if "Windows/Linux" is selected in the [Server OS category] selection list. (Windows Server 2008 etc.)
A VM host server that was mistakenly registered as a physical OS should be deleted and re-registered as a VM host.
-

Chapter 12 Registering Resources to the Global Pool

This chapter explains the registration of resources to resource pools.

When creating a cloning image common to tenants, an L-Server for the infrastructure administrator must be created.

To create an L-Server for the infrastructure administrator, resources must be registered to the global pool.

The resources that are required to be registered to the resource pool differ depending on the type of L-Server.

Table 12.1 Registering Resources to Resource Pools Based on Resource Type

Resource Pool Types	Type of Resources Stored in the Resource Pool	Method of Registration to the Resource Pool	Necessity of Registration Based on Server Type	
			Physical L-Server	Virtual L-Server
VM pool	VM host resources	Refer to "14.1 VM Host Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".	No	Yes
Server pool	Physical server resources	Refer to "14.2 Physical Server Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".	Yes	No
Storage pool	Virtual storage resources or disk resources	Refer to "14.5 Storage Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".	Yes	Yes
Network pool	Network resources or network devices (firewalls or server load balancers)	For details on how to register network device resources, refer to "14.3 Network Resources" or "14.4 Network Devices" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".	Yes	Yes
Address pool	Address set resources	Refer to "14.6 Address Set Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".	Yes	Yes (*1)

Yes: Required

No: Not required

*1: When using RHEL5-Xen, RHEL-KVM or Citrix XenServer, it is necessary to register MAC addresses. It is necessary to manage MAC addresses in Resource Orchestrator, since the MAC addresses used for VM guests are not managed by the server virtualization software.

Information

For details on changing the settings for, canceling registration, and deleting resources registered in a resource pool, refer to "Chapter 19 Resource Operations" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

12.1 Physical L-Servers

Refer to "B.3 Registering Resources in Resource Pools".

12.2 Virtual L-Servers

[VMware]

Refer to "[C.2.3 Registering Resources in Resource Pools](#)".

[Hyper-V]

Refer to "[C.3.3 Registering Resources in Resource Pools](#)".

[Xen]

Refer to "[C.4.3 Registering Resources in Resource Pools](#)".

[OVM for x86 2.2]

Refer to "[C.5.3 Registering Resources in Resource Pools](#)".

[KVM]

Refer to "[C.6.3 Registering Resources in Resource Pools](#)".

[Solaris Zones]

Refer to "[C.7.3 Registering Resources in Resource Pools](#)".

[OVM for SPARC]

Refer to "[C.5.3 Registering Resources in Resource Pools](#)".

[Citrix Xen]

Refer to "[C.9.3 Registering Resources in Resource Pools](#)".

[OVM for x86 3.2]

Refer to "[C.10.3 Registering Resources in Resource Pools](#)".

Chapter 13 Creating L-Server Templates

This chapter explains how to create an L-Server template.

An L-Server template comprises pre-defined specifications (number of CPUs, memory capacity, disk capacity, number of NICs, etc.) for an L-Server.

L-Server templates can be created using the following methods.

Using the Wizard GUI

L-Server templates can be created using a GUI in the wizard format.

For details on the GUI in the wizard format, refer to "15.1 Operations Using the Wizard GUI" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Manually

L-Server templates can be created using an editor.

For details on how to export L-Server templates, refer to "15.2 Editing a Template Using an Editor" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Chapter 14 Creating an L-Server for an Infrastructure Administrator

This chapter explains how to create L-Servers for Infrastructure Administrators.

L-Servers for Infrastructure Administrators can only be used only infrastructure administrators. Tenant administrators and tenant users are not able to use those L-Servers. Normally, L-Servers can only be used by tenant administrators and tenant users.

The purposes of creation are as follow:

- To collect cloning images (collection is performed by infrastructure administrators)
Refer to "[Chapter 15 Collecting and Registering Cloning Images](#)".
- To install VM hosts on physical L-Servers
Refer to "[Appendix D Installing VM Hosts on Physical L-Servers](#)".
- To install software used for infrastructure (such as VM management software and the like) administration on L-Servers

When Creating a Physical L-Server

Refer to "[B.5 Creating an L-Server](#)".

When Creating a Virtual L-Server

[VMware]

Refer to "[C.2.7 Creating an L-Server](#)".

[Hyper-V]

Refer to "[C.3.7 Creating an L-Server](#)".

[Xen]

Refer to "[C.4.6 Creating an L-Server](#)".

[OVM for x86 2.2]

Refer to "[C.5.6 Creating an L-Server](#)".

[KVM]

Refer to "[C.6.6 Creating an L-Server](#)".

[Solaris Zones]

Refer to "[C.7.6 Creating an L-Server](#)".

[Citrix Xen]

Refer to "[C.9.6 Creating an L-Server](#)".

[OVM for x86 3.2]

Refer to "[C.10.6 Creating an L-Server](#)".

Chapter 15 Collecting and Registering Cloning Images

This chapter explains how to collect and register L-Server cloning images.

When the OS is Linux

On Redhat Enterprise Linux 6, the information for MAC address is also registered in `/etc/udev/rules.d/70persistent-net.rules`. Delete the virtual network interface definition information for `/etc/udev/rules.d/70persistent-net.rules`, before collecting images.

When the OS is Windows

Resource Orchestrator collects cloning images using Sysprep.

When using MAK license authentication for activation for the following OSs, Sysprep can be executed a maximum of three times.

- Windows Server 2008
- Windows Server 2008 R2
- Windows Vista
- Windows 7

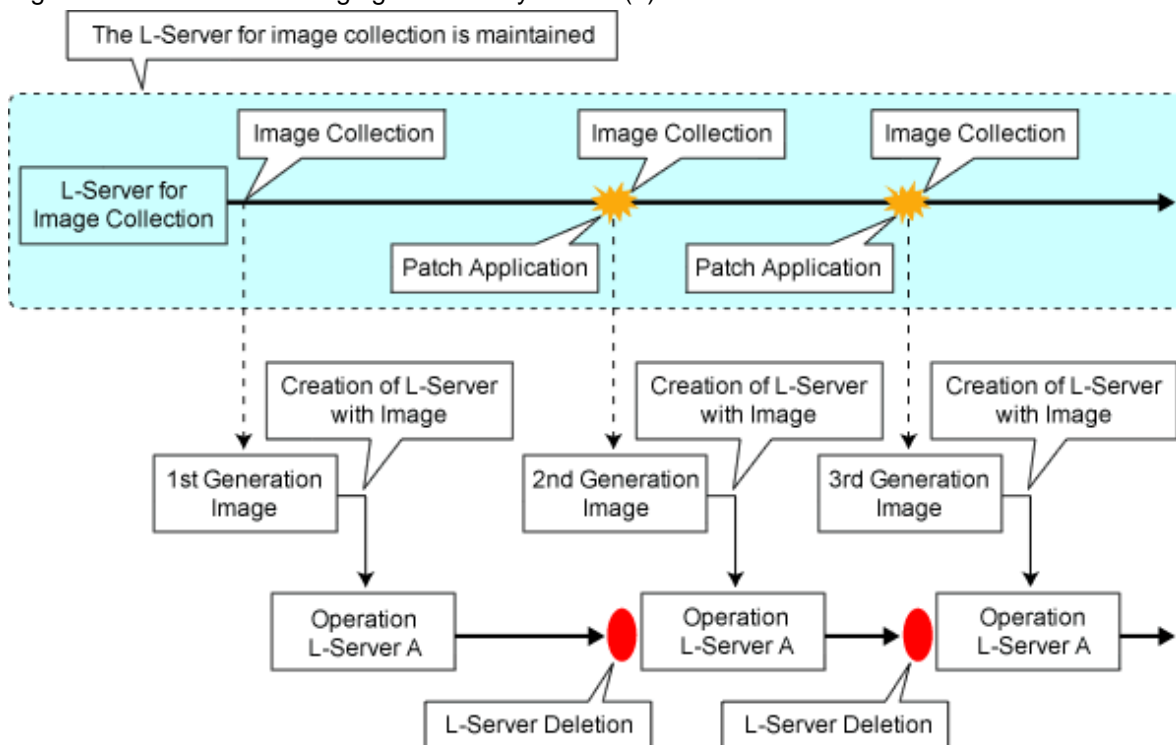
Cloning images cannot be collected four times or more from L-Servers to which cloning images have been deployed.

Collect cloning images by creating a dedicated L-Server for cloning image collection.

Operation Methods for Cloning Image Collection

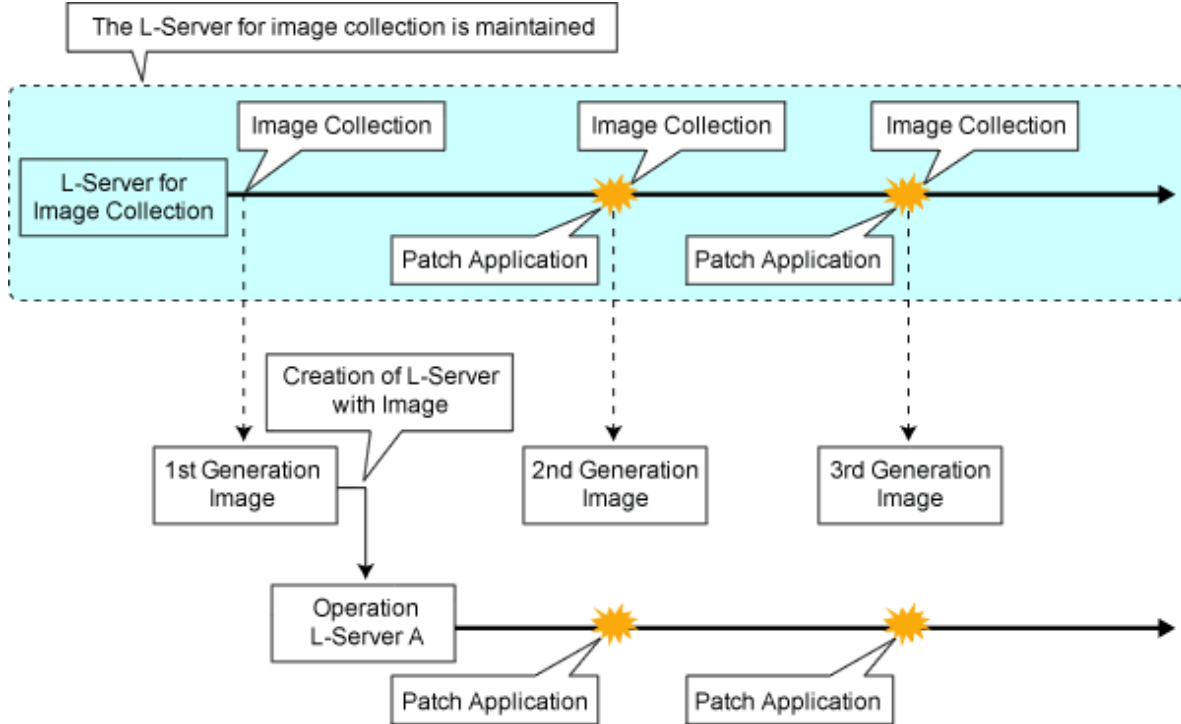
Use the following methods to collect cloning images.

Figure 15.1 When not Changing the Primary Server (1)



*As there cannot be multiple L-Servers with the same name, the old L-Server must be deleted.

Figure 15.2 When not Changing the Primary Server (2)



15.1 Physical L-Servers

When Collecting from a Physical L-Server

Refer to "B.6 Collecting and Registering Cloning Images".

When Registering a Cloning Image Created from a Physical Server in Advance to the Image Pool

Refer to "14.7.2 Physical Image Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

15.2 Virtual L-Servers

When Collecting from a Virtual L-Server

[VMware]

Refer to "C.2.8 Collecting a Cloning Image".

[Hyper-V]

Refer to "C.3.8 Collecting and Deleting Cloning Images".

[OVM for x86 2.2]

Refer to "C.5.7 Collecting Cloning Images".

[KVM]

Refer to "C.6.7 Collecting Cloning Images".

[Citrix Xen]

Refer to "C.9.7 Collecting and Registering Cloning Images".

[OVM for x86 3.2]

Refer to "C.10.7 Collecting and Registering Cloning Images".

When Registering an Image (Template) Created with VM Management Software in Advance to the Image Pool

Refer to "14.7.1 Virtual Image Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Point

In the following cases, Sysprep is executed and included in the count:

- Customizing a guest OS using a template in VMware
- Template creation in SCVMM

Refer to "Note Operation Methods for Cloning Image Collection" for the operation.

Chapter 16 Creating L-Platform Templates

This chapter explains how to create an L-Platform template.

An L-Platform template defines systems of various levels and the logical OS structure in advance.

An L-Platform template can be specified to easily create L-Platforms.

Create L-Platform templates in the [Template] tab of the ROR console.

For details on the [Template] tab, refer to "Chapter 8 Template" in the "User's Guide for Infrastructure Administrators CE".

Chapter 17 Creating Tenants, Tenant Administrators, or Tenant Users

Create tenants, tenant administrators, and tenant users.

For details, refer to "[1.2.5 Configuring Tenants](#)". Also refer to "Chapter 11 Tenant" in the "User's Guide for Infrastructure Administrators CE".

Chapter 18 Post-Installation Procedures

This section explains how to Post-Installation procedures.

18.1 Settings for Sending Email

This section explains how to change settings for sending email.

This product sends the following five types of email:



The setting of five kinds of mails can be set by "Setup wizard" on the ROR Console about a host name of the SMTP server, a port number, and a sender's email address. The Mail Sending function enables, and moreover, SMTP server authentication is none if defining it from "Setup wizard".

For details of "Setup Wizard", refer to "3.1 Setup Wizard" in the "User's Guide for Infrastructure Administrators CE".

- Email sent from the tenant management

Email sent from the tenant management will be enabled only if the tenant has set the performing tenant management setting.

When an operation such as registering a tenant or adding or changing a user has been performed, notification to that effect is sent to the tenant administrators, tenant users, and tenant email addresses within that same tenant.

- Email sent from the L-Platform Management window

Email sent from the L-Platform management window notifies the end or failure of processing to the tenant administrators and the tenant users when the tenant users have used the ROR Console to perform an application to use L-Platform, an L-Platform modification, or an application to cancel L-Platform.

- Email sent from the usage charge calculator

Email will be enabled if the calculator for charges is used.

A usage charge file is sent to the set email address with the monthly usage charges for each tenant.

- Email sent via the application process

An email will be sent via the application process when changes or requests have been made.

The following notification will be sent for an application to use L-Platform, an L-Platform modification, or an application to cancel L-Platform from the L-Platform management window:

- Notification of acceptance of application, rejection of application, and dismissal of application to the tenant users
- Notification of request for approval and dismissal of application to the tenant administrators
- Notification of request for assessment to the infrastructure administrators

- Email sent from the dashboard

Email can be sent from the dashboard if the dashboard alert function is being used.

A notification is sent to the email address specified in the dashboard email send settings when the resource pool use rate threshold value is exceeded.

18.1.1 Stopping the Manager

Stop the manager before making settings for sending email.

Refer to "2.1 Starting and Stopping Managers" in the "Operation Guide CE" for information on how to stop the manager.

18.1.2 Settings for Email Sent from Tenant Management

Modify the operating environment file so that the tenant administrator (within the same tenant), the tenant users, and the tenant email addresses are notified when operations such as adding or modifying users are performed.

portal.properties settings

Follow the steps below to modify the email settings:

1. Open the following file.

[Windows Manager]

```
<installation_folder>\RCXCTMG\SecurityManagement\conf\portal.properties
```

[Linux Manager]

```
/etc/opt/FJSVctsec/conf/portal.properties
```

2. The following information must be modified:

Setting item	Description
sendmail.smtp	Host name or IP address of the SMTP server
sendmail.smtp.port	Port number of the SMTP server "25" is set during installation.
sendmail.fromAddress	Sender's email address

An example is shown below.

```
...
# sendmail
sendmail.smtp = smtp.example.com
sendmail.smtp.port = 25
sendmail.fromAddress = cloud-master@example.com
...
```



Note

- When editing the portal.properties file, do not change any settings items other than sendmail.smtp, sendmail.smtp.port, and sendmail.fromAddress.
- Save the portal.properties file before editing it. If any settings items other than sendmail.smtp, sendmail.smtp.port, and sendmail.fromAddress have been changed, restore the saved file.

18.1.3 Settings for Email Sent from the L-Platform Management Window

Modify the operating environment file so that users are notified of processes completion or failure by email when tenant administrators and tenant users have used the L-Platform Management window for L-Platform subscription, L-Platform modification, or L-Platform cancellation operations.

mail_config.xml settings

Follow the steps below to modify the email settings:

1. Open the following file.

[Windows Manager]

```
<installation_folder>\RCXCFMG\config\mail_config.xml
```

[Linux Manager]

```
/etc/opt/FJSVcfmg/config/mail_config.xml
```

2. The following information must be modified:

Setting item	Description
enable-email	Set true. Set true in order to enable the email sending function.
smtp-host	Host name or IP address of the SMTP server
smtp-port	Port number of the SMTP server "25" is set during installation.
from-email	Sender's email address
from-name	Set the sending source name. Set "System Administrator" to match the name of email sent from the tenant administrator.
show-password	Configure the settings according to whether the default password for the deployed server will be displayed in the email. Set to "true" if the password will be displayed, or "false" if not. At the time of installation, this is set to "true". Add the item if it has not been.

An example is shown below.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE properties SYSTEM "http://java.sun.com/dtd/properties.dtd">
<properties>
  <entry key="enable-email">true</entry>
  ...
  <entry key="smtp-host">smtp.example.com</entry>
  <entry key="smtp-port">25</entry>
  ...
  <entry key="from-email">cloud-master@example.com</entry>
  <entry key="from-name">system administrator</entry>
  ...
  <entry key="show-password">true</entry>
</properties>
```

Note

- When editing the mail_config.xml file, do not change any settings items other than enable-email, smtp-host, smtp-port, from-email, from-name, and show-password.
- Save the mail_config.xml file before editing it. If any settings items other than enable-email, smtp-host, smtp-port, from-email, from-name, and show-password have been changed, restore the saved file.

18.1.4 Email Sent from the Usage Charge Calculator

Modify the operating environment file so that a usage charge file is sent to the set email address with the monthly usage charges for each tenant.

accounting.properties settings

Follow the steps below to modify the email settings:

1. Open the following operating environment file:

[Windows Manager]

```
<installation_folder>\RCXCTMG\Charging\conf\accounting.properties
```

[Linux Manager]

```
/etc/opt/FJSVetchg/conf/accounting.properties
```

2. Set the following items in the operating environment file:

Setting item	Description
sendmail.smtp	Host name or IP address of the SMTP server
sendmail.smtp.port	Port number of the SMTP server "25" is set during installation.
sendmail.fromAddress	Sender's email address.

An example is shown below.

```
...
# Mail Information
sendmail.smtp = smtp.example.com
sendmail.smtp.port = 25
sendmail.fromAddress = cloud-master@example.com
...
```

Note

- When editing the accounting.properties file, do not change any settings other than sendmail.smtp, sendmail.smtp.port, and sendmail.fromAddress.
- Save a backup of the accounting.properties file before editing it. If any settings items other than sendmail.smtp, sendmail.smtp.port, and sendmail.fromAddress have been changed, restore the saved file.

18.1.5 Starting the Manager

Start the manager in order to enable the email settings set in "[18.1.2 Settings for Email Sent from Tenant Management](#)" and "[18.1.3 Settings for Email Sent from the L-Platform Management Window](#)".

Refer to "2.1 Starting and Stopping Managers" in the "Operation Guide CE" for information on how to stop the manager.

18.1.6 Settings for Email Sent via the Application Process

In order to send email via the application process, the information about the mail server and the mail sender information must be registered in admin Server.

Note

The manager must be running if performing mail settings during the application process. Start the manager if it is not running already. Refer to "2.1 Starting and Stopping Managers" in the "Operation Guide CE" for information on how to start this product.

Registering the mail server and sender

Login as the system administrator, and register the mail server and the mail sender information to admin server using the procedure shown below.

1. If SMTP server authentication will be used when the mail is sent, then encrypt the password. This procedure is not necessary if SMTP server authentication will not be used when the mail is sent.

[Windows Manager]

```
> <installation_folder>\IBPM\client\samples\configuration\EncryptPassword.bat -e "password"
-----ENCRYPTED PASSWORD-----
encrypted password
```

[Linux Manager]

```
# /opt/FJVSvibpm/client/samples/configuration/EncryptPassword.sh -e "password"
-----ENCRYPTED PASSWORD-----
encrypted password
```

2. Prepare the mail server and mail sender definition files (they can be created in any location).

1. SMTP server settings file (smtpserver.conf)

Set the following items:

Setting item	Description	Default value
SMTPServerHost	Host name or IP address of the SMTP server that will be used to send mail.	localhost
SMTPServerPort	Port number of the SMTP server that will be used to send mail.	25
SMTPUserName	User name that will be used in SMTP server authentication when the mail is sent. Specify a backslash followed by a space (" \ ") if SMTP server authentication will not be used when the mail is sent.	None
SMTPPassword	Password that will be used in SMTP server authentication when the mail is sent. Specify a backslash followed by a space (" \ ") if SMTP server authentication will not be used when the mail is sent.	None

Example: showing how to define the settings file so that SMTP server authentication is used when the mail is sent.

```
SMTPServerHost=swrba.mail.server
SMTPServerPort=25
SMTPUserName=swrbamailuser
SMTPPassword=encrypted password
```

Example: SMTP server authentication will not be used when the mail is sent.

```
SMTPServerHost=swrba.mail.server
SMTPServerPort=25
SMTPUserName=\ (* )
SMTPPassword=\ (* )
```

* Note: A space must be specified after the backslash.

2. Mail sender settings file (emailaddress.conf)

Set the following items:

Setting item	Description	Default value
ServerEmailAddress	Mail sender ('from' address) that will be assigned to the mail in mail address format.	postmaster@example.com

An example is shown below.

```
ServerEmailAddress=swrbamailuser@swrba.mail.server
```

3. Register the mail server information.

[Windows Manager]

```
<installation_folder>\IBPM\server\deployment\bin\importProperties.bat smtpserver.conf [Process Management Database user] [Process Management Database password]
```

[Linux Manager]


```
/opt/FJSVibpm/server/deployment/bin/importProperties.sh mtpserver.conf [Process Management Database user] [Process Management Database password]
```

Note

"swrbadb" as Process Management Database user and Process Management Database password is set during installation.

4. Register the mail sender information.

[Windows Manager]

```
<installation_folder>\IBPM\server\deployment\bin\importProperties.bat emailaddress.conf  
[Process Management Database user] [Process Management Database password] Default
```

[Linux Manager]

```
/opt/FJSVibpm/server/deployment/bin/importProperties.sh emailaddress.conf [Process Management Database user] [Process Management Database password] Default
```

The "Default" option must be specified at the end.

Note

"swrbadb" as Process Management Database user and Process Management Database password is set during installation.

5. Restart the manager

Restart the manager in order to apply the new settings.

Refer to "2.1 Starting and Stopping Managers" in the "Operation Guide CE" for information on how to restart the manager.

18.1.7 Settings for Email Sent from the Dashboard

If the dashboard alert function is to be used, use the operation management console of Interstage Business Process Manager Analytics to set the mail settings to be used by the dashboard alert function.

Note that the dashboard email send settings must be set if the dashboard alert function is used. Refer to "[E.2.1 Customizing Email Send Settings](#)" for information on setting dashboard email send settings.

SMTP server information settings

Follow the steps below to modify the email settings:

1. Connect to the operation management console and log in. Refer to "[E.6.1 Access](#)" for details.
2. In the left pane, click **IBPM Analytics >> System >> Mail**.
3. Change the displayed SMTP Server settings to suit the environment. After setting the following items click **Modify**:

Setting item	Description
SMTP Server Address	Host name or IP address of the SMTP server
SMTP Port Number	Port number of the SMTP server "25" is set during installation.
Sender Address	Sender's email address

4. Restart the Analytics server. Refer to "[E.6.4 Restarting the Analytics Server](#)" for details.

Note

- The initial password must be changed. Use the operation management console of Interstage Business Process Manager Analytics to change the password. Refer to "[E.6.2 Changing the Password of the Administrator](#)" for details.
- Do not perform any operations from the operation management console other than changing password settings, changing SMTP server information, and restarting the Interstage Business Process Manager Analytics server.

18.2 Application Process Settings

This section explains how to set application process setting.
To use application process, perform the following procedure.

- [Registering an Application Process Assessor](#)
- [Setting Application process settings](#)
- [Setting Application process to be used](#)

18.2.1 Registering an Application Process Assessor

This section explains how to register an infrastructure administrator or dual-role administrator as an application process assessor.

Add all infrastructure administrators and dual-role administrators to the directory service IflowUsers group in order to use application processes. Use the LDIF file to register an application process assessor at the directory server. Follow the procedure below to register as application process assessor.

1. Create an infrastructure administrator or dual-role administrator.
2. Add the infrastructure administrator or dual-role administrator as a member of the IflowUsers group.

Note

- Infrastructure administrators and dual-role administrators who have not been registered in the "IflowUsers" group cannot conduct assessment in application processes. Also, if infrastructure administrators and dual-role administrators not registered in the "IflowUsers" group select the **Request** tab in the ROR Console, the following error message appears:

```
Error message : Failed to authenticate the user.
```

- Administrators (dual-role administrators) created during installation are not registered in the "IflowUsers" group. Add them to the "IflowUsers" group.
- If an email address is not set, assessment request emails are not sent, and reservation notification emails are not sent when an error occurs.
- If no infrastructure administrators or dual-role administrators are registered in the IflowUsers group, the following message is displayed after the application is forwarded from the **Forward screen** window when the user subscribes to the service:

```
PCS1002  
An error occurred while processing application.  
Please contact the infrastructure administrator.
```

18.2.1.1 Creating an Infrastructure Administrator/Dual-role Administrator

Use the following procedure to register infrastructure administrators and dual-role administrators.

1. Check if user information is registered in the directory service. If no user information is registered, register it.

This operation is not necessary when using internal authentication in Basic mode.

2. In the ROR console, select [Settings]-[User Accounts].

The [User Accounts] dialog is displayed.

3. Click <Add>.

The [Add User Account] dialog is displayed.

4. Set the following:

User ID

Specify a user ID registered in the directory service.

E-mail address

Specify the email address of the user.

Specify a string using up to 64 alphanumeric characters or symbols.

User Groups

Select the user group to configure for the user account from the already created user group.

Select the "supervisor" user group to register as an application process assessor.

Scopes/Roles (Optional)

Access Scope

Select the scope of access to set for the user account.

Role

Select the role to set for the user account.

Label (Optional)

Enter a label for the user account.

Enter a maximum of 32 characters.

Comment (Optional)

Enter any comments for the user group.

Enter a maximum of 256 characters.

5. Click <OK>.

The user account is created.

When using user operations to register users also in the directory service in Resource Orchestrator, use the `rcxadm user create` command after checking the settings of the definition file for directory service operations (`ldap_attr.rcxprop`). For details on the definition file for directory service operations, refer to "8.6.1 Settings for Tenant Management and Account Management" in the "Operation Guide CE". For details on the `rcxadm user create` command, refer to "7.1 `rcxadm user`" in the "Reference Guide (Command/XML) CE".

18.2.1.2 Adding an infrastructure administrator/dual-role administrator to IflowUsers Group

Follow the procedure below to add an infrastructure administrator or dual-role administrator as a member of the IflowUsers group.

For OpenDS

1. Create an LDIF file.

Edit a sample LDIF file to create the file. An example of an LDIF file is shown below.

```
# Add manager to IflowUsers
dn: cn=IflowUsers,ou=group,dc=fujitsu,dc=com
changetype: modify
add: member
member: cn=manager,ou=users,dc=fujitsu,dc=com
```

2. Execute the ldapmodify command.

Before executing the ldapmodify command of OpenDS, set JAVA_HOME as the path of Java SE 6.

[Windows Manager]

Specify the created LDIF file, and then execute the ldapmodify command.

```
<OpenDS installation directory>\bat\ldapmodify.bat" -p <port number> -f <ldif file> -D <administrator user DN> -w <password>
```

An execution example is shown below.

```
c:\> c:\Program Files (x86)\Fujitsu\ServerView Suite\opends\bat\ldapmodify -p 1473 -f c:\ldif
\adduser2group.ldif -D "cn=Directory Manager" -w admin
Processing MODIFY request for cn=IflowUsers,ou=group,dc=fujitsu,dc=com
MODIFY operation successful for DN cn=IflowUsers,ou=group,dc=fujitsu,dc=com
```

[Linux Manager]

Specify the created LDIF file, and then execute the ldapmodify command.

```
# <OpenDS installation directory>/bin/ldapmodify" -p <port number> -f <ldif file> -D
<administrator user DN> -w <password>
```

An execution example is shown below.

```
# /opt/fujitsu/ServerViewSuite/opends/bin/ldapmodify -p 1473 -D "cn=Directory Manager" -f /tmp/
ldif/adduser2group.ldif -w admin
Processing MODIFY request for cn=IflowUsers,ou=group,dc=fujitsu,dc=com
MODIFY operation successful for DN cn=IflowUsers,ou=group,dc=fujitsu,dc=com
```

Note

- In the command input line, enter the command as one line without entering any line feeds.
- For the directory service port number, administrator DN, and administrator DN password, enter the values that were set during installation.

For Active Directory

1. From the Start menu, open [Control Panel]-[Administrative Tools]-[Active Directory Users and Computers].
2. Select the name of a domain that is managed by Active Directory.
3. Right-click "IflowUsers" of the organizational unit "Group", and select [Property].
4. Select the [Members] tab, and click the [Add] button.
5. The [Select Users, Contacts, Computers, Or Groups] window will be displayed. Input the member list of the above table in the [Enter the object names to select] field, and click the [OK] button. If there is more than one member, separate them with semicolons.
6. After returning to the property window of the group, confirm that the members have been added correctly, and click the [OK] button.

18.2.2 Stopping the Manager

Stop the manager before making settings for sending email.

Refer to "2.1 Starting and Stopping Managers" in the "Operation Guide CE" for information on how to stop the manager.

18.2.3 Setting Application process settings

This section explains how to modify the application process settings.

To change Application process settings

The procedure for changing the setting whether to use the application process is as follows.

Point

Setting Application process setting can be set by "Setup Wizard" on the ROR Console.

The "Setup Wizard" displays as three items the six items that are explained in this section and in "18.2.4 Setting Application process to be used". When items are not selected in the Setup Wizard, the corresponding items in this section are set to "false". When items are selected in the Setup Wizard, then the corresponding items in this section are set to "true".

For details of "Setup Wizard", refer to "3.1 Setup Wizard" in the "User's Guide for Infrastructure Administrators CE".

1. Open the following file.

[Windows Manager]

```
<installation_folder>\RCXCTMG\MyPortal\config\custom_config.xml
```

[Linux Manager]

```
/etc/opt/FJSVctmvp/config/custom_config.xml
```

2. Set the following items:

Setting item	Description
enable-create-workflow	Specify "true" if you want to use the application process for L-Platform subscriptions. Specify "false" to not use it. "false" is set during installation.
enable-reconfigure-workflow	Specify "true" if you want to use the application process for L-Platform modifications. Specify "false" to not use it. "false" is set during installation.
enable-return-workflow	Specify "true" if you want to use the application process for L-Platform cancellations. Specify "false" to not use it. "false" is set during installation.
workflow-mode	Specify "1" if you want to use the application process feature. Specify "0" to not use it. "0" is set during installation.

Note

If the value set for workflow-mode is "0", the **Request** tab is not displayed in the ROR Console.

An example is shown below.

```
<?xml version="1.0" encoding="UTF-8"?>
<properties>
  ...
  <entry key="workflow-mode">1</entry>
  <entry key="enable-create-workflow">true</entry>
  <entry key="enable-reconfigure-workflow">true</entry>
  <entry key="enable-return-workflow">true</entry>
  ...
</properties>
```

18.2.4 Setting Application process to be used

This section explains how to modify the application process to be used.

To change the application process to be used

The modification procedure of the application process to be used is as follows.

Point

Setting Application process to be used can be set by "Setup Wizard" on the ROR Console.

The "Setup Wizard" displays as three items the six items that are explained in this section and in "[18.2.3 Setting Application process settings](#)". In this section, settings can be made for the items corresponding to those that were selected in the Setup Wizard. When items are not selected in the Setup Wizard, then the corresponding items in "[18.2.3 Setting Application process settings](#)" are set to false, so the corresponding settings in this section will be disabled.

For details of "Setup Wizard", refer to "3.1 Setup Wizard" in the "User's Guide for Infrastructure Administrators CE".

1. Open the following file.

[Windows Manager]

```
<installation_folder>\RCXCTMG\MyPortal\config\application_process.properties
```

[Linux Manager]

```
/etc/opt/FJSVctmyp/config/application_process.properties
```

2. Set the following items:

Setting item	Setting value
ServiceCreate_processName	When applying to use L-Platform, enter "Default" if approval and assessment are to be performed, enter "ApproverOnly" if approval only is to be performed, and enter "JudgeOnly" if assessment only is to be performed. "Default" is set during installation.
ServiceChange_processName	When modifying L-Platform, enter "Default" if approval and assessment are to be performed, enter "ApproverOnly" if approval only is to be performed, and enter "JudgeOnly" if assessment only is to be performed. "Default" is set during installation.
ServiceReturn_processName	When canceling L-Platform, enter "Default" if approval and assessment are to be performed, enter "ApproverOnly" if approval only is to be performed, and enter "JudgeOnly" if assessment only is to be performed. "Default" is set during installation.

An example is shown below:

```
...
ServiceCreate_applicationId=ctmgApplication
ServiceCreate_processName=Default
ServiceChange_applicationId=ctmgApplication
ServiceChange_processName=Default
ServiceReturn_applicationId=ctmgApplication
ServiceReturn_processName=Default
...
```

18.2.5 Starting the Manager

Start the manager in order to enable the email settings set in "[18.2.3 Setting Application process settings](#)" and "[18.2.4 Setting Application process to be used](#)".

Refer to "2.1 Starting and Stopping Managers" in the "Operation Guide CE" for information on how to stop the manager.

18.3 Customizing the Dashboard

Refer to "[Appendix E To Customize Dashboard](#)", for information on customizing the dashboard.

18.4 Setting the Host Names for Virtual Servers



Note

Set the method for setting the virtual server host name before commencing operations. This attribute cannot be switched once operations have commenced.

This product sets the host names (computer names) for the virtual servers that are deployed. These names are automatically generated as below:

```
VXXXXXXXXXNNNN
XXXXXXXXXX: Nine arbitrary alphanumeric characters (part of the L-Platform ID)
NNNN: A four-digit serial number starting from 0001
```

The setting method can be changed to make the correspondence between these host names and actual servers more obvious.

The following setting methods can be selected:

Setting method number	Setting method	Description
1	Automatic generation	This is the original function.
2	Server name	The host name is set to the string that the user specifies as the "server name" in the ROR console.
3	Prefix + serial number	The Template Manager specifies a prefix, and the host name is set to a string consisting of this prefix followed by a serial number.
4	Tenant name + serial number	The host name is set to a string consisting of the tenant name for the user followed by a serial number.

18.4.1 Setting Method



Point

Setting the Host Names for Virtual Servers can be set by "Setup Wizard" on the ROR Console.

For details of "Setup Wizard", refer to "3.1 Setup Wizard" in the "User's Guide for Infrastructure Administrators CE".

Use the following procedure to specify the setting method:

1. Open the definition file in a text editor.

The definition file is stored in the following location:

[Windows Manager]

```
<installation_folder>\RCXCFMG\config\vsys_config.xml
```

[Linux Manager]

```
/etc/opt/FJSVcfmg/config/vsys_config.xml
```

2. Set the following items in the settings file:

Key name	Setting range	Content
hostname-method	1 to 4	Specify the method for setting host names. If this key is omitted, "1" will be used as the default value. The number specified for this key corresponds to the setting method number in the table.
hostname-header	An arbitrary string with one to eight characters (*)	Specify the prefix to be set as the host name. This key is only valid if "3" is specified for the "hostname-method" key. If this key is omitted, "VM-" will be used as the default value.
hostname-digits	1 to 7	Specify the number of digits for the serial number to be set for the host name. This key is only valid if "3" or "4" is specified for the "hostname-method" key. If this key is omitted, "7" will be used as the default value.
hostname-check	yes/no	This key specifies whether to check for duplicate host names. This key is only valid if "2" is specified for the "hostname-method" key. yes: Returns a deployment error if the same host name exists on the server where the system has been deployed. no: Does not return an error even if the same host name exists. If this key is omitted, "yes" will be used as the default value.

* Note: The characters that can be specified are alphanumeric characters and hyphens ("-"). However, the string cannot consist of only numbers.

A specification example is shown below:

Note

```
<properties version="1.0">
  :
  <entry key="hostname-method">3</entry>
  <entry key="hostname-header">HOST-</entry>
  <entry key="hostname-digits">4</entry>
```

3. Save the file.
4. Restart the manager.
Refer to "2.1 Starting and Stopping Managers" in the "Operation Guide CE" for information on how to Restart the manager.

18.4.2 Setting Form

Automatic generation

The following host name will be automatically generated:

```
VXXXXXXXXXNNNN
XXXXXXXXXX: Nine arbitrary alphanumeric characters (part of the system ID)
NNNN: A four-digit serial number starting from 0001
```

This behavior is the original (default) behavior.

Server name

This method directly sets the host name to the string that the user has set as the "server name" in the Manager View.

The characters that can be specified for the server name are subject to the following restrictions:

Maximum string length	15 characters
Characters that can be specified	Alphanumeric characters or hyphens ("-"). However, the string cannot consist of only numbers.

A deployment error will occur if a string that does not match these restrictions is specified.

If "yes" has been specified for the "hostname-check" key, a deployment error will occur if you specify a server name that duplicates the name of a server that has already been deployed. (An error will also occur even if the server name duplicates the name of a server belonging to another organization.)

Note

- Host names can be set up only when new systems are created.
The host name will not be changed even if the server name is changed by changing the configuration after deployment.
- When the host name is to be used in the L-Server name as the method for setting resource name, do not specify names starting with "SUNW" for the names of Solaris Zones servers.

Prefix + serial number

This method sets the host name to a string consisting of the string that the Template Manager has specified for the "hostname-header" key in the definition file, followed by a serial number with the number of digits specified by "hostname-digits".

The serial number starts from 1 and is left padded with zeros.

The serial number that will be set for the next server to be deployed can be checked using the command for displaying a list of serial numbers for host name settings (cfmg_listhostnamecounter).

Refer to "10.5 cfmg_listhostnamecounter (Display List of Serial Numbers for Host Name Settings)" in the "Reference Guide (Command/XML) CE" for details on this command.

Example

When "VM-" is specified for "hostname-header" and "7" is specified for "hostname-digits"

```
VM-0000001
```

A deployment error will occur if the serial number overflows.

Serial numbers are unique within the entire Admin Server, but are managed separately for each of the strings specified for "hostname-header".

If the serial number has overflowed, either reset the serial number using the command for resetting the serial number for host name settings (cfmg_resethostnamecounter) or change the value for "hostname-header" to enable systems to be deployed again.

Refer to "10.6 cfmg_resethostnamecounter (Reset Serial Numbers for Host Name Settings)" in the "Reference Guide (Command/XML) CE" for details

Note

- When Solaris Zones are being used and when the host name is to be used in the L-Server name as the method for setting resource name, do not prefix starting with "SUNW" for the special string.
- Specify the prefix using eight or fewer alphanumeric characters and hyphens. Prefixes consisting solely of numbers are not allowed.

Tenant name + serial number

This method sets the host name to a string consisting of the tenant name for the user that made the deployment request, followed by a serial number with the number of digits specified for "hostname-digits".

The serial number starts from 1 and is left padded with zeros.

The serial number that will be set for the next server to be deployed can be checked using the command for displaying a list of serial numbers for host name settings (cfmg_listhostnamecounter).

Refer to "10.5 cfmg_listhostnamecounter (Display List of Serial Numbers for Host Name Settings)" in the "Reference Guide (Command/XML) CE" for details on this command.

Note

When "DIV" is specified for the tenant name and "7" is specified for "hostname-digits"

```
DIV0000001
```

A deployment error will occur if the serial number overflows.

Serial numbers are managed separately for each organization ID.

If the serial number has overflowed, reset the serial number using the command for resetting the serial number for host name settings (cfmg_resethostnamecounter) to enable systems to be deployed again.

Refer to "10.6 cfmg_resethostnamecounter (Reset Serial Numbers for Host Name Settings)" in the "Reference Guide (Command/XML) CE" for details on this command.

Note

- Specify the prefix using eight or fewer alphanumeric characters and hyphens. Prefixes consisting solely of numbers are not allowed.
- The "tenant name + serial number" item is displayed in the "Setting method for host name" in the "Setup Wizard" only when "tenant name + serial number" is set here. "tenant name + serial number" is not displayed if another setting is set. Use this setting to change from another setting to "tenant name + serial number".

18.5 Setting the Method for Setting Resource Names

Point

Setting the method for setting resource names allows the names of virtual servers created using L-PlatformSubscription (L-Server names) to be made to match any of the following. Performing this setting allows servers to be identified easily:

Server ID

Host name

Server name

Note

Set the method for setting the resource names before commencing operations. This method cannot be switched once operations have commenced.

In this product, the method for setting resource names for the L-Platform to be deployed can be selected from a number of methods.

The target resources are as follows:

Folder

L-Server

The following methods for setting resource names can be selected for these resources:

Folder name

Setting method number	String set as the folder name
1	L-Platform ID (the default method)
2	Tenant name + serial number
3	Tenant name + L-Platform name
4	L-Platform name

L-Server name

Setting method number	String set as the L-Server name
1	Server ID (the default method)
2	Host name
3	Server name

18.5.1 Setting Method

Point

Setting the Method for Setting Resource Names can be set by "Setup Wizard" on the ROR Console.

For details of "Setup Wizard", refer to "3.1 Setup Wizard" in the "User's Guide for Infrastructure Administrators CE".

Use the following procedure to specify the setting method:

1. Open the definition file in a text editor.

The definition file is stored in the following location:

[Windows Manager]

```
<installation_folder>\RCXCFMG\config\vsys_config.xml
```

[Linux Manager]

```
/etc/opt/FJSVcfmg/config/vsys_config.xml
```

2. Set the following items in the settings file:

Key name	Setting range	Content
folder-name-method	1 to 4	Specify the method for setting folder names.

Key name	Setting range	Content
		If this key is omitted, "1" will be used as the default value. The numbers correspond to the setting method numbers in the table in " Folder name ".
lserver-name-method	1 to 3	Specify the method for setting L-Server names. If this key is omitted, "1" will be used as the default value. The numbers correspond to the setting method numbers in the table in " L-Server name ".

A specification example is shown below:

Example

```
<properties version="1.0">
  :
  <entry key="folder-name-method">2</entry>
  <entry key="lserver-name-method">2</entry>
```

3. Save the file.
4. Restart the manager.
Refer to "2.1 Starting and Stopping Managers" in the "Operation Guide CE" for information on how to Restart the manager.

18.5.2 Setting Form

Folder name

The L-Platform deployed by ROR Console are in a 1:1 correspondence with folders.

By changing the method for setting folder names, the L-Platform or tenant deployed by ROR Console can be made to correspond to folders more easily.

L-Platform ID

This method sets the L-Platform ID as the name of the folder corresponding to the L-Platform to be deployed.

The L-Platform ID will be a string with 9 digits of random alphanumeric characters added to the first 8 characters of the tenant name.

Example

The result will be the following kind of string:

```
sosiki1-WCJFRUH6L
```

This setting is the default setting for ROR Console It is recommended that this setting method be used in operational situations where there is no need to have the L-Platform deployed by this product correspond to r folders.

Tenant name + serial number

The folder name corresponding to the L-Platform deployed will be the first eight letters of the tenant name and a four-digit serial number.

Example

The result will be the following kind of string:

```
sosiki1-0001
```

This string is not displayed in the L-Platform management window for ROR Console, and so in order to maintain correspondence between the L-Platform deployed by this product and folders it is necessary to look up the system name and other information that have been set in the comment field for the folder.

It is recommended that this setting method be used when the correspondence between folders and each organization needs only to be maintained for operational purposes.

Note

- Do not use this setting method in environments where a cumulative total of 10,000 or more systems are expected to be deployed within a single tenant.

If a cumulative total of 10,000 or more systems are deployed, the deployment will be executed normally, but a serial number with five or more digits will be added to the folder name.

Tenant name + L-Platform name

This method sets the tenant name followed by the L-Platform name specified with the L-Platform management window as the name of the folder corresponding to the L-Platform to be deployed.

Example

The result will be the following kind of string:

```
sosiki1-system1
```

Because the L-Platform name specified by the user is included within the folder name as shown above, it is easier to find the system within the ROR Console than the "L-Platform ID".

However, with this setting method, the string specified for the L-Platform name must consist of no more than 23 characters (alphanumeric characters, underscores and hyphens).

L-Platform name

The L-Platform name specified in the L-Platform applications window will be the name of the folder of the deployed L-Platform. As the folder name will use the L-Platform name specified by the user, it will be easier to find the L-Platform in the resource window of the ROR console than the "L-Platform ID".

To use this setting, however, ensure that the L-Platform name starts with an alphanumeric, and uses up to 32 characters consisting of alphanumerics, underscores, and hyphens.

It is recommended that this setting method be used if there is no operational requirement to specify Japanese text for system names.

L-Server name

The servers deployed by this product correspond to the L-Servers.

By changing the method for setting L-Server names, the servers deployed by ROR Console can be made to correspond to L-Servers more easily.

Server ID

This method sets the server ID as the name of the L-Server that corresponds to the server to be deployed.

The server ID is a string where a four-digit serial number has been added to the L-Platform ID.



Example

The result will be the following kind of string:

```
sosiki1-WCJFRUH6L-S-0001
```

The server ID is not displayed in the L-Platform management window, and so in order to maintain correspondence between L-Servers and the servers deployed by ROR Console it is necessary to check the IP address and so on.

This setting method is the default setting for this product. It is recommended that this setting method be used in operational situations such as when there is no need to have the servers deployed by ROR Console correspond to L-Servers.

Host name

This method sets the host name (computer name) as the name of the L-Server that corresponds to the server to be deployed.

The host name can be looked up in the operation window for the server virtualization software (such as VMware) and in guest operating systems. For this reason, it is recommended that this setting method be used when it is necessary to maintain server correspondence between this product and the server virtualization software.

Server name

This method sets the server name specified with the L-Platform management window as the name of the L-Server that corresponds to the server to be deployed.

It is recommended that this setting method be used in situations such as when there is a need to have the servers deployed by this product correspond to L-Servers.

However, with this setting method, the string specified for the server name must consist of no more than 64 characters (alphanumeric characters, underscores and hyphens) that start with an alphanumeric character.



Note

Do not specify names starting with "SUNW" for Solaris Zones server names.

18.6 Settings for the Overcommit Function

The overcommit function can virtually allocate more resources to guest operating systems than the total resources (such as CPU or memory resources) installed on the server.

The overcommit function involves specifying the following kind of settings for CPU and memory:

Item name	Content	server virtualization software			
		VMware	Hyper-V	RHEL-KVM	Solaris Zones
CPU Performance	Specify CPU performance of the virtual server.	Y	Y	Y	Y
CPU Reserved	Specify the reserved CPU performance for the virtual server.	Y	Y	N	N
[VMware] CPU Shares [Hyper-V] CPU Weight	Specify the relative allotment ratio for determining the allotment of memory size when multiple virtual machines are competing for memory resources.	Y	Y	N	N
Memory size	Specify the memory size of the virtual server.	Y	Y	Y	Y

Item name	Content	server virtualization software			
		VMware	Hyper-V	RHEL-KVM	Solaris Zones
[VMware] Memory Reserved [Hyper-V] Memory RAM	Specify the reserved memory size for the virtual server.	N	N	N	N
[VMware] Memory Shares [Hyper-V] Memory Weight	Specify the relative allotment ratio for determining the allotment of memory size when multiple virtual machines are competing for memory resources.	N	N	N	N

Y: Can specify.

N: Cannot specify.

Note

- Settings for the overcommit function are required for all L-Server templates except the physical server used by this product. However, if the overcommit function is enabled, even a deployment (by selecting an L-Server template that has not been set up for the overcommit function) will be executed as if it had been set up for the function.
- For virtual servers where the overcommit function has been enabled, resources will be consumed when the virtual server starts. For this reason, if the settings for reserved CPU performance and reserved memory capacity are less than minimum requirements for the operating system to start, the virtual server may fail to start due to insufficient resources.
- Be sure to specify whether to enable or disable the overcommit function before operations commence. This attribute cannot be switched once operations have commenced.

Point

Refer to the following for more information about the overcommit function:

- Refer to "Chapter 15 L-Server Template Operations" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".
- Refer to "20.2 Creating" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".
- Refer to "8.7.1 Display Function Settings for Estimated Price" in the "Operation Guide CE".
- Refer to "8.7.4 Usage Charge Calculator Settings" in the "Operation Guide CE".
- Refer to "8.8 System Condition Server List Settings" in the "Operation Guide CE".

How to Use the Overcommit Function

To use the overcommit function, perform the following procedure:

1. Register an L-Server Template.

Refer to "Chapter 15 L-Server Template Operations" in the "User's Guide for Infrastructure Administrators (Resource Management) CE" for information on how to create and register L-Server Templates.

2. Set a definition file.

Settings for the Overcommit Function can be set by "Setup Wizard" on the ROR Console.

For details of "Setup Wizard", refer to "3.1 Setup Wizard" in the "User's Guide for Infrastructure Administrators CE".

- a. Open the definition file for this product in a text editor.

Set the following items in the settings file:

[Windows Manager]

[vsys_config.xml]

```
<installation_folder>\RCXCFMG\config\vsys_config.xml
```

[managerview_config.xml]

```
<installation_folder>\RCXCTMG\MyPortal\config\managerview_config.xml
```

[Linux Manager]

[vsys_config.xml]

```
/etc/opt/FJSVcfmg/config/vsys_config.xml
```

[managerview_config.xml]

```
/etc/opt/FJSVctmyp/config/managerview_config.xml
```

- b. Add the following key and value:

[vsys_config.xml]

Key name	Content
over-commit	no : Disables the overcommit function (the default value). yes : Enables the overcommit function.

A specification example is shown below:

 Example

```
<properties version="1.0">
  :
  <entry key="over-commit">yes</entry>
```

[managerview_config.xml]

Key name	Content
enable-overcommit	false: Disables the overcommit function (the default value). true: Enables the overcommit function.

- c. Save the file.

- d. Restart the manager.

Refer to "2.1 Starting and Stopping Managers" in the "Operation Guide CE" for information on how to Restart the manager.

- 3. Set up VM pools.

If the overcommit function is enabled, set up all the VM pools that will be used to deploy L-Platforms to use the overcommit function.

Refer to "Chapter 20 Resource Pool Operations" in the "User's Guide for Infrastructure Administrators (Resource Management CE)" for information on setting up VM pools

18.7 Editing the Environment Setup File for the L-Platform API

Use the following procedure to edit the environment setup file:

1. Edit the environment setup file for the L-Platform APIs:

[command_config.xml]

[Windows Manager]

```
<installation_folder>\RCXCFMG\config\command_config.xml
```

[Linux Manager]

```
/etc/opt/FJSVcfmg/config/command_config.xml
```

2. Specify the following values:

```
l_platform-api-protocol:<Protocol for communicating with L-Platform API> (*)
l_platform-api-host:<Host name or IP address of server on which L-Platform API operates>
l_platform-api-port:<Port number on which L-Platform API operates>
l_platform-api-uri :<Path on which L-Platform API operates>
```

* Note: https is set by default. Set a new value if the default value needs to be changed.

A specification example is shown below:

Example

```
<entry key="l_platform-api-protocol">https</entry>
<entry key="l_platform-api-host">localhost</entry>
<entry key="l_platform-api-port">8014</entry>
<entry key="l_platform-api-uri">/cfmgapi/endpoint</entry>
```

18.8 Settings when RHEL5-Xen is used

When RHEL5-Xen is used as server virtualization software, it is necessary to set the default value of MAC address to allocate to virtual servers.

Follow the procedure below to use RHEL5-Xen.

1. Use the editor to open the settings file.

The settings file is stored in the following location:

[Windows Manager]

```
<installation_folder>\RCXCFMG\config\vsys_config.xml
```

[Linux Manager]

```
/etc/opt/FJSVcfmg/config/vsys_config.xml
```

2. Set the following items in the settings file:

Key name	Content
default-macaddress	One of the names of the MAC address set resources that have been registered with the resource management

3. Save the file.

- Restart the manager.

Refer to "2.1 Starting and Stopping Managers" in the "Operation Guide CE" for information on how to Restart the manager.

Note

When RHEL5-Xen is used as server virtualization software, this setting is necessary.

If it is omitted, L-Platform subscription applications will result in an error and L-Platforms cannot be created.

18.9 System Disk Settings for Physical L-Servers

The following explanation describes how to modify settings when using an existing disk as the system disk for the physical L-Server deployed from the L-Platform window.

Point

System Disk Settings for Physical L-Servers can be set by "Setup Wizard" on the ROR Console.

For details of "Setup Wizard", refer to "3.1 Setup Wizard" in the "User's Guide for Infrastructure Administrators CE".

Note

Set whether to use an existing disk before commencing operations. This cannot be changed once operations have commenced.

Usage Method

Implement the following procedures when using an existing disk as the physical L-Server system disk:

- Use the editor to open the settings file.

The settings file is stored in the following location:

[Windows Manager]

```
<installation_folder>\RCXCFMG\config\vsys_config.xml
```

[Linux Manager]

```
/etc/opt/FJSVcfmg/config/vsys_config.xml
```

- Set the following items in the settings file:

Key name	Content
existing-disk-mode	no: Does not use existing disk (This is the default value) yes: Uses existing disk

A specification example is shown below:

Example

```
<properties version="1.0">
  :
  <entry key="existing-disk-mode">yes</entry>
```

- Save the file.

4. Restart the manager.

Refer to "2.1 Starting and Stopping Managers" in the "Operation Guide CE" for information on how to Restart the manager.

18.10 Setting for the Restarting Managers

By default, the manager services restart at 3:45 am everyday for stable system operation.

The settings for restarting can be changed depending on the authority level.

For details on how to restart the manager, refer to "Restarting Managers" of the "Appendix A Notes on Operating ServerView Resource Orchestrator" in the "Operation Guide CE".

18.11 Changing Multiple Operations of Managers

When executing multiple operations simultaneously, the upper limit is set for the number of simultaneous operations.

The upper limit of the number of simultaneous operations can be changed depending on the usage environment.

For details on how to change multiple operations of managers, refer to "Changing Multiple Operations of Managers" of the "Appendix A Notes on Operating ServerView Resource Orchestrator" in the "Operation Guide CE".

18.12 Edit the License Agreement

This section explains how to edit the license agreement that is displayed in the L-Platform management window.

18.12.1 Edit the License Agreement when Subscribing to the L-Platform

This section explains how to edit the license agreement that is displayed when applying to use L-Platform.

To edit the license agreement, edit the following file:

[Windows Manager]

```
<installation_folder>\RCXCTMG\MyPortal\config\license\create\default
```

[Linux Manager]

```
/etc/opt/FJSVctmyp/config/license/create/default
```



If the file does not exist, the Terms of use window will not be displayed when the service is being subscribed to. The file must not be deleted.

If the license agreement has been edited, collect a backup of the file after the edit.

Settings

The license agreement must be written in the file.

The character-code of the file is UTF-8.

When the number of characters exceeds 10000 characters, it might take time to display the Terms of use window.

The following description is written in the file as the initial value. Edit the file as required to suit your usage.

```
To install and operate, edit the following file.  
[Windows]  
[installation_folder]\RCXCTMG\MyPortal\config\license\create\default  
  
[Linux]  
/etc/opt/FJSVctmyp/config/license/create/default
```

```
[Description example]
L-Platform subscription license agreement
...
```

Example of settings

```
L-Platform subscription license agreement
The following actions involving the use of the L-Platform are not permitted.
  To use this L-Platform for personal use
  To use this L-Platform under false identity
```

18.12.2 Edit the License Agreement when Reconfiguring the L-Platform

This section explains how to edit the license agreement that is displayed when reconfiguring the L-Platform.

To edit the license agreement, edit the following file:

[Windows Manager]

```
<installation_folder>\RCXCTMG\MyPortal\config\license\reconfigure\default
```

[Linux Manager]

```
/etc/opt/FJSVctmyp/config/license/reconfigure/default
```



Note

If the file does not exist, the Terms of use window will not be displayed when reconfiguring the L-Platform. The file must not be deleted.

If the license agreement has been edited, collect a backup of the file after the edit.

Settings

The license agreement must be written in the file.

The character-code of the file is UTF-8.

When the number of characters exceeds 10000 characters, it might take time to display the Terms of use window.

The following description is written in the file as the initial value. Edit the file as required to suit your usage.

```
To install and operate, edit the following file.
[Windows]
[installation_folder]\RCXCTMG\MyPortal\config\license\reconfigure\default

[Linux]
/etc/opt/FJSVctmyp/config/license/reconfigure/default

[Description example]
L-Platform reconfiguration license agreement
...
```

Example of settings

```
L-Platform reconfiguration license agreement
The following actions involving the modification of the L-Platform are not permitted.
  To use this L-Platform for personal use
  To use this L-Platform under false identity
```

18.12.3 Edit the License Agreement When Canceling L-Platform

This section explains how to edit the cancellation of the license agreement that is displayed when cancelling L-Platform.

To edit the license agreement, edit the following file:

[Windows Manager]

```
<installation_folder>\RCXCTMG\MyPortal\config\license\return\default
```

[Linux Manager]

```
/etc/opt/FJSVctmyp/config/license/return/default
```



If the file does not exist, the Terms of cancel window will not be displayed when canceling the subscription. The file must not be deleted.

If the cancellation of the license agreement has been edited, collect a backup of the file after the edit.

Settings

The license agreement must be described in the file.

The character-code of the file is UTF-8.

When the number of characters exceeds 10000 characters, it might take time to display the Terms of cancel window.

The following description is entered in the file as the initial value. Edit the file as required to suit your usage.

```
To install and operate, edit the following file.  
[Windows]  
[installation_folder]\RCXCTMG\MyPortal\config\license\return\default  
  
[Linux]  
/etc/opt/FJSVctmyp/config/license/return/default  
  
[Description example]  
Cancellation of L-Platform license agreement  
...
```

Example of settings

```
Cancellation of L-Platform license agreement  
The following action involving the cancellation of the L-Platform is not permitted:  
To cancel this L-Platform under a false identity
```

18.13 Editing the User Agreement when Registering a User

This section explains how to edit the user agreement that is displayed in the Register User window when a new tenant user is to perform a registration procedure.

To edit the user agreement, edit the following HTML file:

[Windows Manager]

```
<installation_folder>\IAPS\F3FMihs\servers\FJapache\htdocs\sopdocs\pub\html\en  
\cRegApply_agreement.forUse_en.html
```

[Linux Manager]

```
/var/opt/FJSVihs/servers/FJapache/htdocs/sopdocs/pub/html/en/cRegApply_agreement.forUse_en.html
```



Note

If the HTML file does not exist, the Register User window will not be displayed. The HTML file must not be deleted.

If the user agreement has been edited, collect a backup of the HTML file after the edit.

Settings

The user agreement must be written in a section defined with the <body> tag in the HTML file.

Edit according to the HTML syntax.

Only the section defined with the <div> tag can be edited. Do not edit a section outside the <div> tag. When a section outside the <div> tag is edited, the user agreement may not be displayed properly when a user is added.

The following is written as the initial value in the section defined with the <div> tag in the HTML file. Edit the section as required to suit your usage.

```
<body>
<div id="iframeHeight" style="font-size:small;">
To install and operate, edit the following file.<br>
[Windows]<br>
&nbsp;&nbsp;&nbsp;<installation_folder>\IAPS\F3FMihs\servers\FJapache\htdocs\sopdocs\pub\html\en
\cRegApply_agreement.forUse_en.html<br>
<br>
[Linux]
&nbsp;&nbsp;&nbsp;/var/opt/FJSVihs/servers/FJapache/htdocs/sopdocs/pub/html/en/
cRegApply_agreement.forUse_en.html<br>
<br>
[Description example]<br>
<br>
Article 1 GENERAL RULES <br>
<br>
Section 1 (Application of User Agreement)
This agreement defines the conditions required to grant the user the use of XXXX service (hereafter
referred to as "the service") supplied by XXXX. <br>
    <br>
    <br>
    <br>
<br>
Supplementary provision <br>
1.This agreement takes effect on 20XX/XX/XX. <br><br>
</div>
</body>
```

Example of settings

```
<body>
<div id="iframeHeight" style="font-size:small;">
The following actions involving the use of the service are not permitted.<br>
<br>
    To collect personal information other than that of one's own through fraudulent means or without
agreement of the owner of the information<br>
    To falsify or delete information that this service may use<br>
    To use this service under false identity<br>
<br>
Supplementary provision<br>
1.This agreement takes effect on 1 November 2011.<br><br>
</div>
</body>
```

Chapter 19 Saving Environment Settings

This chapter explains how to save environment settings.

The configuration of a Resource Orchestrator setup can be saved to guard against unexpected problems. Use the admin server backup function and troubleshooting data collection command to save settings.

This troubleshooting data can be used in conjunction with the data later collected when a problem occurs for a more effective investigation, and should therefore be stored with caution.



See

- For details on the admin server backup command, refer to "10.1 Backup and Restoration of Admin Servers" in the "Operation Guide CE".
- For collecting troubleshooting data, refer to "1.2 Collecting Troubleshooting Data (Cloud Edition)".

Chapter 20 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 "[20.1 Manager Uninstallation](#)".
2. Agent (Dashboard Function) Uninstallation
Refer to "[20.3 Agent \(Dashboard Function\) Uninstallation](#)".
3. Agent Uninstallation
Refer to "[20.2 Agent Uninstallation](#)".
4. HBA address rename setup service Uninstallation
For uninstallation, refer to "[20.4 HBA address rename Setup Service Uninstallation](#)".

When uninstalling a Resource Orchestrator manager, specify Resource Orchestrator using "Uninstall (middleware)" first, and uninstall the manager.

"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 "[20.5 Uninstallation of "Uninstall \(Middleware\)""](#)".

20.1 Manager Uninstallation

The uninstallation of managers is explained in the following sections.

The procedure for manager uninstallation is given below.

- Preparations
Refer to "[20.1.1 Preparations](#)".
- Unsetup
Refer to "[20.1.2 Unsetup](#)".
- Uninstallation
Refer to "[20.1.3 Uninstallation \[Windows Manager\]](#)" or "[20.1.4 Uninstallation \[Linux Manager\]](#)".

20.1.1 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 "[20.1.2 Unsetup](#)".
- Checking physical L-Server system images and cloning images
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 (*)
2. Uninstall the manager

* Note: For the server deletion method, refer to "9.2 Deleting Managed Servers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Note

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.

- 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 Manager]

Drive_name:\Fujitsu\ROR\SVROR\certificate

[Linux Manager]

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 Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvnr/customize_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).

20.1.2 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 Manager]

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\SVROR\Manager\sys\setup\RcSetup.exe <RETURN>
```

3. Select unsetup from the menu to execute the unsetup command.
4. Check the execution results of the unsetup command.

- When unsetup is successful

The following message is displayed.

```
INFO : Resource Orchestrator Cloud Edition unsetup successfully.
```

- When unsetup fails

The following message is displayed.

```
ERROR : Resource Orchestrator Cloud Edition unsetup failed.
```

Collect troubleshooting information and contact Fujitsu technical staff.

[Linux Manager]

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.
4. Check the execution results of the unsetup command.

- When unsetup is successful

The following message is displayed.

```
INFO : Resource Orchestrator Cloud Edition unsetup successfully.
```

- When unsetup fails

The following message is displayed.

```
ERROR : Resource Orchestrator Cloud Edition unsetup failed.
```

Collect troubleshooting information and contact Fujitsu technical staff.

20.1.3 Uninstallation [Windows Manager]

The procedure for manager uninstallation is given below.

Before uninstalling this product, check that the preparations given in "[20.1.1 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 using the Administrator account.

2. Execute the following command.

```
Installation_folder\SWRBAM\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*\SVROR\back\site\certificate

- *Installation_folder*\SVROR\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.
- Unapply patches applied to this product 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 folder:

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

- *Installation_folder*\SVROR\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*\SVROR\back\site\certificate

- *Installation_folder*\SVROR\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. Delete the following folders (along with contained files and sub-folders) and files.

- *Installation_folder* (by default, C:\Fujitsu\ROR or C:\ProgramFiles(x86)\Resource Orchestrator) and its contents

- IAPS

- IBPM
- IBPMA
- IBPMA_DATA
- J2EE
- SQCM
- SQC_CL
- SQC_DATA
- RCXCFMG
- RCXCFMG-upgradedata (remains when upgrade installation is performed)
- RCXCTMG
- RCXCTMG-upgradedata (remains when upgrade installation is performed)
- ROR_upgradedata (remains when upgrade installation is performed)
- SVROR
- SWOMGR
- SWRBAM

When Systemwalker Runbook Automation has been installed, delete the following folders and files, after uninstalling Systemwalker Runbook Automation.

- IAPS
 - IBPM
 - IJEE
 - J2EE
 - SWOMGR
 - SWRBAM
- 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 automatic startup settings of the DHCP server (dhcpd) become "OFF" 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
 - After uninstallation, the following files may remain under the system drive. If they are not necessary, delete them.
 - F4ANsetup.log
 - swinst.err
 - swrba_inst.log
 - swrba_uninst.log
 - If the problem persists, please collect troubleshooting information and contact Fujitsu technical staff.

20.1.4 Uninstallation [Linux Manager]

The procedure for manager uninstallation is given below.

Before uninstalling this product, check that the preparations given in "20.1.1 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. Execute the following command.

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

4. Execute the following command.

```
# ismngconsolestop <RETURN>
```

5. If the Interstage HTTP Server service is already started, stop the service.

Confirm the value of "Status" using the `ihsdisp` command.

Execute the `ihsstop` command with "-all" option if a Web Server, which "Status" value is "Running", exists.

```
# /opt/FJSVihs/bin/ihsdisp <RETURN>
Web Server Name   : FJapache
Status            : Running
Configuration File: /opt/FJSVihs/servers/FJapache/conf/httpd.conf
Server Version    : FJapache/10.0
Current Time      : Wednesday, 13-Jun-2012 13:27:53
Start Time        : Wednesday, 13-Jun-2012 13:25:54
Daemon Process ID : 11888
Child Process ID  : 11894 11895 11896 11897 11898
Listening Port    : [::]:80
0 requests currently being processed, 5 idle servers

# /opt/FJSVihs/bin/ihsstop -all <RETURN>
```

6. If the Interstage Java EE DAS service is already started, stop the service.

Confirm the value of "Status" using the `ijdasstat` command.

Execute the `ijdasstop` command if the value of "Status" is "started".

```
# /opt/FJSVisjee/bin/ijdasstat <RETURN>
Name                               Status
-----
Interstage Java EE DAS             started

# /opt/FJSVisjee/bin/ijdasstop <RETURN>
```

7. If the Interstage Java Node Agent service is already started, stop the service.

Confirm the value of "Status" using the `ijnastat` command.

Execute the `ijnastop` command if the value of "Status" is "started".

```
# /opt/FJSVisjee/bin/ijnastat <RETURN>
Name                               Status
-----
Interstage Java EE Node Agent      started

# /opt/FJSVisjee/bin/ijnastop <RETURN>
```

8. 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>
```

9. Launch the uninstallation command (`cimanager.sh`).

Perform uninstallation according to the uninstaller's interactive instructions.

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

Note

- Unapply patches applied to this product 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/FJSVrcvnr/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/FJSVawjkb`
 - `/opt/FJSVctchg`
 - `/opt/FJSVctdsb`
 - `/opt/FJSVctmg`
 - `/opt/FJSVctmyp`
 - `/opt/FJSVctope`
 - `/opt/FJSVctpw`
 - `/opt/FJSVctsec`
 - `/opt/FJSVena`
 - `/opt/FJSVibpma`
 - `/opt/FJSVisscs`
 - `/opt/FJSVssqc`
 - `/opt/FJSVtd` (Confirm whether directories in this directory can be deleted referring to the caution below.)
 - `/etc/opt/FJSVctchg`
 - `/etc/opt/FJSVctmg`

- /etc/opt/FJSVctmyp
 - /etc/opt/FJSVctoep
 - /etc/opt/FJSVctpw
 - /etc/opt/FJSVctsec
 - /etc/opt/FJSVibpma
 - /etc/opt/FJSVirep
 - /etc/opt/FJSVisas
 - /etc/opt/FJSVisgui
 - /etc/opt/FJSVisscs
 - /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/FJSVisscs
 - /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/
 - Setting information of the DHCP server modified using Resource Orchestrator will not be initialized after uninstallation of Resource Orchestrator. Perform initialization if necessary.
 - After uninstallation of Resource Orchestrator, the DHCP server service (dhcpd) is stopped.

20.1.5 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.

20.1.5.1 Fujitsu XML Processor Uninstallation [Windows Manager]

This section explains the uninstallation of the Fujitsu XML Processor.



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

[Add or Remove Programs] ([Programs and Functions] on Windows Server 2008 or later) displays an old version of the 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>.



For Windows Server 2008 or later, select [Programs and Features] 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.

20.1.5.2 SMEE Uninstallation [Linux]

This section explains the uninstallation of SMEE.



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>
```


20.1.5.3 Securecrypto Library RunTime Uninstallation [Linux]

This section explains the uninstallation of Securecrypto Library RunTime.



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>
```

20.1.5.4 Groups Remaining after Uninstallation

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

20.1.5.5 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

20.1.5.6 Delete the registered certificate of ServerView Operations Manager

This section explains the procedure for deleting the registered certificate.

Delete the registered certificate if you regularly use ServerView Operations Manager.

[Windows Manager]

The CA certificate(keystore) of ServerView Operations Manager is stored in the following location:

- ServerView Operations Manager V6.1 or later

```
ServerView Suite Installation_folder\jboss\standalone\svconf\pki\cacerts
```

- Earlier than ServerView Operations Manager V6.1

```
ServerView Suite Installation_folder\jboss\server\serverview\conf\pki\cacerts
```

An example of deleting the registered certificate is as follows:



```
> RJE Installation_folder\bin\keytool.exe -delete -alias alias -keystore "C:\Program Files (x86)\Fujitsu\ServerView Suite  
\jboss\server\serverview\conf\pki\cacerts"<RETURN>
```

```
Enter destination keystore password:<jboss certificate creation environment password>
```

Specify "testcert" or "Certificate nickname" registered in "3.3 Importing a Certificate to ServerView SSO Authentication Server" as the alias.

The default password for the jboss certificate creation environment is "changeit".

[Linux Manager]

The CA certificate(keystore) of ServerView Operations Manager is stored in the following location:

- ServerView Operations Manager V6.1 or later

```
/opt/fujitsu/ServerViewSuite/jboss/standalone/svconf/pki/cacerts
```

- Earlier than ServerView Operations Manager V6.1

```
/opt/fujitsu/ServerViewSuite/jboss/server/serverview/conf/pki/cacerts
```

An example of deleting the registered certificate is as follows:



Example

```
# RJE Installation_directory/bin/keytool -delete -alias alias -keystore /opt/fujitsu/ServerViewSuite/jboss/server/serverview/conf/pki/cacerts<RETURN>
```

```
Enter destination keystore password:<jboss certificate creation environment password>
```

Specify "testcert" or "Certificate nickname" registered in "3.3 Importing a Certificate to ServerView SSO Authentication Server" as the alias.

The default password for the jboss certificate creation environment is "changeit".

20.2 Agent Uninstallation

The uninstallation of agents is explained in the following sections.

If the agent (Dashboard Function) has been installed, when the agent is uninstalled, the agent (Dashboard Function) is also uninstalled.

20.2.1 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 using the Administrator account.

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 or later, 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.
However, if the agent (Dashboard Function) is installed, unapply patches before performing 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 or later, select "Programs and Features" from the Windows Control Panel.

20.2.2 Uninstallation [Linux] [VMware] [Xen] [KVM] [OVM for x86 2.2]

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 step 1 again.

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



- 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.

However, in the following cases, unapply patches before performing uninstallation.

- The PATH variable has not been configured.
 - The agent (Dashboard Function) has been installed.
- After uninstallation, the installation directories and files below may remain. In that case, delete any remaining directories and files manually.

Directories

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

Files

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

20.2.3 Uninstallation [Solaris] [Solaris Zones] [OVM for SPARC]

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/FJSVrcvat/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.

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

```
# pkgrm 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. However, in the following cases, unapply patches before performing uninstallation.
 - The `PATH` variable has not been configured.
 - The agent (Dashboard Function) has been installed.
- After uninstallation, the installation directories below may remain. In that case, delete any remaining directories manually.
 - `/opt/FJSVrcvat`
 - `/opt/FJSVssqc`
 - `/etc/opt/FJSVrcvat`
 - `/etc/opt/FJSVssqc`
 - `/var/opt/FJSVrcvat`
 - `/var/opt/FJSVssqc`

20.3 Agent (Dashboard Function) Uninstallation

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

20.3.1 Uninstallation [Windows] [Hyper-V]

When the agent is uninstalled, the agent (Dashboard Function) is uninstalled.

Note

- Unapply patches applied to this product before performing 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.

20.3.2 Uninstallation [Linux]

When the agent is uninstalled, the agent (Dashboard Function) is uninstalled.

Note

- Unapply patches applied to this product before performing uninstallation.
 - When the agent (Dashboard Function) has been installed, 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/FJSVnrmmp
 - /opt/FJSVrcvat
 - /opt/FJSVssagt
 - /opt/FJSVssqc
 - /etc/opt/FJSVnrmmp
 - /etc/opt/FJSVrcvat
 - /etc/opt/FJSVssagt
 - /etc/opt/FJSVssqc
 - /var/opt/systemcastwizard
 - /var/opt/FJSVnrmmp
 - /var/opt/FJSVrcvat
 - /var/opt/FJSVssagt
 - /var/opt/FJSVssqc
 - Files
 - /boot/clcomp2.dat
 - /etc/init.d/scwagent
 - /etc/scwagent.conf
-

20.3.3 Uninstallation [Solaris] [Solaris Zones]

When the agent is uninstalled, the agent (Dashboard Function) is uninstalled.

Note

- Unapply patches applied to this product before performing uninstallation.
- After uninstallation, the installation directories and files below may remain. In that case, delete any remaining directories and files manually.
 - /opt/FJSVrcvat
 - /opt/FJSVssqc
 - /etc/opt/FJSVrcvat
 - /etc/opt/FJSVssqc

- /var/opt/FJSVrcvat
- /var/opt/FJSVssqc

20.4 HBA address rename Setup Service Uninstallation

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

20.4.1 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 using the Administrator account.

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 later, 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 later, or Windows Vista, select "Programs and Features" from the Windows Control Panel.

20.4.2 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 step 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

20.5 Uninstallation of "Uninstall (Middleware)"

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

Note

- When uninstalling Resource Orchestrator, specify Resource Orchestrator using "Uninstall (middleware)" first, and uninstall it.
- "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 on to Windows as the administrator.
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 -t iso9660 -r /dev/hdc DVD-ROM_mount_point <RETURN>
# cd DVD-ROM_mount_point <RETURN>
```

4. Execute the installation command.

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

[Solaris]

1. Log in to the system as the superuser (root).
2. Set the first Resource Orchestrator DVD-ROM.
3. 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] [Solaris]

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

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] [Solaris]

```
# /opt/FJSVcir/bin/cirremove.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
```

```
%ProgramData%\Fujitsu\FujitsuF4CR(For Windows Server 2008 or Windows Server 2012)
```

```
%ALLUSERSPROFILE%\Application Data\Fujitsu\FujitsuF4CR(For Windows Server 2003)
```

[Linux] [Solaris]

```
/var/opt/FJSVcir
```

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 Manager]

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

Perform the following settings after installing ServerView Trap Server for Linux.

1. Log in as 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 Manager]

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 Manager]

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 Configuration when Creating Physical L-Servers

This appendix explains configuration regarding the creation of physical L-Servers.

Prerequisites

To create a physical L-Server, Virtual I/O using VIOM or HBA address rename is required.

Usage methods of VIOM and HBA address rename differ depending on the hardware of managed servers used to configure a physical L-Server.

- Blade Servers

Use VIOM.

- Rack Mount Servers

Use HBA address rename.

However, when using rack mount servers which are supported by VIOM, manage them with VIOM.

When managing servers other than the above, associate the configured physical servers with L-Servers. For details on associating configured physical servers with L-Servers, refer to "Chapter 18 Linking L-Servers with Configured Physical Servers or Virtual Machines" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

It is also necessary to enter configuration information (CPU core count, CPU clock speed, memory capacity, etc.) of the physical servers in the definition file.

For details, refer to "[Chapter 8 Creating Definition Files](#)".

B.1 Creating Definition Files

This section explains how to create definition files.

When using a physical L-Server, the configuration of the definition file may be necessary.

When using SAN storage

- For all storage

Refer to "[B.1.1 Creating Definition Files Combining Ports of SAN Storage](#)".

- When using ETERNUS storage

Refer to "[B.1.2 Format Selection for the Names of Virtual Storage Resources and Disk Resources Managed by ESC](#)".

- When configuring Thin Provisioning attributes on a storage pool

Refer to "20.2 Creating" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Refer to "[G.1.1 Overcommit Definition Files](#)", when migration is not executed using the configuration methods for overcommit functions after performing upgrade of the admin server from ROR V2.3.0 or V3.0.0.

- When using configuration of priority for resource selection on Thin Provisioning and Automatic Storage Layering

Refer to "[B.1.3 Configuration of Priority for Resource Selection on Thin Provisioning and Automatic Storage Layering](#)".

- When using dynamic LUN mirroring

Refer to "[B.1.4 Creating Mirroring Definition Files for Dynamic LUN Mirroring](#)".

- When using EMC storage

For details, refer to "[B.1.5 Definition File for EMC Storage](#)".

- When using Storage Server that operates FalconStor NSS

For details, refer to "[B.1.11 Definition File for FalconStor NSS](#)".

- When the number of FCs fitted and their position differ depending on the physical server

Refer to "[B.1.7 Setting the Number of FCs Fitted and their Position for Each Physical Server](#)".

When creating a physical L-Server without specifying a model name in the L-Server template

Refer to "[B.1.6 Configuration when Creating a Physical L-Server without Specifying a Model Name in the L-Server Template](#)".

When using alive monitoring

Refer to "[B.1.8 Definition File for Alive Monitoring](#)".

B.1.1 Creating Definition Files Combining Ports of SAN Storage

Create the following definition file in advance, then define the combination of the ports of storage units used when accessing the L-Server disk.

In Resource Orchestrator, LUN masking on the ports of storage units is configured using the definition file combining ports for SAN storage. For ETERNUS storage units, zoning of fibre channel switches is also configured using the port combination definition file of the SAN storage.

When adding a storage unit and then adding it to a resource pool as a storage resource, define the following file:

When the storage unit is Storage Server that operates FalconStor NSS or NetApp FAS storage, this definition file need not be made.

When the definition file has been edited, it is not necessary to restart the manager.

Storage Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvmr/customize_data

Definition File Name

storage_portset.rcxprop

Definition File Format

Describe the storage information. Each storage information must be described using a single line, and be in the following format starting from the start of the line. Use of line breaks is not allowed.

```
storage_unit_ipaddr,"portX:port Y","portX:port Y",...
```

Definition File Items

- When using ETERNUS storage

storage_unit_ipaddr

Specify IP addresses of operation management LAN ports of ETERNUS storage that are managed by ESC.

When the same IP address is specified in multiple lines, the first defined line is valid.

Portset

A pair of FC-CA ports of ETERNUS storage used when accessing an L-Server disk, represented using the WWPN of the FC-CA ports.

Specify a pair of FC-CA ports using two WWPNs (16 digit hexadecimal numbers) separated with colons (":"). A maximum of 64 combinations can be specified.

If there is trouble with the ETERNUS storage controller, in order to avoid blocking both of the FC-CA ports used for L-Server, do not use combinations of ports on the same controller.

WWPNs of FC-CA ports that are not connected using Fibre Channel cable cannot be specified.

WWPNs that are already defined cannot be specified for different portsets.

LUN masking and zoning are configured by the following pairs of HBA and storage unit port. Check that Fibre Channel cables are connected between the ports of HBAs and storage units.

- HBA Port1 and the first defined storage unit port
- HBA Port2 and the second defined storage unit port

Point

In Resource Orchestrator, access paths are defined in the following order.

- Storage unit port defined in portX and HBA Port1
- Storage unit port defined in portX and HBA Port2

Note

The order of the HBA Ports to which HBA address rename allocates the WWN depends on the server hardware type.

Refer to "C.2 WWN Allocation Order during HBA address rename Configuration" in the "Design Guide CE".

- When using EMC CLARiiON storage or EMC VNX storage

storage_unit_ipaddr

Specify the IP address of SP of EMC CLARiiON storage or EMC VNX storage.

When the same IP address is specified in multiple lines, the first defined line is valid.

Portset

A pair of SP ports of EMC CLARiiON storage or EMC VNX storage used when accessing an L-Server disk, represented using an SP port name.

Specify a pair of SP ports using two SP port names separated with colons (":"). A maximum of 64 combinations can be specified.

If the number of FCs to be used on one L-Server is 1 or 4, use the definition file described in "[B.1.7 Setting the Number of FCs Fitted and their Position for Each Physical Server](#)" rather than the file described here.

The two ports specified here should be selected from the SP ports of different SPs. When using SP ports on the same SP of EMC CLARiiON storage or EMC VNX storage, if there is trouble with the SP, the SP ports used by L-Servers may not be available.

SP ports that are not connected using Fibre Channel cables cannot be specified.

SP ports that are already defined cannot be specified for different portsets.

- When using EMC Symmetrix DMX storage or EMC Symmetrix VMAX storage

storage_unit_ipaddr

Specify the Symmetrix ID of EMC Symmetrix DMX Storage or EMC Symmetrix VMAX Storage.

When the same Symmetrix ID is specified in multiple lines, the first defined line is valid.

Portset

A pair of ports of EMC Symmetrix DMX storage or EMC Symmetrix VMAX storage used when accessing an L-Server disk, represented using director numbers and port numbers.

Specify a pair of ports using two port names separated with colons (":"). A maximum of 1 combination can be specified.

The two ports specified here should be selected from the ports of different directors. When using ports on the same director of EMC Symmetrix DMX storage or EMC Symmetrix VMAX storage, if there is trouble with the director, the ports used by L-Servers may not be available.

The ports not connected using Fibre Channel cables cannot be specified.

Director numbers and port numbers that are already defined cannot be specified for different portsets.

In the following cases, use the definition file described in "[B.1.7 Setting the Number of FCs Fitted and their Position for Each Physical Server](#)" rather than the file described here.

- When using 2 or more groups of director ports from an L-Server

- If the number of FCs to be used on one L-Server is 1 or 4
- When there are a large number of L-Servers using the storage

Example

An example definition file is indicated below.

- When using ETERNUS storage

```
192.168.1.24,"500000E0D00C7006:500000E0D00C7086","500000E0D00C7086:500000E0D00C7087"
```

- When using EMC CLARiiON storage or EMC VNX storage

```
192.168.1.24,"SPAPort0:SPBPort0","SPAPort1:SPBPort1"
```

- When using EMC Symmetrix DMX storage or EMC Symmetrix VMAX storage

```
000192601264,"07GPort1:08GPort1"
```

B.1.2 Format Selection for the Names of Virtual Storage Resources and Disk Resources Managed by ESC

The format of the names of virtual storage resources and disk resources managed by ESC can be selected. When the definition file has been edited, restart the manager.

Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvnr/customize_data

Definition File Name

storage.rcxprop

Definition File Format

In the definition file, the items to set are entered on individual lines. Each line is entered in the following format.

```
Item_specified = Value_specified
```

Definition File Items

ETERNUS_VOLUME_NAME_TO_DISK_NAME

Select the format of the name of disk resources managed by ESC.

- If "true" is specified

The disk resource name is used as the alias name for ESC. If the format of the alias name is unavailable for the format of the disk resource name, Resource Orchestrator automatically sets a disk resource name that conforms to the alias name. Even if "true" has been specified, when ESC does not support the alias name, the combination of the IP address of ETERNUS, the RAID group number, and the volume number will be used as the disk resource name.

- If "false" is specified

The combination of the IP address of ETERNUS, the RAID group number, and the volume number will be used as the disk resource name.

- If nothing is specified
"false" is set.

Note

If the disk has been separated from the virtual storage and saved, then the ETERNUS LUN alias name is not reflected on the disk resource name even if the value is "true".

ETERNUS_RAIDGROUP_NAME_TO_VSTORAGE_NAME

Select the format of the name of virtual storage resources managed by ESC.

- If "true" is specified
The RAID group name of ESC is used as the virtual storage resource name. If the format of the RAID group name is unavailable for the format of the virtual storage resource name, Resource Orchestrator automatically set a virtual storage resource name that conforms to the RAID group name. Even if "true" has been specified, when ESC does not support the RAID group name, the combination of the IP address of ESC and the RAID group number will be used as the virtual storage resource name.
- If "false" is specified
The combination of the IP address of ESC and the RAID group number will be used as the virtual storage resource name.
- If nothing is specified
"false" is set.

Example

An example definition file is indicated below.

```
ETERNUS_VOLUME_NAME_TO_DISK_NAME = true
ETERNUS_RAIDGROUP_NAME_TO_VSTORAGE_NAME = true
```

B.1.3 Configuration of Priority for Resource Selection on Thin Provisioning and Automatic Storage Layering

The following resources can be registered in a storage pool with thin provisioning attributes set:

- FTRP and FTV for Automatic Storage Layering
- TPP and TPV for Thin Provisioning

When setting to automatic selection for resource selection while creating L-Server or attaching a disk under the condition that both storage pools with and without the configuration of thin provisioning attributes remain the same priority, either of their resources can be given higher priority.

When the definition file has been edited, restart the manager.

Location of the Definition File

[Windows Manager]
Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]
/etc/opt/FJSVrcvmr/customize_data

Definition File Name

storage.rcxprop

Definition File Format

In the definition file, the items to set are entered on individual lines. Each line is entered in the following format.

```
Specified item = Specified  
value
```

Definition File Items

SELECT_THIN_PROVISIONING_POOL_FIRST

When both storage pools with and without the configuration of thin provisioning attributes remain the same priority, either of their resources can be given higher priority for automatic selection of storage resource.

- If "true" is specified
A storage pool with thin provisioning attributes will be given priority.
- If "false" is specified
A storage pool without thin provisioning attributes will be given priority.
- If nothing is specified
"false" is set.



Example

An example definition file is indicated below.

```
SELECT_THIN_PROVISIONING_POOL_FIRST = true
```

B.1.4 Creating Mirroring Definition Files for Dynamic LUN Mirroring

When using dynamic LUN mirroring, create a mirroring definition file and configure the ETERNUS storage to create a copied volume.

Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvmr/customize_data

Definition File Name

storage_mirroring.rcxprop

Definition File Format

Describe the virtual storage information. Each virtual storage information must be described using a single line, and be in the following format starting from the start of the line. Use of line breaks is not allowed.

```
local_storage_ipaddr,virtual_storage_type,local_storage_number,remote_storage_boxid,remote_storage_number,copy_group
```

Definition File Items

local_storage_ipaddr

Enter the IP address of the local site ETERNUS storage device that will automatically create the disk resource.

virtual_storage_type

Specify the virtual server type.

Specify "RAID" for RAID group.

Specify "TPP" for TPP.

local_storage_number

Specify the RAID group or TPP number from which the disk resource will be extracted in the ETERNUS storage on the local site.
Specify 4-digit hexadecimal numbers starting with 0x.

remote_storage_boxid

Specify the BOX-ID of ETERNUS storage in the remote side to create the copied volume.

Check the BOX-ID in "Advanced Copy Path Status" which is the Web GUI for ETERNUS.

remote_storage_number

Specify the RAID group or TPP number that will be used to create the copied volume in the ETERNUS storage on the remote site.
Specify 4-digit hexadecimal numbers starting with 0x.

copy_group

Specify the name for the copy group created when setting inter-chassis copying.



Example

.....
An example definition file is indicated below.

```
192.168.1.24,RAID,0x0011,00ETERNUSDXLS2ET092DD#####LN4521132A09##,0x0022,group1  
192.168.1.24,TPP,0x0033,00ETERNUSDXLS2ET092DD#####LN4521132A09##,0x0044,group2
```

B.1.5 Definition File for EMC Storage

When registering EMC Navisphere Manager or EMC Solutions Enabler as storage management software, it is necessary to specify the installation folder of Navisphere CLI or SYMCLI in the definition file for EMC storage.

Storage Location of the Definition File for EMC Storage

[Windows Manager]

Installation_folder\SVROR\Manager\sys\usm\etc

[Linux Manager]

/opt/FJSVrcvnr/sys/usm/etc

Definition File Name for EMC Storage

emcpath.conf

Definition File Format for EMC Storage

The format of the definition file for EMC storage is as follows:

When registering EMC Navisphere Manager as storage management software, modify the line beginning with "naviseccli".

```
naviseccli=Navisphere CLI_installation_folder
```

When registering EMC Solutions Enabler for storage management software, modify the line beginning with "symcli".

```
symcli=SYMCLI_installation_folder
```

[Windows]

Use "\\" for the file separator. Do not modify the line beginning with "secfilepath".



Example

.....
[Windows]

```
naviseccli=C:\Program Files\EMC\Navisphere CLI
secfilepath=..\..\etc\storage\emc
symcli=C:\Program Files\EMC\SYMCLI\bin
```

[Linux]

```
naviseccli=/opt/Navisphere/bin
secfilepath=/etc/opt/FJSVrcvmr/storage/emc
symcli=/opt/symcli/bin
```

B.1.6 Configuration when Creating a Physical L-Server without Specifying a Model Name in the L-Server Template

To create a physical L-Server without specifying a model name in the L-Server template, create the definition file, define the configuration information (CPU core count, CPU clock speed, memory capacity, etc.), and then register the server as a managed server.

In the following cases, create the definition file first, and then register the hardware information with Resource Orchestrator again.

- If the target server was registered with Resource Orchestrator before creation of the definition file
- When modifying the configuration information (CPU core count, CPU clock speed, memory capacity, etc.) in the definition file of a server that has been registered with Resource Orchestrator

For details, refer to "Chapter 9 Hardware Maintenance" in the "Operation Guide CE".



If the value entered in the definition file differs from the actual configuration information of the server, creation or starting of physical L-Servers may fail, or physical servers may be deployed with incorrect information about CPU and memory.

Be sure to confirm that the values entered in the definition file and the actual configuration information of the server are the same.

Storage Location of the Definition File

```
[Windows Manager]
Installation_folder\SVROR\Manager\etc\customize_data
```

```
[Linux Manager]
/etc/opt/FJSVrcvmr/customize_data
```

Definition File Name

```
server_spec.rcxprop
```

Character Code

```
[Windows Manager] [Linux Manager]
UTF-8
```

Line Break Code

```
[Windows Manager]
CR/LF
```

```
[Linux Manager]
LF
```

Definition File Format

- The following line must be entered in the first line of definition files.

ServerSpec,V1.1

- In the definition file, enter the configuration information (CPU core count, CPU clock speed, memory capacity, card information, etc.), separated by commas (",").

When defining two or more servers, use line breaks.
Each line is entered in the following format.

```
model_name, cpu_core_count, cpu_clock, memory_size, cpu_type[, cardinfo]
Or
physical_server, cpu_core_count, cpu_clock, memory_size, cpu_type[, cardinfo]
```

- Blank spaces between data and commas (",") are ignored.

If there is duplicated configuration information (CPU core count, CPU clock speed, memory capacity, etc.) for the same physical server, the values that appear first will be used.

- When adding comments, start the line with a number sign ("#").

Definition File Items

model_name

Enter the model name of the managed server.
Enter "[" for the first character, and "]" for the last character.
The model name displayed in the General information of the Resource Details window.

physical_server

Enter the same physical server name as the one entered when registering a managed server.
Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters and hyphens ("-").

cpu_core_count

Enter the total number of physical CPU cores.
Enter an integer between 0 and 999.
When entering "0", hyphens ("-") are displayed in the basic information on the resource details screen, and physical L-Servers cannot be created.

cpu_clock

Enter the CPU clock speed.
Enter an integer between 0 and 999,999.
Use megahertz for the unit. Enter 1,000 MHz for 1 GHz, for example.
When entering "0", hyphens ("-") are displayed in the basic information on the resource details screen, and physical L-Servers cannot be created.

memory_size

Enter the total memory size.
Enter an integer between 0 and 999999999.
Use megabytes for the unit. Enter 1,024 MB for 1 GB, for example.
When entering "0", hyphens ("-") are displayed in the basic information on the resource details screen, and physical L-Servers cannot be created.

cpu_type

Enter the CPU type.
The string must be composed of alphanumeric characters and symbols (ASCII characters 0x20 to 0x7e), except for commas (","), and can be up to 64 characters long.
When omitted, a hyphen ("-") is displayed.

cardinfo

Enter the information for cards mounted on servers.
Card information can be omitted. If omitted, the following is described for the hardware configuration.

[RX200S7]: Onboard LAN1, OnboardLAN2, PCISlot1 (LAN) 2Port, PCISlot2 (FC) 2Port, PCISlot3 (FC) 2Port [RX300S7]: Onboard LAN1, OnboardLAN2, PCISlot1 (LAN) 2Port, PCISlot2 (LAN) 2Port, PCISlot3 (FC) 2Port, PCISlot4 (FC) 2Port

Enter the information in the following format for each card. Use semicolons (";") to separate each piece of card information.

- Card type

Enter one of the following card types:

- "LAN"
- "FC"
- "CNA"

When entering characters other than the above, the card information will be invalid.

- Slot type

Enter the slot type.

Enter an integer between 0 and 9 for the slot type as below.

- "0": Onboard
- "1" to "9": PCI slot numbers

- Port number

Enter the port numbers. Enter an integer between 1 and 9 for the port number, preceded by a hyphen ("-").

- Flags to confirm if the LAN card is used for an admin LAN

When using a LAN card for an admin LAN, enter "***" or "*" to indicate that the LAN card is used for an admin LAN.

When using the card for a LAN other than an admin LAN, do not enter anything.

Enabled when the card type is set to "LAN" or "CNA".

- The card for the primary admin LAN: Enter "*".
- The card for the secondary admin LAN: Enter "***".
- A card not for an admin LAN: Leave blank.

Example

An example definition file is indicated below.

```

ServerSpec,V1.1

#####
# server_spec.rcxprop
#
#All Rights Reserved, Copyright(C) FUJITSU LIMITED 2012
#####
#
# [model_name], cpu_core_count, cpu_clock, memory_size, cpu_type, cardinfo
# physical_server, cpu_core_count, cpu_clock, memory_size, cpu_type, cardinfo
#

server001, 8, 3160, 4096, Intel(R) Xeon(R)
server002, 8, 2660, 12288, Intel(R) Xeon(R),LAN0-1*:LAN0-2**:*LAN1-1:LAN1-2:FC2-1:FC2-2
[PRIMERGY RX300 S7], 2, 2000, 65536, Intel(R) Xeon(R),LAN0-1*:LAN0-2**:*LAN1-1:LAN1-2:FC2-1:FC2-2
server004, 4, 4000, 4096, Intel(R) Xeon(R) Processor E5501
  
```

B.1.7 Setting the Number of FCs Fitted and their Position for Each Physical Server

If the number of FCs fitted or their location differs from physical server to physical server, prepare an "FC connection pattern" and define the number of FCs and their location for each physical server.

This setting can be made when the storage units are the following:

- EMC CLARiiON Storage or EMC VNX storage
- EMC Symmetrix DMX Storage
- EMC Symmetrix VMAX Storage

Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data\fc_connection_pattern

[Linux Manager]

/etc/opt/FJSVrcvnr/customize_data/fc_connection_pattern

Definition File Name

Make the file extension .rcxprop and then allocate a file with an arbitrary file name. Specify the file name using the following string:

The file name must start with an alphanumeric character, and can contain up to 64 alphanumeric characters, underscores ("_"), and hyphens ("-").

Definition File Format

Create a different "FC pattern" file for each system that has a different pattern.

```
NUM_OF_FC=Number_of_FCs_used
BOOT_FC_PORT =["HBA_number", "HBA_number"]
STORAGE_X="Storage_chassis_identifier","HBA_number","target_port_number"
```

Definition File Items

NUM_OF_FC (mandatory)

Specify the number of FCs to be used. 1, 2, and 4 can be specified for the number.

BOOT_FC_PORT

Specify the number of HBAs that are actually mounted on the server.

Allocate a sequential number to all of the ports, sorted in the expansion slot order.

By specifying the HBA numbers, up to two FC ports can be set as Boot paths.

The priority of HBA numbers is set based on the order in which they are listed.

Only numbers under the value specified in NUM_OF_FC can be specified.

NUM_OF_FC value	Valid Range of HBA Numbers
4	0 - 3
2	0 - 1
1	0

STORAGE_X (mandatory)

Specify as many as there are connected storage chassis. However, the number in X must be a decimal between 0 and 99, starting from 0 and counting up.

"Storage chassis identification number"

Specify the storage chassis identification number.

"HBA number"

Define the FCPort pairing on the server side, separating with a colon (:).

"target port number"

Define the FCPort pairing on the storage side, separating with a colon (:).

By specifying separate HBA numbers for each STORAGE_X, logical paths to two storage chassis can be set from each single physical server.

However, if the same storage chassis identification number is defined multiple times, only the one defined first will be valid.

Note

- The file names of FC connection patterns cannot be changed after performing the following operations:
 - Import of the L-Server template specifying an FC connection pattern
 - Turning on of the physical L-Server with a definition specifying an FC connection pattern
 - Creation of a physical L-Server specifying an FC connection pattern
- The details of FC connection pattern files can only be changed in the following cases:
When a physical L-Server with an FC connection pattern specified is in the defined state

Example

An example definition file is indicated below.

- If 2 paths (1 boot path)

```
NUM_OF_FC = "2"  
BOOT_FC_PORT=["1"]  
STORAGE_1="000192601264","0:1","07GPort1:08GPort1"
```

- If 2 paths (2 boot path)

```
NUM_OF_FC = "2"  
BOOT_FC_PORT=["0", "1"]  
STORAGE_1="000192601264","0:1","07GPort1:08GPort1"
```

- If 4 paths (1 chassis)

```
NUM_OF_FC = "4"  
BOOT_FC_PORT=["1", "2"]  
STORAGE_1="000192601264","0:1:2:3","07GPort1:08GPort1:09GPort1:10GPort1"
```

- If 4 paths (2 chassis)

```
NUM_OF_FC = "4"  
BOOT_FC_PORT=["1", "2"]  
STORAGE_1="000192601264","0:1","07GPort1:08GPort1"  
STORAGE_2="000192601265","2:3","09GPort1:10GPort1"
```


B.1.8 Definition File for Alive Monitoring

When using alive monitoring, create the definition file and specify the parameters for alive monitoring. The configuration of this parameter must be unique in the system.

When using alive monitoring on a physical L-Server, monitor hang-up of the operating system corresponding to a physical L-Server using the OS Ping response.

For details on Ping monitoring, refer to "Chapter 8 Configuring Monitoring Information" in the "Setup Guide VE".

Storage Location of the Definition File

The file in which the default values are described is located during installation.

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data\alive_monitoring

[Linux Manager]

/etc/opt/FJSVrcvmr/customize_data/alive_monitoring

Definition File Name

Physical.rcxprop

The file name is not case sensitive.

Definition File Format

In the definition file, the items to set are entered on individual lines. Each line is entered in the following format.

<i>Item_specified= Value_specified</i>
--

When adding comments, start the line with a number sign ("#").

Definition File Items

timeout

Specify the number of seconds of time-out for ping monitoring.

Enter an integer between 5 and 3,600. The unit is seconds.

"600" is specified as the default.

recovery

Specify recovery operations for when an error is detected.

Specify one of the following:

- reboot (reboot)
- force_reboot (forced reboot)
- switchover (server switchover)
- reboot_and_switchover (reboot and switchover)
- force_reboot_and_switchover (forced reboot and switchover)

"reboot_and_switchover" is specified as the default.

If specifying "switchover" or "force_reboot_and_switchover", enable the server redundancy settings, when creating an L-Server.

reboot

Specify the number of reboots for recovery operations.

Enter an integer between 1 and 3. The unit is seconds.

"1" is specified as the default.

Example

An example definition file is indicated below.

```
timeout = "600"
recovery = "reboot_and_switchover"
reboot = "1"
```

Note

When applying the modified details to an already created L-Server, execute the `rcxadm lserver modify` command after changing the definition files.

B.1.9 Definition File for Admin LAN Uplink Set

When using IBP, it is necessary to create an IBP uplink set for the public LAN and admin LAN in advance.

When using physical L-Servers, it is necessary to create an IBP uplink set for the public LAN and admin LAN, using VIOM.

Storage Location of the Definition File for Admin LAN Uplink Set

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data\vnetwork_ibp.rcxprop

Definition File Format for Admin LAN Uplink Set

Describe each line in the definition file as below:

Key = Value

Table B.1 Definition File Items

Item	Key	Value	Remarks
Regarding IBP environments	support_ibp_mode	- true - false	Specify one of the following: - When operating LAN switch blades on IBP firmware Specify "true". - If other than the above Specify "false". If left blank, "false" is set.
Admin LAN specification	external_admin_net_name	Uplink set names for admin LANs	Enabled when <code>ibp_mode</code> is "true".

B.1.10 Definition File for iSCSI Network

When using iSCSI, create iSCSI network definition files.

Create the following definition file in advance, and define the network information using iSCSI boot.

The definition files relate to the iSCSI boot information registered by performing iSCSI boot operations (`rcxadm iscsictl`).

Refer to "15.4.2 iSCSI Boot Information" in the "Reference Guide (Command/XML) CE".

Storage Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvmr/customize_data

Definition File Name

- User Groups
iscsi_user_group_name.rcxprop
- Common on System
iscsi.rcxprop

Definition File Format

In the definition file, an item to define is entered on each line. Enter items in the following format:

Variable =
Value

When adding comments, start the line with a number sign ("#").

Definition File Items

Table B.2 Items for the iSCSI Network Definition File

Variable	Meaning	Value
server_model. <i>model_name</i> .boot_nic	<p>Specify the server model names and NICs to boot using iSCSI. Multiple NICs can be specified.</p> <ul style="list-style-type: none"> - BX620 - BX920 - BX922 - BX924 - BX960 <p>An asterisk ("*") is specified by default.</p>	<p>Specify in the following format.</p> <p>NIC[<i>index</i>]</p> <p><i>index</i> is an integer starting from "1".</p>



Example

```
#Server Section
server_model.BX922.boot_nic = NIC1
server_model.BX924.boot_nic = NIC1,NIC2
server_model.*.boot_nic = NIC1,NIC2
server_model.RX300.boot_nic = NIC1,NIC2
```

B.1.11 Definition File for FalconStor NSS

When registering SAN Client CLI as storage management software, it is necessary to specify the installation folder of SAN Client CLI in the definition file for FalconStor NSS.

Storage Location of the Definition File for FalconStor NSS

[Windows Manager]
Installation_folder\SVROR\Manager\sys\usm\etc

[Linux Manager]
/opt/FJSVrcvnr/sys/usm/etc

Definition File Name for FalconStor NSS

fspath.conf

Definition File Format for FalconStor NSS

The format of the definition file for FalconStor NSS is as follows:

```
iscli = SAN Client CLI_installation_folder
```

[Windows]

Use "\\" for the file separator.



Example

[Windows]

```
iscli= C:\\Program Files\\FalconStor\\IPStor\\client
```

[Linux]

```
iscli=/usr/ipstor/bin
```

B.2 Registering Resources with Resource Orchestrator

This section explains how to register resources with Resource Orchestrator.

- When using Blade Servers

Refer to "B.2.1 When using Blade Servers".

- When Using Something other than a Blade Server

Refer to "B.2.2 When Registering Something other than a Blade Server".

B.2.1 When using Blade Servers

Registration of resources when creating a physical L-Server using a blade server is explained.

Register using the following procedure:

1. Registering VIOM Coordination

Refer to "5.1 Registering VIOM Coordination" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".



Note

It is not necessary to register a VIOM server profile.

When creating a physical L-Server, VIOM server profiles are automatically created.

2. Register Storage Management Software

When storage management software is registered, RAID groups or aggregates that were created during pre-setup preparations are automatically registered in Resource Orchestrator as virtual storage resources.

Execute the `rcxadm storagemgr register` command to register storage management software with Resource Orchestrator.

For details on the `rcxadm storagemgr register` command, refer to "5.17 rcxadm storagemgr" in the "Reference Guide (Command/XML) CE".

3. Register Chassis

4. Refer to "5.4.1 Registering Chassis" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

5. Register Managed Servers (within Chassis)

Refer to "5.4.2 Registering Blade Servers" or "5.5.1 Registering Rack Mount or Tower Servers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

When performing admin LAN NIC redundancy and registering a physical server, check the [Use Admin LAN redundancy] checkbox in the "Register Server" dialog when registering the server.

When directly specifying an IP address during physical L-Server creation, do not configure the same IP address on a managed server. An error will occur during the following operations, if there are managed servers configured with the same IP addresses as those allocated to physical L-Servers, in other than physical servers.

- Creation of physical L-Servers
- Starting of a physical L-Server for which only the configuration definition has been created

Note

When not using the default NIC, specify the NIC for admin LAN during the physical server registration.

For details, refer to the "[Apply Admin LAN NIC settings] checkbox" in "5.4.2 Registering Blade Servers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

6. Register LAN Switch Blades

Refer to "5.4.3 Registering LAN Switch Blades" and "5.13 Registering LAN Switches" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

7. Register Network Device Resources

For details on how to register network device resources, refer to "5.7.2 Registering Network Devices" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

8. Register Power Monitoring Devices (when Using Devices)

Refer to "5.10 Registering Power Monitoring Devices" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

To register a network resource or an address set resource, specify a resource pool when creating the resource.

Refer to "[B.3 Registering Resources in Resource Pools](#)".

B.2.2 When Registering Something other than a Blade Server

Registration of resources when creating a physical L-Server using a server other than a blade server is explained.

Register using the following procedure:

1. Register VIOM Coordination or Configure HBA address rename

When using rack mount servers which are supported by VIOM, manage them with VIOM.

Refer to "5.1 Registering VIOM Coordination" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

When using servers other than rack mount or tower servers, configure HBA address rename.

Refer to "5.5.2 HBA address rename Settings" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Register Storage Management Software

Execute the `rcxadm storagemgr register` command.

For details on the `rcxadm storagemgr register` command, refer to "5.17 rcxadm storagemgr" in the "Reference Guide (Command/XML) CE".

When storage management software is registered, virtual storage resources and disk resources created in advance are automatically recognized.

3. Register Managed Servers

Refer to "5.5.1 Registering Rack Mount or Tower Servers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

When performing admin LAN NIC redundancy and registering a physical server, check the [Use Admin LAN redundancy] checkbox in the "Register Server" dialog when registering the server.

When directly specifying an IP address during physical L-Server creation, do not configure the same IP address on a managed server. An error will occur during the following operations, if there are managed servers configured with the same IP addresses as those allocated to physical L-Servers, in other than physical servers.

- Creation of physical L-Servers
 - Starting of a physical L-Server for which only the configuration definition has been created
4. Register Network Device Resources

For details on how to register network device resources, refer to "5.7.2 Registering Network Devices" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".
 5. Register Power Monitoring Devices (when Using Devices)

Refer to "5.10 Registering Power Monitoring Devices" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

To register a network resource or an address set resource, specify a resource pool when creating the resource.

Refer to "[B.3 Registering Resources in Resource Pools](#)".

B.3 Registering Resources in Resource Pools

This chapter explains the registration of resources to resource pools.

Use the following procedure to register a resource to a resource pool:

1. Register Physical Server Resources

Register physical servers to the server pool.

For details, refer to "14.2 Physical Server Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Register Network Resources

If network resources are connected when creating an L-Server, LAN switch blades will be registered automatically as the physical server that the L-Server will operate on. If an image is specified, the IP address is configured.

For details, refer to "[B.3.1 Automatic Network Configuration](#)".

- a. In the ROR console orchestration tree, right-click the target network pool, and select [Create Network Resource].

When creating a new network resource, select [New].

When creating a resource using an already registered admin LAN subnet, select [Using existing admin subnet].

The [Create a network resource] dialog is displayed.

- b. Enter the items necessary for network resources.

For details, refer to "14.3 Network Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".



Note

When the destination of a physical L-Server is a PRIMERGY BX920 series or BX922 series server and LAN switch blades PY-SWB104 (PG-SW109) or PY-SWB101 (PG-SW201) are mounted in CB1 and CB2, only NIC1 and NIC2 can be used.

3. Register Network Device Resources

For details on how to register network device resources, refer to "14.4 Network Devices" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

4. Register Storage Resources

The procedure differs depending on the storage resources to use.

- When using virtual storage resources or disk resources created in advance

For details, refer to "14.5 Storage Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- When using iSCSI boot

Execute the operation command for iSCSI boot (rcxadm iscsictl register) to register the resources.

For details on the rcxadm iscsictl register command, refer to "5.10 rcxadm iscsictl" in the "Reference Guide (Command/XML) CE".

5. Register Address Set Resources

For WWNs and MAC addresses, address set resources must be created and registered to the address pool.

Execute the rcxadm addrset create command to register WWNs and MAC addresses to the address pool.

For details on the rcxadm addrset create command, refer to "3.1 rcxadm addrset" in the "Reference Guide (Command/XML) CE".

B.3.1 Automatic Network Configuration

If network resources are connected when creating an L-Server, LAN switch blades will be registered automatically as the blade server that the L-Server will operate on.

If an image is specified, the IP address is configured.

Specify an IP address in a different subnet from the admin LAN.

For rack mount and tower servers, only connect network resources.

When creating a physical L-Server, the IP address cannot be automatically configured if specifying a Red Hat Enterprise Linux image.

Manually configure the IP address after the image has been deployed to the L-Server.

Physical Server (Blade Server) Configuration to Support Automation of Network Configuration in Resource Orchestrator

The physical server (blade server) configuration to support automation of network configuration (server blades, specification of uplink port for network resources, correspondence relations of numbers of LAN switch blades and physical network adapters, etc.) in Resource Orchestrator are shown in the following list. In this list, show the specifiable scope of physical network adapter numbers according to the server blade models, uplink port specifications and combination of LAN switch blades to use.

Table B.3 Physical Server (Blade Servers) Configuration (for PRIMERGY BX900 S1 Chassis)

Server Blade	Specification of Uplink Port (Location of LAN Switch Blade)	LAN Switch Blade to Use	Physical Network Adapter Number
BX920 S1 BX920 S2 BX920 S3 BX922 S2 BX924 S3	CB1 and CB2, or no specification for uplink port	PY-SWB102(PG-SW111) PY-SWB103(PG-SW112)	1 - 4
		PY-SWB101(PG-SW201) PY-SWB104(PG-SW109) (*1) PY-CNB101 (*2)	1,2
	CB3 and CB4	PY-SWB102(PG-SW111) PY-SWB103(PG-SW112)	5 - 8
		PY-SWB101(PG-SW201) PY-SWB104(PG-SW109) PY-CNB101	5,6
BX924 S2	CB1 and CB2, or no specification for uplink port	PY-SWB101(PG-SW201) PY-SWB102(PG-SW111) PY-SWB103(PG-SW112) PY-SWB104(PG-SW109)	1,2
		PY-SWB102(PG-SW111) PY-SWB103(PG-SW112)	3 - 6
	CB3 and CB4	PY-SWB101(PG-SW201) PY-SWB104(PG-SW109) PY-CNB101	3,4

Server Blade	Specification of Uplink Port (Location of LAN Switch Blade)	LAN Switch Blade to Use	Physical Network Adapter Number
BX960 S1	CB1 and CB2, or no specification for uplink port	PY-SWB101(PG-SW201) PY-SWB102(PG-SW111) PY-SWB103(PG-SW112) PY-SWB104(PG-SW109)	1, 2, 11, 12
		PY-SWB102(PG-SW111) PY-SWB103(PG-SW112)	3 - 6
	CB3 and CB4 (*3)	PY-SWB101(PG-SW201) PY-SWB104(PG-SW109) PY-CNB101	3,4

*1: When installing a PY-SWB104 (PG-SW109) on CB1 or CB2, set the transmission speed at the down link port of PY-SWB104 (PG-SW109) to 1 Gbps. For details on how to configure the settings, refer to the corresponding hardware manual.

*2: Only BX920 S2 and BX924 S3 are supported as server blades, when mounting PY-CNB101 on CB1 and CB2.

*3: Only configurations where LAN expansion cards are mounted in expansion slot 1 are supported.

Table B.4 Physical Server (Blade Servers) Configuration (for PRIMERGY BX400 S1 Chassis)

Server Blade	Specification of Uplink Port (Location of LAN Switch Blade)	LAN Switch Blade to Use	Physical Network Adapter Number
BX920 S2 BX920 S3 BX922 S2 BX924 S3	CB1 and CB2 (*1), or no specification for uplink port	PY-SWB102(PG-SW111) PY-SWB103(PG-SW112)	1 - 8
		PY-SWB101(PG-SW201) PY-SWB104(PG-SW109) (*2) PY-CNB101 (*3)	1, 2, 5, 6
	BX924 S2	CB1 and CB2 (*1), or no specification for uplink port	PY-SWB102(PG-SW111) PY-SWB103(PG-SW112)
PY-SWB101(PG-SW201) PY-SWB104(PG-SW109)			1 - 4

*1: The same LAN switch blade model should be mounted in CB1 and CB2.

*2: When installing a PY-SWB104 (PG-SW109) on CB1 or CB2, set the transmission speed at the down link port of PY-SWB104 (PG-SW109) to 1 Gbps. For details on how to configure the settings, refer to the corresponding hardware manual.

*3: Only BX920 S2 and BX924 S3 are supported as server blades, when mounting PY-CNB101 on CB1 and CB2.

Table B.5 Physical Server (Blade Servers) Configuration (for PRIMERGY BX600 S3 Chassis)

Server Blade	Specification of Uplink Port (Location of LAN Switch Blade)	LAN Switch Blade to Use	Physical Network Adapter Number
BX600 series servers	NET1 and NET2, or no specification for uplink port	PG-SW107	1 - 6
	NET3 and NET4	PG-SW104	7,8

The NIC number of the L-Server the network resource above is allocated to is the number of the physical network adapter of the physical server.

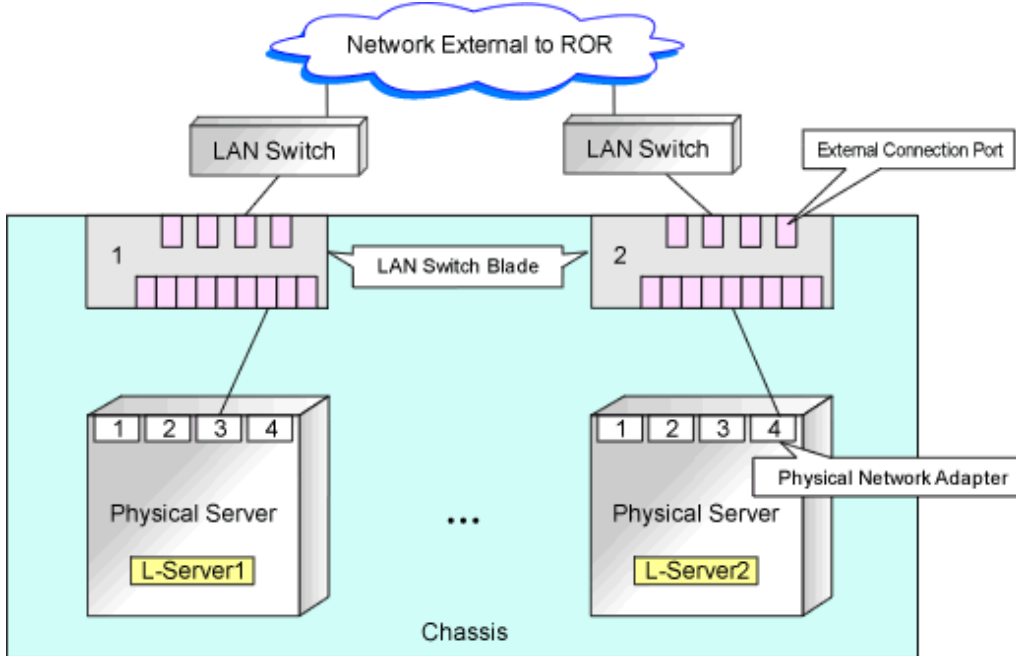
When the LAN switch blade is in IBP mode, specify the NIC of the L-Server that network resources are allocated to as in the case when uplink ports have not been specified (internal network).

The physical server (blade server) configuration as described in the following configuration example when using a PRIMERGY BX900 S1 chassis is as shown below.

Table B.6 Configuration Example

Server blades	BX920 S2
Specification of uplink port	CB1 and CB2
LAN switch blade to use	PY-SWB103(PG-SW112)

Figure B.1 Physical Server (Blade Servers) Configuration (for PRIMERGY BX900 S1 Chassis)



B.3.2 Manual Network Configuration

When using a physical network adapter number that is different from the one used in the physical server configuration patterns, create network resources using the following procedure.

- From the GUI:

1. In the ROR console orchestration tree, right-click the target network pool, and select [Create Network Resource].

When creating a new network resource, select [New].

When creating a resource using an already registered admin LAN subnet, select [Using existing admin subnet].

The [Create a network resource] dialog is displayed.

2. Enter the items necessary for network resources.

For details, refer to "14.3 Network Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Create a network resource by checking the [Use configured virtual switches.] checkbox.

- From the Command-line:

1. Create the XML file that defines network resources.

In this case, specify auto="false" in the Network tag.

For details on the Network element and creation of XML files that define network resources, refer to "15.5 Network Resources" in the "Reference Guide (Command/XML) CE".

2. Execute the rxadm network create command specifying the XML file created in step 1.



- For details on the Network element and creation of XML files that define network resources, refer to "15.5 Network Resources" in the "Reference Guide (Command/XML) CE".
- For details on the rxcadm network command, refer to "3.9 rxcadm network" in the "Reference Guide (Command/XML) CE".

B.4 Creating L-Server Templates

This chapter explains how to create an L-Server template.

L-Server templates can be created using the following methods.

- Using the Wizard GUI

L-Server templates can be created using a GUI in the wizard format.

For details on the GUI in the wizard format, refer to "15.1 Operations Using the Wizard GUI" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- Manually

Use the following procedure to create an L-Server template:

1. Export an L-Server Template

The sample L-Server templates provided with Resource Orchestrator can be exported.

For details on how to export L-Server templates, refer to "15.2.1 Export" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Edit an L-Server Template

The L-Server template output in step 1 can be edited with an editor, etc.

For details on the L-Server templates for physical L-Servers, refer to "15.2.1 Physical L-Server Templates" in the "Reference Guide (Command/XML) CE".

3. Import an L-Server Template

The L-Server template edited in step 2 can be imported.

For details on how to import L-Server templates, refer to "15.2.3 Import" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

B.5 Creating an L-Server

This section explains the creation of physical L-Servers.

Physical L-Servers can be created using the following methods:

- Creating an L-Server Using an L-Server Template

Refer to "[B.5.1 Creating an L-Server Using an L-Server Template](#)".

- Creating an L-Server Specifying Individual Specifications

Refer to "[B.5.2 Creating an L-Server Specifying Individual Specifications](#)".

- Installation of an Operating System Using PXE Boot

Refer to "[B.5.4 Installation of an Operating System Using PXE Boot](#)".

Configuration parameters for an OS can be specified by entering the parameters in the [OS] tab when creating an L-Server specifying an image using the [General] tab. For details, refer to "[B.7 \[OS\] Tab Configuration](#)".

For details, refer to the following:

B.5.1 Creating an L-Server Using an L-Server Template

- When there are no cloning images, or when not using already registered cloning images

1. Create an L-Server Using an L-Server Template

Create an L-Server, referring to "16.1 Creation Using an L-Server Template" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

In this case, perform the following configuration:

- Select [None] for images.
- Check if the [Single path mode] checkbox for FC path is checked.
- When specifying "None" for images, the [Single path mode] checkbox for FC path is automatically checked.

2. Manually Install an OS

Refer to "[B.5.3 Manual OS Installation](#)".

3. Install a Multipath Driver (when using a Multipath for the Path to the SAN)

When using multipaths between L-Server and SAN, install the multipath driver for the L-Server.

For details on how to install the multipath driver, refer to the multipath driver manual.

4. Stop the L-Server

For details on stopping L-Servers, refer to "17.1.2 Stopping an L-Server" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

5. Change the SAN Path Status of the L-Server

Follow the procedure below to change the SAN path status of the L-Server.

- a. Right-click the target L-Server in the orchestration tree, and select [Change Settings]-[Modify Specification] from the popup menu.
The [Modify an L-Server] dialog is displayed.
- b. Uncheck the [Single path mode] checkbox for FC path.
- c. Click <OK>.

6. Start the L-Server

For details on starting L-Servers, refer to "17.1.1 Starting an L-Server" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

7. Install the Agent

It is necessary to install an agent after installing the OS, and then register it.

For details on installing agents, refer to "[2.2 Agent Installation](#)".

8. Register the Agent

Use the following procedure to register an agent on the server used as an L-Server.

- a. Right-click the target L-Server in the orchestration tree, and select [Register]-[Agent] from the popup menu.
- b. Click <OK>.
The [Register Agent] dialog is displayed.
- c. Click <OK>.

- When using an existing cloning image

Create an L-Server, referring to "16.1 Creation Using an L-Server Template" in the "User's Guide for Infrastructure Administrators (Resource Management) CE". In this case, specify the cloning image that you want to use as an image.

B.5.2 Creating an L-Server Specifying Individual Specifications

- When there are no cloning images, or when not using already registered cloning images

Refer to "16.2 Creation of Physical L-Servers Using Parameters" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

In this case, perform the following configuration:

- Select [None] for images.
- Check if the [Single path mode] checkbox for FC path is checked.

When specifying "None" for images, the [Single path mode] checkbox for FC path is automatically checked.

Perform steps 2 to 8 in "[B.5.1 Creating an L-Server Using an L-Server Template](#)".

- When using an existing cloning image

Refer to "16.2 Creation of Physical L-Servers Using Parameters" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

In this case, perform the following configuration:

- Specify a cloning image to deploy.
- Check if the [Single path mode] checkbox for FC path is unchecked.

When specifying an image, the [Single path mode] checkbox for FC path is automatically unchecked.

For details on how to configure the [OS] tab, refer to "16.2.5 [OS] Tab" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

B.5.3 Manual OS Installation

Install the OS and applications required for deployment.

For manual OS installation, installation by remote console is recommended after starting the MB (Management Blade) or iRMC (Remote Management Controller) screen.

Additionally, apply any required patches and other necessary settings.

Make sure that the source server operates properly after those steps.

- Check whether the DHCP client is enabled on the managed server to collect the cloning image from.
- Cloning images with the same name can be saved up until the maximum number of image versions.

When collecting a new cloning image when the maximum number of image versions has already been reached, select the cloning image to delete.

The maximum number of image versions is three by default.

For details of how to change the maximum number of image versions, refer to "6.4 Changing the Maximum Number of Cloning Image Versions (Physical Servers)" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- When the target of operation is a PRIMEQUEST server, confirm that the boot option settings on the target server and the boot option set in BIOS are configured for Legacy boot.

When the settings of one of the servers are UEFI, configure the settings after changing to Legacy boot.

For details on changing the boot options, refer to "7.1.10 Changing Boot Options" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

[Windows]

- Enable NetBIOS over TCP/IP
- A volume license is required for cloning, and must be entered during the installation of Resource Orchestrator Agent.

For details, refer to "[2.2.1.2 Collecting and Checking Required Information](#)" and "[2.2.2 Installation \[Windows\] \[Hyper-V\]](#)".

If no volume license is entered during the agent installation, or if this information is changed after installation, edit the following license configuration file on the source server. Note that the structure and location of this file depend on the version of Windows that is being used.

- For Windows Server 2003

Installation_folder\Agent\scw\SeparateSetting\sysprep\sysprep.inf

Edit the following line to enter a valid product ID.

ProductID= *Windows product key* (*1)

*1: 5-digit values separated by hyphens

Example

ProductID=11111-22222-33333-44444-55555

Note

If there is a mistake in the product ID value or format, an error occurs when the collected cloning image is deployed. Make sure to enter a valid product ID when editing the definition file.

- For Windows Server 2008 or Later

Installation_folder\Agent\scw\SeparateSetting\ipadj\activation.dat

Specify the parameters in the format "parameter=value" in each line of the [ActivationInfo] section of the definition file.

Refer to the following table for details on each parameter.

Table B.7 Structure of the Definition File

Format	Parameter	Value
KMS	.cmd.remotescript. 1.params.kmscheck (Mandatory)	KMS host search type. Select one of the following: - AUTO Automatically searches KMS hosts. - MANUAL Specify the KMS host. When "MANUAL" is selected, make sure to set .cmd.remotescript.1.params.kmsname.
	.cmd.remotescript. 1.params.kmsname	Host name (FQDN), computer name or IP address of the KMS host.
	.cmd.remotescript. 1.params.kmsport	KMS host port number. If omitted, "1688" will be set.
MAK	.cmd.remotescript. 1.params.makkey (Mandatory)	MAK key.
Common	.cmd.remotescript. 1.params.ieproxy	Host name (FQDN) and the port number of the proxy server. The host name and port number are separated by a colon (":").
	.cmd.remotescript. 1.params.password	Administrator password. An existing password setting will be displayed as an encrypted character string.

Format	Parameter	Value
		To edit the password, overwrite it with plain text, delete the "encrypted=yes" line, and perform the encryption procedure indicated in the example. If this parameter is not set, the password will be re-initialized.
	encrypted	The encryption status of the Administrator password. Encryption is performed when "yes" is specified. If this line exists, the rcxadm deployctl command does not operate.



Example

- With KMS (Automatic Search)

```
[ActivationInfo]
.cmd.remotescript.1.params.kmscheck=AUTO
.cmd.remotescript.1.params.ieproxy=proxy.activation.com:8080
.cmd.remotescript.1.params.password=PASSWORD
```

- With KMS (Manual Settings)

```
[ActivationInfo]
.cmd.remotescript.1.params.kmscheck=MANUAL
.cmd.remotescript.1.params.kmsname=fujitsu.activation.com
.cmd.remotescript.1.params.kmsport=4971
.cmd.remotescript.1.params.ieproxy=proxy.activation.com:8080
.cmd.remotescript.1.params.password=PASSWORD
```

- With MAK

```
[ActivationInfo]
.cmd.remotescript.1.params.makkey=11111-22222-33333-44444-55555
.cmd.remotescript.1.params.ieproxy=proxy.activation.com:8080
.cmd.remotescript.1.params.password=PASSWORD
```

If the Administrator password has been changed, execute the following command. The password specified in the .cmd.remotescript.1.params.password parameter of the definition file is changed to the encrypted string, and the line "encrypted=yes" is added to indicate that the password is encrypted.

For details, refer to "5.8 rcxadm deployctl" in the "Reference Guide (Command/XML) CE".

```
>"Installation_folder\Agent\bin\rcxadm" deployctl passwd -encrypt <RETURN>
```

- With MAK (Already Encrypted Password)

```
[ActivationInfo]
.cmd.remotescript.1.params.makkey=11111-22222-33333-44444-55555
.cmd.remotescript.1.params.ieproxy=proxy.activation.com:8080
.cmd.remotescript.1.params.password=xyz123456
encrypted=yes
```

[Windows]

- For physical L-Servers, specify the NIC number defined for the rack mount or tower servers decided in "9.1.1 Admin LAN Network Design" and "9.1.3 Physical Network Design for the Public LAN and iSCSI LAN" in the "Design Guide CE" as the subscript.

Example

If the NIC number of the leftmost NIC on the back of a rack mount server is defined as "1", specify "Local area connection 1" here.

[Linux]

- For physical L-Servers, specify the number with 1 subtracted from the NIC number defined for the rack mount or tower servers decided in "9.1.1 Admin LAN Network Design" and "9.1.3 Physical Network Design for the Public LAN and iSCSI LAN" in the "Design Guide CE" as the subscript.

Example

If the NIC number of the leftmost NIC on the back of a rack mount server is defined as "1", specify "eth0" here.

Information

The following are examples of the methods for aligning the subscript of a network interface name and NIC number of the NIC at back of the rack mount server.

For details, refer to the OS manual.

- Red Hat Enterprise Linux

Configure the MAC address of the NIC at the back of the rack mount server for HWADDR in the following file: `/etc/sysconfig/network-scripts/ifcfg-ethX`

- SLES

Use udev.

B.5.4 Installation of an Operating System Using PXE Boot

This section explains how to install an operating system using PXE boot.

To manually install an operating system using PXE boot, use the following procedure.

Note

When using PXE boot, VIOM is required.

1. Create a physical L-Server, selecting [NIC for PXE boot] and [Network for PXE boot] of "Boot device priority" on the [Server] tab.

For details on how to configure the [Server] tab, refer to "16.2 Creation of Physical L-Servers Using Parameters" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

In this case, perform the following configuration:

- Specify the network boot (PXE) for the boot mode.
 - Select the network resource for PXE boot.
 - Select [None] for images.
 - Check if the [Single path mode] checkbox for FC path is checked.
 - When specifying [None] for images, the [Single path mode] checkbox for FC path is automatically checked.
2. Using the DHCP service settings of the PXE boot server, set the relevant physical L-Server to perform PXE boot.
 3. Using PXE boot, install an OS on the physical L-Server.
 4. Stop the physical L-Server after installing the OS.

5. In the [Modify an L-Server] dialog, change [Network for PXE boot] to [Default] under [Boot mode].
6. Using the DHCP service settings of the PXE boot server, set the relevant physical L-Server so as not to perform PXE boot.
7. Start the L-Server.

For details on starting L-Servers, refer to "17.1.1 Starting an L-Server" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

8. Install a multipath driver.

When using multipaths between L-Server and SAN, install the multipath driver for the L-Server.

Refer to the manual of the multipath driver for details on installing multipath drivers.

9. Stop the L-Server.

For details on stopping L-Servers, refer to "17.1.2 Stopping an L-Server" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

10. Change the status of SAN paths for the L-Server.

Follow the procedure below to change the SAN path status of the L-Server.

- a. Right-click the target L-Server in the orchestration tree, and select [Change Settings]-[Modify Specification] from the popup menu.

The [Modify an L-Server] dialog is displayed.

- b. Uncheck the [Single path mode] checkbox for FC path, and click <OK>.

11. Start the L-Server.

For details on starting L-Servers, refer to "17.1.1 Starting an L-Server" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

12. Install the agent.

It is necessary to install an agent after installing the OS, and then register it.

For details on installing agents, refer to "[2.2 Agent Installation](#)".

13. Register the agent.

Use the following procedure to register an agent on the server used as an L-Server.

- a. Right-click the target L-Server in the orchestration tree, select [Register]-[Agent] from the popup menu, and click <OK>.

The [Register Agent] dialog is displayed.

- b. Click <OK>.

B.6 Collecting and Registering Cloning Images

Cloning images can be collected using the following two methods:

- Collecting a Cloning Image from an L-Server after OS Installation

Refer to "[B.6.1 When Collecting a Cloning Image from an L-Server after OS Installation](#)".

- When Registering a Cloning Image Created from a Physical Server in Advance to the Image Pool

Refer to "14.7.2 Physical Image Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

When the target server of cloning image collection has a redundant NIC configured, release redundancy and then perform collection of cloning images.

Collect cloning images in the state where a multi driver is installed.

B.6.1 When Collecting a Cloning Image from an L-Server after OS Installation

Cloning images can be collected from the L-Server after an OS is installed.

1. Stop the L-Server

For details on stopping L-Servers, refer to "17.1.2 Stopping an L-Server" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Collecting a Cloning Image

In the orchestration tree on the [Resource] tab of the ROR console, right-click the L-Server created in "[Chapter 14 Creating an L-Server for an Infrastructure Administrator](#)", and select [Cloning] - [Collect] from the popup menu.

The [Collect a Cloning Image] dialog is displayed.

Configure the necessary items.

The cloning image is stored in the specified image pool.

For details on collecting cloning images, refer to "17.5.1 Collecting and Registering" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".



Note

- This function is not available if ServerView Deployment Manager is used on the admin LAN. Use the cloning function of ServerView Deployment Manager. For details, refer to "Appendix B Co-Existence with ServerView Deployment Manager" in the "Setup Guide VE".

- When cloning, only the content of the first disk recognized in the BIOS (the boot disk) of the managed server is collected.

Data disk content (second disk onwards) cannot be cloned. Use other backup software and the copy functions of storage units to collect and deploy the data.

If multiple storage areas (Windows drivers or Linux partitions) are set in the first disk, all the partitions are cloned.

Table B.8 Cloning Target Examples

Disk	Windows Drive	Cloning Target
First disk	C:	Yes
	E:	Yes
Second disk	D:	No
	F:	No

- When collecting a cloning image, work must be stopped because the managed server is restarted.
- The first partition must be a primary partition.
- Cloning images can be collected with the following file systems. Note that LVM (Logical Volume Manager) partitions are not supported.
 - NTFS
 - EXT3
 - EXT4
 - LinuxSwap
- When the managed server is Windows Server 2012, collection of cloning images from system disks that include ReFS data areas is not possible.
- The following conditions must be met for the managed server to collect the cloning image from and the managed server to deploy the cloning image to.
 - The model names are the same

- The hardware configurations are the same, such as the optional cards and expansion cards, and their locations
- The BIOS settings are the same for all servers according to the procedure in "8.2.7 Configuring BIOS Settings of Managed Servers" in the "Design Guide CE".
- The LAN and SAN connections have the same redundancy methods and the same number of redundancy paths, and can access the same network devices and storage units

Note that LAN or fibre channel switches connected in a cascade configuration are viewed as a single device.

- Some applications may require manual adjustments to function properly after cloning.

If necessary, manually perform such adjustments before or after the cloning process.

- Up to four system image backup, restoration, and cloning image collection processes can be executed at the same time. If five or more processes are requested, the extra processes wait until the processes being executed are complete.

Restore operations executed by the backup/restore method during server switchover and failback also wait. When using auto-recovery and manual switchover operations with the backup/restore method, execute a maximum of three system image backup/restore or cloning image collection/deployment operations at the same time.

- After collecting or deploying a cloning image, software required for connecting to external servers, etc. when the OS is started may not start correctly.

In this case, restart the OS after it is collected.

- If the Watchdog (function that automatically resets or turns off the OS when a hang is detected because the OS does not respond for a certain period) function of the managed server is enabled, the OS may be automatically reset or turned off during cloning.

It is therefore highly recommended to disable the Watchdog function before a cloning operation.

For details, refer to the manual of the managed server.

- When using MAK license authentication for activation for the following OSs, Sysprep can be executed a maximum of three times.
 - Microsoft(R) Windows Server(R) 2008 R2
 - Microsoft(R) Windows Server(R) 2008

Since Sysprep is executed when creating L-Server with images specified or when collecting cloning images, collection of cloning images and creation of L-Servers with images specified cannot be performed more than four times. Therefore, it is recommended not to collect cloning images from L-Servers that have had cloning images deployed, but to collect them from a dedicated master server.

- As there is a chance that data will be damaged, do not perform collection or deployment of a cloning image while performing an iSCSI connection using a software initiator.

When using data disks, use the hardware initiator.

B.7 [OS] Tab Configuration

Enter the parameters to set for the OS when creating the L-Server. This setting is valid only if an image is specified in the [General] tab. The setting process is performed the first time the L-Server is started.

If an image name is not specified, entry is not necessary.

Table B.9 List of Settings

Item	Description
Host name/Computer name	<p>Enter the host name or computer name.</p> <p>[Windows] Specify up to 63 characters, including alphanumeric characters, underscores (" _"), and hyphens ("-"). The string cannot be composed solely of numbers.</p> <p>[Linux] Specify up to 64 characters, including alphanumeric characters, hyphens ("-"), periods ("."), and underscores (" _").</p>

Item	Description
	Underscores ("_") in the L-Server name will be converted to hyphens ("-"). If the basic information is not specified, the L-Server name is converted and set as indicated above.

B.8 Network Redundancy and VLAN Settings of L-Servers

In Resource Orchestrator, when images of Red Hat Enterprise Linux are specified, IP address settings of public LANs are not configured. Server NIC redundancy and the OS settings of tagged VLANs are also not configured.

When starting an OS after L-Server creation, set the image to be configured automatically after creating an L-Server. For this setting, use the image collected in the state where the scripts to configure the network settings have been prepared beforehand.

In this case, prepare a script like the following, and perform collection of a cloning image with the script executed once on starting of the OS.

According to the description in the network information file, perform the following settings for using NIC redundancy software (such as Windows Intel PROSet/Linux bonding).

- NIC Redundancy
- Tagged VLAN Configuration
- IP Address Configuration

For details on the specifications of the network information file, refer to "[Network Information File](#)".

Network Information File

The settings for NIC redundancy and tagged VLANs for a physical L-Server are described in the file. It is automatically transferred to a physical L-Server during creation. When the `rcxadm lserver` command is executed after creation of the physical L-Server, the network information file will be transferred to the L-Server.

Network Information File Storage Destination

```
[Windows]
Installation_folder\Agent\etc\net

[Linux]
/etc/opt/FJSVrcxat/net/
```

File Name of the Network Information File

```
net_info.conf
```

Character Code

```
UTF-8
```

Line Break Code

```
[Windows]
CR/LF

[Linux]
LF
```

Format for the Network Information File

The formats are shown below.

Table B.10 List of Items Specified in the Network Information File

Variable	Meaning	Value
NIC[index]_MacAddress	NIC MAC address (*)	MAC addresses, noted in hexadecimal form, separated by colons (":")
Groups	List of groups of redundant NICs	Group numbers, separated by spaces

Variable	Meaning	Value
Group[index]_NetworkLinks	NetworkLink list allocated to groups	NetworkLinkIndex separated by spaces
Group[index]_[NetworkLinkIndex]_Nics	List of NICs comprising groups	NIC numbers separated by spaces
Group[index]_[NetworkLinkIndex]_IpAddress	Group IP address	IPv4 addresses separated by periods (".")
Group[index]_[NetworkLinkIndex]_Netmask	Net masks of groups	
Group[index]_[NetworkLinkIndex]_DNSServer	DNS addresses of groups [Windows]	
Group[index]_[NetworkLinkIndex]_DefaultGateway	Default gateway	
Group[index]_[NetworkLinkIndex]_Vlanid	VLANID of NetLink allocated to the group	2-4094
Group[index]_[NetworkLinkIndex]_VlanMode	Specification of tagged VLANs or untagged VLANs	tagged or untagged
Group[index]_[NetworkLinkIndex]_ExtParams_[ParamName]	Additional group parameters For [ParamName], the parameter name specified during L-Server creation is used.	Parameter value specified by the user
SingleNics	List of non-redundant NICs in single configurations	NIC numbers separated by spaces
NIC [index]_NetworkLinks	NetworkLink list allocated to groups	NetworkLinkIndex separated by spaces
NIC [index]_[NetworkLinkIndex]_IpAddress	NIC IP addresses	IPv4 addresses separated by periods (".")
NIC [index]_[NetworkLinkIndex]_Netmask	NIC Net masks	
NIC [index]_[NetworkLinkIndex]_DNSServer	NIC DNS addresses [Windows]	
NIC [index]_[NetworkLinkIndex]_DefaultGateway	Default gateway	
NIC [index]_[NetworkLinkIndex]_Vlanid	VLANID of NetLink allocated to NICs	2-4094
NIC [index]_[NetworkLinkIndex]_VlanMode	Specification of tagged VLANs or untagged VLANs	tagged or untagged
NIC [index]_[NetworkLinkIndex]_ExtParams_[ParamName]	Additional NIC parameters For [ParamName], the parameter name specified during L-Server creation is used.	Parameter value specified by the user
DNSServer	DNS Server [Linux]	-
Route [index]	Static routing configuration Type, destination address for packet, net mask and gateway	- type: type of destination address - net: net address

Variable	Meaning	Value
	address are specified, separated by commas	<ul style="list-style-type: none"> - host: host address - destination address: destination address for packet - mask: net mask - gateway address: gateway address

* Note: This message is not output, when using a physical L-Server in a server environment managed using something other than VIOM.

Information

When using a driver specific parameter such as GLS or Bonding for the script configuring the network, describe the information in the following files:

- Network unit parameter (describes IP addresses of monitoring targets for GLS or Bonding)

[Windows]

Installation_folder\SVROR\Manager\etc\customize_data\net\net_info.network_resource_name.conf

[Linux]

/etc/opt/FJSVrcvmr/customize_data/net\net_info.network_resource_name.conf

- L-Server unit parameter (configures QoS or others to set for NICs)

[Windows]

Installation_folder\SVROR\Manager\etc\customize_data\net\net_info.l_server_name.conf

[Linux]

/etc/opt/FJSVrcvmr/customize_data/net\net_info.l_server_name.conf

When deploying L-Servers, send a network information file with content matching the L-Server name or the name of a network resource connected to the L-Server, to the destination server.

Example

```
#MAC information list of NIC equipped on Physical Server
NIC1_MacAddress="XX:XX:XX:XX:XX:X1"
NIC2_MacAddress="YY:YY:YY:YY:YY:Y2"
NIC3_MacAddress="XX:XX:XX:XX:XX:X3"
NIC4_MacAddress="YY:YY:YY:YY:YY:Y4"
NIC5_MacAddress="XX:XX:XX:XX:XX:X5"
NIC6_MacAddress="YY:YY:YY:YY:YY:Y6"
#####
#NIC redundancy information
#####
Groups="0 1"#Redundant group list(#0,#1 Group exist in this example)
Group0_NetworkLinks="0" #One NetworkLink exists in group 0 (index 0 only)
Group1_NetworkLinks="0 1" #Multiple NetworkLinks exist in group 1 (index 0 to 1)

#Group is written in Group_[NICGroupIndex]_[NetworkLinkIndex]
Group0_0_Nics="1 2" #Bonding NIC 1 and 2
Group0_0_IpAddress="192.168.0.1"
Group0_0_Netmask="255.255.255.0"
Group0_0_DefaultGateway="192.168.0.253"
Group0_0_Vlanid=2
```

```

Group0_0_VlanMode="tagged"
Group0_0_DNSServer="ipaddress"

Group1_0_Nics="3 4" #Bonding NIC 3 and 4
Group1_0_IpAddress="192.168.1.1"
Group1_0_Netmask="255.255.255.0"
Group1_0_Vlanid=3
Group1_0_VlanMode="tagged"

Group1_1_Nics="3 4" #Bonding NIC 3 and 4
Group1_1_IpAddress="192.168.2.1"
Group1_1_Netmask="255.255.255.0"
Group1_1_VlanMode="untagged"#Example that VLANID is not specified, since this group is
untagged VLAN
Group1_1_DNSServer="ipaddress"
#####
#Non redundant NIC information
#####
SingleNics="5 6"#List of non-redundant NIC
NIC5_NetworkLinks ="0" #One NetworkLink exists in NIC5(index 0 only)
NIC6_NetworkLinks ="0 1" #Multiple NetworkLinks exist in NIC6(index 0 to 1)

NIC5_0_IpAddress="192.168.20.1"
NIC5_0_Netmask="255.255.255.0"
NIC5_0_VlanMode="untagged"#Example where VLANID is not specified, since this group is
untagged VLAN
NIC5_0_DNSServer="ipaddress"

NIC6_0_IpAddress="192.168.30.1"
NIC6_0_Netmask="255.255.255.0"
NIC6_0_VlanMode="untagged"#Example where VLANID is not specified, since this group is
untagged VLAN

NIC6_1_IpAddress="192.168.40.1"
NIC6_1_Netmask="255.255.255.0"
NIC6_1_Vlanid=40
NIC6_1_VlanMode="tagged"#Tagged VLAN
NIC6_1_DNSServer="ipaddress"
Route0=net,192.168.200.0,255.255.255.0,192.168.1.254

```

B.9 Methods for Selecting Physical Servers Automatically

When performing the following operations, choose a physical server that satisfies the conditions:

- Create physical L-Servers
- Start a physical L-Server
- Switch over spare servers of physical L-Servers

Explains the prerequisites when using physical servers, and method for selecting a physical server while searching physical servers that satisfy the conditions.

Prerequisites when Using Physical Servers

The physical server that satisfies the following conditions will be the target of selection.

- When "status" of physical server is "normal", "warning", or "stop"
- Server switchover is not configured in the server resource tree

- The information of the admin LAN specified in the physical L-Server and the information of the admin LAN for a physical server are the same
- The server types (blade server or rack mount server) of the physical L-Server and the physical server are the same
- The physical server is not used for another physical L-Server (*1)
- All information for a physical server such as "CPU core count", "CPU clock speed", and "memory capacity" can be collected

Selection Method for Physical Servers

Select a physical server from a group of physical servers satisfying prerequisites using the following order of priority:

Describe the items in order of their priority.

- Create physical L-Servers
 - The server in the server pool to which a high priority has been given (*2)
 - The server with the physical server configuration that is most similar to the L-Server definition
 - A server which is not allocated to another physical L-Server that was not running when starting up the previous time
 - A physical server that is in the same chassis as the server started at the last startup (when using a blade server)
 - A physical server which was started at the last startup
- Start a physical L-Server
 - The server in the server pool to which a high priority has been given (*2)
 - The server with the physical server configuration that is most similar to the L-Server definition
 - A server which is not allocated to another physical L-Server that was not running when starting up the previous time
 - A physical server that is in the same chassis as the server started at the last startup (when using a blade server)
 - A physical server which was started at the last startup
- Switch over spare servers of physical L-Servers
 - The server in the server pool to which a high priority has been given (*2)
 - The server with the physical server configuration that is most similar to the L-Server definition
 - A server which is not allocated to another physical L-Server that was not running when starting up the previous time
 - A physical server that is in the same chassis as the server started at the last startup (when using a blade server)
 - The server that is allowed "Turn off forcibly" as Spare server behavior (*3)

*1: When [Resource type] and [Spare server pool] are [Automatic], priority is given to a resource pool. If the priority of resource pools is the same, the resource pool is selected randomly.

*2: Compare the physical L-Server definition and the physical server using the following conditions. A physical server with the same conditions or meeting all conditions is selected.

- If model names are specified when specifying a physical L-Server
 - The "model names" are the same, or compatible
 - Number of NICs
- If CPUs and memories are specified when specifying a physical L-Server
 - CPU core count
 - CPU clock speed
 - Memory capacity
 - Number of NICs

When the [Use a low spec server] checkbox for [Spare server specs] is checked, the servers will be selected as follows:

- If model names are specified when specifying a physical L-Server
A physical server with the same server model as that in the L-Server definition is selected.
- If CPUs and memories are specified when specifying a physical L-Server
Configurations are not checked.

When there are multiple physical servers with the same conditions, the server is selected using the internal logic of Resource Orchestrator.

*3: Physical L-Server that is set "Turn off forcibly to use as a spare server" can use the server that is allowed "Turn off forcibly" as Spare server behavior.

B.10 Advisory Notes for Physical L-Server Usage

This section explains advisory notes for usage of physical L-Servers.

Deleting an L-Server

When deleting an L-Server, log out from the ETERNUSmgr of ETERNUS storage registered on ESC.

When operating NetApp storage in cluster environments and operating a partial system due to system trouble, perform the operation after recovering the NetApp storage and returning the system to cluster operation.

When the disk resource is a LUN created in advance or a LUN for iSCSI boot, it is recommended to delete the data on the disk, as the data is not deleted when deleting an L-Server to which the disk resource is allocated.

For details on how to delete data on disks, refer to "14.5 Storage Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

L-Server Snapshots

Snapshots of L-Servers cannot be used.

Moving an L-Server between Servers (Migration)

Moving between servers (migration) cannot be used.

Network Settings for L-Servers OSs

In Resource Orchestrator, settings for an operating system, such as NIC redundancy on servers or tagged VLANs, are not performed. When specifying an image of Red Hat Enterprise Linux, the IP address cannot be automatically configured.

When starting an OS after L-Server creation, set the image to be configured automatically after creating an L-Server. For this setting, use the image collected in the state where the scripts to configure the network settings have been prepared beforehand.

For details, refer to "[B.8 Network Redundancy and VLAN Settings of L-Servers](#)".

Appendix C Configuration when Creating Virtual L-Servers

This appendix explains configuration regarding the creation of virtual L-Servers.

C.1 Definition Files Commonly Shared when Creating Virtual L-Servers

This section explains the definition files used when creating a virtual L-Server.

When using an L-Server, configuration of a definition file may be necessary.

- When using overcommit [VMware] [Hyper-V] [KVM] [Solaris Zones] [Citrix Xen] [OVM for x86 3.2]
Refer to "[C.1.1 Overcommit Definition Files](#)".
- When defining VM specific information [VMware] [Hyper-V] [KVM] [Citrix Xen]
Refer to "[C.1.2 VM Specific Information Definition File](#)".
- When using thin provisioning [VMware]
Refer to "[C.1.3 Configuration of Priority for Resource Selection on Thin Provisioning](#)".
- When creating a virtual L-Server using a server which cannot use ServerView Agents
Refer to "[C.1.4 Configuration when Creating a Virtual L-Server Using a Server which cannot Use ServerView Agents](#)".
- Configuration when creating a virtual L-Server using VMware ESXi on other vendor's servers [VMware]
Refer to "[C.1.5 Configuration when Creating a Virtual L-Server Using VMware ESXi on Other Vendor's Servers](#)".
- When using alive monitoring [VMware] [Hyper-V]
Refer to "[C.1.6 Definition File for Alive Monitoring](#)".
- When generating the default value for the information such as the [OS]Tab when creating an L-Server [VMware] [Hyper-V] [KVM] [Solaris Zones] [Citrix Xen]
Refer to "[C.1.7 OS Property Definition File](#)".

C.1.1 Overcommit Definition Files

This section explains overcommit definition files.

Only edit the overcommit definition files when changing the default value of the calculation method for available space for a VM pool used for overcommit.

For details on how to create a VM pool to use for overcommit, refer to "20.2 Creating" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Storage Location of the Definition File

[Windows Manager]
Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]
/etc/opt/FJSVrcvmr/customize_data

Information

In the storage location above, the sample definition file (pool.sample.rcxprop) is stored. When using the sample as the definition file, place the file after deleting the ".sample" included in the file name.

Name of the Overcommit Configuration File

pool.rcxprop

Format of the Overcommit Configuration File

```
over_commit_calculation=reserve|limit
```

over_commit_calculation

Specify the default value of the calculation method for available space for a VM pool used for overcommit.

The value specified using this parameter is used when the default value is not specified in the [Create a Pool] dialog, or in the calculation method for the available space when executing commands.

Specify one of the following:

- When using a reservation value

Specify "reserve".

- When using an upper limit value

Specify "limit".

"limit" is specified in the following cases:

- When specification of "over_commit_calculation" is omitted
- When an invalid value is specified



Example

```
over_commit_calculation=reserve
```



Point

It is necessary to edit the definition file, when migration is not executed using the configuration methods for overcommit functions after performing upgrade of the admin server from ROR V2.3.0 or V3.0.0.

For details, refer to "[G.1.1 Overcommit Definition Files](#)".

C.1.2 VM Specific Information Definition File

This file contains the information to be specified for a virtual machine when creating an L-Server or when modifying a configured (defined) L-Server.

VM specific information definition files can be created for each user group.

Use the UTF-8 character code.

The order of the priority of the parameters is as follows:

L-Server XML file > L-Server template > Definition file (User group) > Definition file (Shared on the system)

Storage Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data\vm_prop

[Linux Manager]

/etc/opt/FJSVrcvmr/customize_data/vm_prop



Point

In the storage location above, the sample definition file (vm_VMTYPE.rcxprop.sample) is stored. When using the sample as the definition file, place the file after changing "VMTYPE" to the VM type and deleting ".sample".

Definition File Name

Definition files can be divided into definitions that are available for each user group and definitions that are common on the system.

If the same key is configured in the definition file common on the system and the definition file for a specific user group, priority is given to the values indicated in the definition file for the user group.

- User Groups

`vm_user_group_name_VM_type.rcxprop`

- Common on System

`vm_VM_type.rcxprop`

Note

- For *VM_type*, enter the VM type to be specified when creating an L-Server, such as VMware, Hyper-V, Oracle VM, or RHEL-KVM. This value is not case-sensitive.
- When there are multiple files with the same *VM_type* specified in the filename, the *VM_type* of the filenames are sorted in ascending order of character code, and the one listed first will be selected.

Example

```

usergroup1_VMware
usergroup1_VMWARE -> This file will be selected.
usergroup1_vmware
    
```

- Remove any blank spaces in the *VM_type*.

Example

```

Oracle VM -> OracleVM
    
```

Definition File Format

In the definition file, an item to define is entered on each line. Each line is entered in the following format.

```

Key = Value
    
```

Definition File Items

Specify the following items.

Table C.1 The List of Parameters

Key	Description
processor_reserve_spec	Specify the minimum amount of CPU resources to be allocated. Enter a value in the range from 0 to the limit of CPU performance, using a number with up to one decimal place, in units of gigahertz. In the XML files for L-Servers and L-Server templates, set the value for "CPUReserve".
processor_share	[VMware] Specify the relative proportion of CPU resources for allocation. Enter an integer equal to or greater than 1. In the XML files for L-Servers and L-Server templates, set the value for "CPUShare". Enabled when the VM type is set to "VMware".

Key	Description
memory_reserve_size	<p>[VMware] [Citrix Xen] Specify the minimum amount of memory resources to be allocated.</p> <p>Enter a value in the range from 0 to the limit of memory size, using a number with up to one decimal place, in units of gigabytes.</p> <p>In the XML files for L-Servers and L-Server templates, set the value for "MemoryReserve". Enabled when the VM type is set to "VMware" or "Citrix-Xen".</p>
memory_share	<p>[VMware] Specify the relative proportion of memory resources for allocation.</p> <p>Enter an integer equal to or greater than 0.</p> <p>In the XML files for L-Servers and L-Server templates, set the value for "MemoryShare". Enabled when the VM type is set to "VMware".</p>
processor_weight	<p>Specify the priority for CPU allocation.</p> <p>[Hyper-V] Enter an integer between 1 and 10,000.</p> <p>[Citrix Xen] Enter an integer between 1 and 65,535.</p> <p>In the XML files for L-Servers and L-Server templates, set the value for "CPUWeight". Enabled when the VM type is set to "Hyper-V" or "Citrix-Xen".</p>
dynamic_memory	<p>[Hyper-V] Specify the dynamic memory settings.</p> <ul style="list-style-type: none"> - When dynamic memory is enabled Specify "true". - When dynamic memory is disabled Specify "false". <p>When omitted, the value varies depending on the initial memory size and memory buffer specified when creating an L-Server.</p> <ul style="list-style-type: none"> - When the initial memory size or memory buffer is configured Dynamic memory is enabled - When neither initial memory size nor memory buffer is configured Dynamic memory is disabled <p>When dynamic memory is disabled, the values specified for memory_startup_size and memory_buffer_rate will be ignored. Enabled when the VM type is set to "Hyper-V".</p>
memory_startup_size	<p>[Hyper-V] Specify the initial amount of memory to be allocated at startup.</p> <p>Enter a value between 0.1 and the limit of memory size.</p> <p>In the XML files for L-Servers and L-Server templates, set the value for "StartupRAM". When setting this value for a virtual machine, enable dynamic memory in the XML file to be specified when creating an L-Server template or L-Server, or do not specify dynamic memory.</p> <p>When no L-Server template is used and dynamic memory settings are not specified in the XML file specified when creating an L-Server, dynamic memory is enabled or disabled based on the existence of this setting and the setting for memory_buffer_rate.</p> <ul style="list-style-type: none"> - When this setting or memory_buffer_rate are set Dynamic memory is enabled

Key	Description
	<ul style="list-style-type: none"> - When this setting and memory_buffer_rate are not set <p style="margin-left: 40px;">Dynamic memory is disabled</p> <p>When dynamic memory is disabled, this setting is ignored. Enabled when the VM type is set to "Hyper-V".</p>
memory_buffer_rate	<p>[Hyper-V] Specify the percentage of memory to be reserved as a buffer.</p> <p>Enter an integer between 5 and 2000 in units of percent. In the XML files for L-Servers and L-Server templates, set this value for "MemoryBuffer". When setting this value for a virtual machine, either enable dynamic memory in the XML file to be specified when creating an L-Server template or L-Server, or do not specify dynamic memory. When no L-Server template is used and dynamic memory is not specified in the XML file specified during L-Server creation, dynamic memory setting is enabled or disabled based on whether this setting and the setting for memory_startup_size exist.</p> <ul style="list-style-type: none"> - When this setting or memory_startup_size exists <p style="margin-left: 40px;">Dynamic memory is enabled</p> <ul style="list-style-type: none"> - When this setting and memory_startup_size are not set <p style="margin-left: 40px;">Dynamic memory is disabled</p> <p>When dynamic memory is disabled, this setting is ignored. Enabled when the VM type is set to "Hyper-V".</p>
memory_weight	<p>[Hyper-V] Specify the priority for allocation of memory.</p> <p>Enter an integer between 0 and 10,000. In the XML files for L-Servers and L-Server templates, set this value for "MemoryWeight". Enabled when the VM type is set to "Hyper-V".</p>
max_definable_memory_size	<p>[KVM] Specify the maximum amount of memory that can be configured for the VM guest on KVM.</p> <p>Enter a value in the range from the limit of memory size to the memory size of a physical server, using a number with up to one decimal place, in units of gigabytes. The memory amount for the VM guest can be changed, using this value as the upper limit. When omitted, this memory size is the same as the amount of physical memory for the VM host. When specifying this item, if the amounts of memory mounted on the VM hosts registered in a VM pool are not the same, specify the memory capacity using a lower value than that of the VM host with the lowest memory capacity. When specifying values exceeding the physical memory capacity, starting of an L-Server will fail.</p> <p>Enabled when the VM type is set to "KVM".</p>
memory_hotplug	<p>[KVM] Specify enabling/disabling of the memory hotplug function for VM guests.</p> <ul style="list-style-type: none"> - When enabling the memory hotplug function <p style="margin-left: 40px;">Specify "true".</p> <ul style="list-style-type: none"> - When disabling the memory hotplug function <p style="margin-left: 40px;">Specify "false".</p> <p>If left blank, "true" is set. The default is "true".</p>

Key	Description
	<p>The relationship between <code>memory_hotplug</code> and <code>max_definable_memory_size</code> settings is explained in "Table C.2 Relationship Between memory_hotplug and max_definable_memory_size Settings [KVM]".</p> <p>Enabled when the VM type is set to "KVM".</p>
<code>clock_offset</code>	<p>[KVM]</p> <p>Specify "UTC" or "LOCAL" for the offsets of the virtual hardware clock (virtual CMOS) for virtual machines.</p> <p>If left blank, "LOCAL" is set. The default is "LOCAL".</p> <p>Enabled when the VM type is set to "KVM".</p>

Table C.2 Relationship Between `memory_hotplug` and `max_definable_memory_size` Settings [KVM]

Setting of <code>memory_hotplug</code>	Setting of <code>max_definable_memory_size</code>	
	When Settings are Configured	When Omitted
"true", or when the settings are omitted	Configure the <code>max_definable_memory_size</code> values for the maximum memory values.	Configure the total physical memory size of the host for the maximum memory size.
"false"	<p>The value of the memory size is equal to the maximum memory size.</p> <p>The <code>max_definable_memory_size</code> values are disabled.</p>	The value of the memory size is equal to the maximum memory size.



See

When not describing a parameter in the VM specific information definition file, refer to each element name in "15.3.2 Definition Information for Virtual L-Servers (XML)" in the "Reference Guide (Command/XML) CE".



Note

When modifying specifications of an L-Server to which resources have been allocated, the settings in this definition file are not reflected because priority is given to the values already configured for the L-Server. In this case, enter new values in the XML file and then execute the appropriate commands to reflect the changes.

When individual parameters are specified when creating an L-Server template or L-Server, priority is given to those settings over those in this definition file.

C.1.3 Configuration of Priority for Resource Selection on Thin Provisioning

When setting to automatic selection for resource selection while creating L-Server or attaching a disk under the condition that both storage pools with and without the configuration of thin provisioning attributes remain the same priority, either of their resources can be given higher priority.

When the definition file has been edited, restart the manager.

Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]
/etc/opt/FJSVrcvnr/customize_data

Definition File Name

storage.rcxprop

Definition File Format

In the definition file, the items to set are entered on individual lines. Each line is entered in the following format.

```
Item_specified=  
Value_specified
```

Definition File Items

- SELECT_THIN_PROVISIONING_POOL_FIRST

When both storage pools with and without the configuration of thin provisioning attributes remain the same priority, either of their resources can be given higher priority for automatic selection of storage resource.

- If "true" is specified

A storage pool with thin provisioning attributes will be given priority.

- If "false" is specified

A storage pool without thin provisioning attributes will be given priority.

- If nothing is specified

"false" is set.



Example

An example definition file is indicated below.

```
SELECT_THIN_PROVISIONING_POOL_FIRST = true
```

C.1.4 Configuration when Creating a Virtual L-Server Using a Server which cannot Use ServerView Agents

As ServerView Agents cannot be used for the following servers, the hardware configuration information (CPU core count, CPU clock speed, memory capacity, etc.) cannot be acquired.

- PRIMERGY CX1000 series servers
- Other vendor's servers

When creating a virtual L-Server after installing VM management software on the servers above, it is necessary to register a managed server, after creating a definition file first, and defining the configuration information.

In the following cases, create the definition file first, and then register the hardware information with Resource Orchestrator again.

- If the target server was registered with Resource Orchestrator before creation of the definition file
- When modifying the configuration information (CPU core count, CPU clock speed, memory capacity, etc.) in the definition file of a server that has been registered with Resource Orchestrator

For details, refer to "Chapter 9 Hardware Maintenance" in the "Operation Guide CE".

Note

When there are differences between the values in the definition file and the actual configuration information of the server, creation or starting of the virtual L-Server may fail, or the virtual machine may be deployed using incorrect CPU and memory information.

Be sure to confirm that the values entered in the definition file and the actual configuration information of the server are the same.

Storage Location of the Definition File

[Windows Manager]
Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]
/etc/opt/FJSVrcvmr/customize_data

Definition File Name

server_spec.rcxprop

Character Code

[Windows Manager] [Linux Manager]
UTF-8

Line Break Code

[Windows Manager]
CR/LF

[Linux Manager]
LF

Definition File Format

- The following line must be entered in the first line of definition files.

```
ServerSpec,V1.0
```

- In the definition file, enter the configuration information (CPU core count, CPU clock speed, memory capacity, etc.), separated by commas (",").

When defining two or more servers, use line breaks.

Each line is entered in the following format.

```
physical_server, cpu_core_count, cpu_clock, memory_size[, cpu_type]
```

- Blank spaces between data and commas (",") are ignored.

If there is duplicated configuration information (CPU core count, CPU clock speed, memory capacity, etc.) for the same physical server, the values that appear first will be used.

- When adding comments, start the line with a number sign ("#").

Definition File Items

physical_server

Enter the same physical server name as the one entered when registering a managed server.

cpu_core_count

Enter the total number of physical CPU cores.

Enter an integer between 0 and 999.

If "0" is entered, a hyphen ("-") will be displayed in the General information of the Resource Details window, indicating that no virtual L-Server will be created.

cpu_clock

Enter the CPU clock speed.

Enter an integer between 0 and 999,999.

Use megahertz for the unit. Enter 1,000 MHz for 1 GHz, for example.

If "0" is entered, a hyphen ("-") will be displayed in the General information of the Resource Details window, indicating that no virtual L-Server will be created.

memory_size

Enter the total memory size.

Enter an integer between 0 and 999999999.

Use megabytes for the unit. Enter 1,024 MB for 1 GB, for example.

If "0" is entered, a hyphen ("-") will be displayed in the General information of the Resource Details window, indicating that no virtual L-Server will be created.

cpu_type

Enter the CPU type.

The string must be composed of alphanumeric characters and symbols (ASCII characters 0x20 to 0x7e), except for commas (","), and can be up to 64 characters long.

When omitted, a hyphen ("-") is displayed.



Example

An example definition file is indicated below.

```
ServerSpec,V1.0

#####
# server_spec.rcxprop
#
#All Rights Reserved, Copyright(C) FUJITSU LIMITED 2011
#####
#
# physical_server, cpu_core_count, cpu_clock, memory_size, cpu_type
#

server001, 8, 3160, 4096, Intel(R) Xeon(R)
server002, 8, 2660, 12288, Intel(R) Xeon(R)
server003, 2, 2000, 65536
server004, 4, 4000, 4096, Intel(R) Xeon(R) Processor E5501
```

C.1.5 Configuration when Creating a Virtual L-Server Using VMware ESXi on Other Vendor's Servers

It is necessary to define that the server can be used as a VM software agent without using an agent for Resource Orchestrator, by creating the definition files before registering a server. When registering the server, select the [Register agent] checkbox, and register the server as VM host. In VM hosts registered using these definitions, obtain the server status or hardware configuration information (CPU core count, CPU clock speed, memory capacity, etc.) from VM software.

When the definition file is changed after registration, the modification is not valid.



Note

- The server cannot be used for anything other than a VM host (spare server or Windows/Linux server).

- Even the following settings are configured, priority is given to the information obtained from VM software.
 - Configuration when Creating a Virtual L-Server Using a Server which cannot Use ServerView Agents
 - Configurations to specify "Enable" for server management software (ServerView) when creating a server
- On VM hosts registered using this definition, the following functions cannot be used.
 - Server switchover
- In the configuration definition file for pre-configuration, do not describe the values in the following section header parameter for section name [Server]: If the values are described, registration fails.
 - snmp_community_name

Storage Location of the Definition File

[Windows Manager]
Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]
 /etc/opt/FJSVrcvnr/customize_data



In the storage location above, the sample definition file (server_control.sample.rcxprop) is stored. When using the sample as the definition file, place the file after deleting the ".sample" included in the file name.

Definition File Name

server_control.rcxprop

Character Code

[Windows Manager] [Linux Manager]
 UTF-8

Line Break Code

[Windows Manager]
 CR/LF

[Linux Manager]
 LF

Definition File Format

- The following line must be entered in the first line of definition files.

ServerControl,V1.0

- In the definition file, the name of each server is described on an individual line.

When defining two or more servers, use line breaks.
 Each line is entered in the following format.

physical_server

Even if there are multiple same physical server names in the individual lines, no errors occur.

- When adding comments, start the line with a number sign ("#").

Definition File Items

physical_server

Enter the same physical server name as the one entered when registering a managed server.

Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters and hyphens ("-"). The following physical server names are ignored.

- Blade Servers
- PRIMEQUEST Servers
- SPARC Enterprise Servers
- FUJITSU M10 Servers
- Unregistered Server

Information

When there are no definition files when registering a server, or when the physical server name to register is not described, the server is regarded as being a Fujitsu server.

Example

An example definition file is indicated below.

```
ServerControl,V1.0

#####
# server_control.rcxprop
#
#All Rights Reserved, Copyright(C) FUJITSU LIMITED 2012
#####
#
# physical_server
#

server1
server2
```

C.1.6 Definition File for Alive Monitoring

When using alive monitoring, create the definition file and specify the parameters for alive monitoring. The configuration of this parameter must be unique in the system.

The alive monitoring of virtual L-Server monitors the heartbeat of VM guests corresponding to the virtual L-Server by using the heartbeat monitoring functions of server virtualization software.

For details on heartbeat monitoring functions, refer to the server virtualization software manual.

[VMware]

For Resource Orchestrator alive monitoring functions, configure the heartbeat monitoring settings in "VM Monitoring" for VMware HA on each VM guest.

[Hyper-V]

For Resource Orchestrator alive monitoring functions, configure the heartbeat monitoring settings in "Heartbeat setting" for MSFC on each VM guest.



Note

When changing configuration of alive monitoring on server virtualization software, the modification is not reflected on Resource Orchestrator.

Therefore, do not change alive monitoring configurations on server virtualization software.

Storage Location of the Definition File

The file in which the default values are described is located during installation.

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data\alive_monitoring

[Linux Manager]

/etc/opt/FJSVrcvmr/customize_data/alive_monitoring

Definition File Name

- vm_VMware.rcxprop
- vm_Hyper-V.rcxprop

The file name is not case sensitive.

Definition File Format

In the definition file, the items to set are entered on individual lines. Each line is entered in the following format.

<i>Item_specified= Value_specified</i>
--

When adding comments, start the line with a number sign ("#").

Specified Items for vm_VMware.rcxprop

min_uptime

Specify "Minimum uptime" in the heartbeat monitoring settings for VMware.

Enter an integer between 0 and 100000. The unit is seconds.

"120" is specified as the default.

failure_interval

Specify "Failure interval" in the heartbeat monitoring settings for VMware.

Enter an integer between 1 and 100000. The unit is seconds.

"30" is specified as the default.

max_failures

Specify "Maximum per-VM resets" in the heartbeat monitoring settings for VMware.

Enter an integer between 1 and 1000.

"3" is specified as the default.

max_failure_window

Specify "Maximum resets time window" in the heartbeat monitoring settings for VMware.

Enter -1, and an integer between 1 and 1000. The unit is hours.

When -1 is specified, "None" is configured.

"1" is specified as the default.

off_override_cluster

When configuring to disable alive monitoring in Resource Orchestrator, overwrite the heartbeat monitoring settings for VMware clusters, and specify if disabling the heartbeat monitoring settings of VM guests.

To disable heartbeat monitoring configuration of VM guests, specify "true".

To configure the same settings of VM guest heartbeat monitoring as the settings of VMware cluster, specify "false".

"false" is specified as the default.

Note

When applying the modified details to an already created L-Server, execute the `rcxadm lserver modify` command after changing the definition files.

For details on the following parameters, refer to the VMware manual.

- Minimum uptime
- Failure interval
- Maximum per-VM resets
- Maximum resets time window

Specified items for `vm_Hyper-V.rcxprop`

`restart_period`

Specify "Period for restarts [mm:ss]" in the heartbeat monitoring settings for MSFC.

Enter an integer between 0 and 3599. The unit is seconds.

Specify a smaller value of time than that specified in "retry_period_on_failure".

"900" is specified as the default.

`restart_threshold`

Specify "Maximum restarts in the specified period" in the heartbeat monitoring settings for MSFC.

Enter an integer between 0 and 4294967295.

"1" is specified as the default.

`failover`

Specify "If restart is unsuccessful, fail over all resources in this service or application" in the heartbeat monitoring settings for MSFC.

When performing failover, specify "true".

When not performing failover, specify "false".

"true" is specified as the default.

`retry_period_on_failure`

Specify "If all the restart attempts fail, begin restarting again after the specified period [hh:mm]" in the heartbeat monitoring settings for MSFC.

Enter -1, and an integer between 0 and 1439. The unit is minutes.

When -1 is specified, it is disabled.

When specifying 0 to 1,439, specify a larger value of time than that specified in "restart_period".

"60" is specified as the default.

Note

When applying the modified details to an already created L-Server, execute the `rcxadm lserver modify` command after changing the definition files.

Refer to the MSFC manual for details on each parameter.

C.1.7 OS Property Definition File

By setting the default values in an OS property definition file in advance, the default values of the information on the [OS] tab, etc. are generated when creating a virtual L-Server. Use the UTF-8 character code for OS property definition files.

The OS property definition file can be configured using the "Setup Wizard" of the ROR console.

For details on the setup wizard, refer to "3.1 Setup Wizard" in the "User's Guide for Infrastructure Administrators CE".

For details on the [OS] Tab, refer to the following:

[VMware]

Refer to "[C.2.9 \[OS\] Tab Configuration](#)".

[Hyper-V]

Refer to "[C.3.9 \[OS\] Tab Configuration](#)".

[KVM]

Refer to "[C.6.8 \[OS\] Tab Configuration](#)".

[Solaris Zones]

Refer to "[C.7.7 \[OS\] Tab Configuration](#)".

[Citrix Xen]

Refer to "[C.9.8 \[OS\] Tab Configuration](#)".

Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvmr/customize_data

Definition File Name

The definition file name can be used by dividing into definitions that are available for each user group and definitions that are common to the system. If the key of the definition file common to the system is the same as a definition file for a user group, priority is given to the values indicated in the definition file for the user group.

- For User Groups

os_setting_user_group_name.rcxprop

- Common on System

os_setting.rcxprop

Definition File Format

In the definition file, an item to define is entered on each line. Each line is entered in the following format.

<i>Key = Value</i>

When adding comments, start the line with a number sign ("#").

Definition File Items

Specify the following items in a definition file.

Table C.3 List of Items

Item	Key	Value	Remarks
Domain name	workgroup_name	(*1)	For Windows
	domain_name	(*1)	For Linux
DNS search path	dns_search_path	(*1)	-
Full name	full_name	(*1)	-
Organization name	org_name	(*1)	-

Item	Key	Value	Remarks
Product key	product_key	(*1)	-
License mode	license_mode	Specify one of the following: - "seat"(number of connected clients) - "server"(in the unit of servers: number of servers used at the same time)	-
Maximum number of connections	license_users	(*1)	-
Administrator password	admin_password	(*1)	-
Hardware clock configuration	hwclock	Specify one of the following: - "UTC" - "LOCAL"	-
DNS server (When configuring for each NIC on Windows) (*2)	nic N _dns_address X	Specify the IP address using numeric values (between 0 and 255) and periods. (*2) When not configuring a DNS server, specify a hyphen ("-").	For N , specify the NIC number. For X , specify primary ("1") or secondary ("2").
DNS server (When configuring all NICs using the same settings on Windows)	dns_address X	Specify the IP address using numeric values (between 0 and 255) and periods.	For X , specify primary ("1") or secondary ("2"). Priority is given to nic N _dns_address X specifications.
DNS server (for Linux)	dns_address X	Specify the IP address using numeric values (between 0 and 255) and periods.	For X , specify primary ("1"), secondary ("2"), or tertiary ("3").

*1: For details on the values, refer to the following:

[VMware]

Refer to "[Table C.11 List of Settings](#)".

[Hyper-V]

Refer to "[Table C.18 List of Settings](#)".

[KVM]

Refer to "[Table C.21 List of Settings](#)".

[Solaris Zones]

Refer to "[Table C.23 List of Settings](#)".

[Citrix Xen]

Refer to "[Table C.25 List of Settings](#)".

*2: When omitting keys or values, use the value "dns_address X " to configure the same values for the NIC definitions of all NICs on Windows.



Example

An example definition file is indicated below.

```
# Windows
workgroup_name = WORKGROUP
full_name = WORKNAME
org_name = WORKORGANIZATION
```

```

product_key = AAAA-BBBB-CCCC-DDDD
license_mode = server
license_users = 5
admin_password = xxxxxxxxx
nic1_dns_address1 = 192.168.0.60
nic1_dns_address2 = 192.168.0.61
nic2_dns_address1 =
nic2_dns_address2 =

# Linux
domain_name = localdomain
dns_search_path = test.domain.com
hwclock = LOCAL
dns_address1 = 192.168.0.60
dns_address2 = 192.168.0.61
dns_address3 =

```

C.2 VMware

This section explains the settings used when using VMware as server virtualization software.

- When Creating a Virtual L-Server

Configure the settings referring to the information in "[C.2.1 Creating Definition Files](#)" or the following sections.

- When Associating L-Servers with Configured Virtual Machines

Refer to "18.4.3 For Virtual Machines" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- Importing to L-Platforms

Refer to "7.2.3 Importing to L-Platform" in the "Operation Guide CE".

C.2.1 Creating Definition Files

This section explains how to create definition files.

For definition files common to virtual L-Servers, refer to "[C.1 Definition Files Commonly Shared when Creating Virtual L-Servers](#)".

This section explains the definition files specific to VMware.

Server Virtualization Software Definition File

Operations related to server virtualization software can be changed by configuring values in the following definition files beforehand.

Use the UTF-8 character code for definition files.

Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvmr/customize_data

Definition File Name

vm.rcxprop

Definition File Format

Describe each line of the definition file in the following format:

<i>Key = Value</i>

Definition File Items

Table C.4 List of Items

Item	Key	Value	Remarks
Configuration of power control for VMware DRS and DPM	drs_power_on_vm	true false	<p>When server virtualization software is VMware, the values are valid.</p> <ul style="list-style-type: none"> - When starting an L-Server (VM guest), if moving an L-Server (VM guest) between VM hosts using VMware DRS, or turning on a VM host using VMware DPM Specify "true". - If other than the above Specify "false". <p>If left blank, "false" is set. Restarting of the server is not required after changing this configuration.</p> <p>When specifying "true", set VMware DRS and VMware DPM as follows:</p> <ul style="list-style-type: none"> - VMware DRS "partly automatic" or "full automatic" - VMware DPM "off" or "automatic" <p>When specifying "Manual", startup of L-Servers and VM guests may fail.</p> <p>For details on VMware DRS/DPM, refer to "When using VMware DRS or VMware DPM" in "E.1.2 Preparations for Servers" in the "Design Guide CE".</p>

Definition Files to Configure using Console Connections from Public LAN

When using console connections from the public LAN, configure the connection destination for the VM host in the following definition files:

Location of the Definition File

[Windows Manager]
Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]
 /etc/opt/FJSVrcvmr/customize_data

Definition File Name

vm_console.rcxprop

Definition File Format

Specify a folder or tenant name, the physical server name of the VM host, and the corresponding connection destination in one line, separated by commas (",").

folder_or_tenant_name, physical_server_name, destination_to_connect

Definition File Items

Table C.5 List of Items

Item	Description
Folder or tenant name	Specify the folder name or tenant name using a full path (the first letter must be "/").

Item	Description
Physical server name	Specify the physical server name of the VM host.
Connection destination	Specify the IP address for a VM host that can be connected to through the admin client, or the host name for which name resolution is available in the admin client environment.

Example Definition File

```

/, bx900-1, 192.168.10.100 (*1)
/folderA, bx900-1, host1 (*2)
/folderA/tenantB, bx900-1, 192.168.30.100 (*3)
/folderA/tenantB, bx900-2, 192.168.30.200 (*3)

```

- *1: Definition for root folder (/). The default settings in all tenants.
- *2: Definition for folder (/folderA). Specify the destination to connect to using host name.
- *3: Definition of tenants (/folderA/tenantB). Specify multiple hosts.

Note

- When describing more than three commas (",") in one line, any descriptions after the third comma are ignored.
- When the descriptions start with a "#", the string is regarded as a comment line.
- If reading of the definition file fails, set the IP address of the admin LAN for the VM host registered in Resource Orchestrator as the connection destination.
- When the folder or tenant name, and the physical server name do not match the definition file specifications, perform console connections using the IP address of the admin LAN for the VM host.
- When there are multiple VM hosts used in a folder or a tenant, settings using the same folder or tenant must be described separately, in multiple lines.
- When specifying a folder, apply the relevant settings to the sub folders and tenants under that folder.
- When settings targeting the sub folders or tenants under the specified folder are configured, and definitions with the same physical server name also exist, the priority is given to the definitions.

Example

When there are the following definitions of (1) and (2), the folder or tenant name is "/folderA/tenantB" and the physical server name is virtual L-Server of "bx900-1", console connections are performed by using the IP address (2).

```

(1)/folderA,bx900-1,192.168.10.100
(2)/folderA/tenantB,bx900-1,192.168.20.100

```

- When describing the same physical server configurations in the same folder or tenant using multiple lines, the configurations in the latter descriptions are valid.

Example

When there are the following definitions of (1) and (2), the definition (2) is valid.

```

(1)/folderA,bx900-1,192.168.10.100
(2)/folderA,bx900-1,192.168.20.100

```

C.2.2 Registering Resources with Resource Orchestrator

When Using Blade Servers

1. Register VM Management Software

When registering VM management software, datastores that are created in advance during pre-setup preparations, are automatically registered in Resource Orchestrator as virtual storage resources.

For details on how to register VM management software, refer to "5.2 Registering VM Management Software" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Register Chassis

Refer to "5.4.1 Registering Chassis" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Register Managed Servers (within Chassis)

Refer to "5.4.2 Registering Blade Servers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

4. Register LAN Switch Blades

Refer to "5.4.3 Registering LAN Switch Blades" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

To register a network resource device, specify a network pool when creating the network resource device.

To register a network resource, specify a network pool when creating the network resource.

For details, refer to "Chapter 14 Registering Resources in Resource Pools" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

When Using a Server other than a Blade Server

1. Register VM Management Software

When registering VM management software, datastores that are created in advance during pre-setup preparations, are automatically registered in Resource Orchestrator as virtual storage resources.

For details on how to register VM management software, refer to "5.2 Registering VM Management Software" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Register Managed Servers

Refer to "5.5.1 Registering Rack Mount or Tower Servers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Register LAN Switches

Refer to "5.13 Registering LAN Switches" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

To register a network resource device, specify a network pool when creating the network resource device.

To register a network resource, specify a network pool when creating the network resource.

For details, refer to "Chapter 14 Registering Resources in Resource Pools" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.2.3 Registering Resources in Resource Pools

1. Register VM Host Resources

Refer to "14.1 VM Host Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Register Virtual Storage Resources

Refer to "14.5 Storage Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Register Network Device Resources

Create network devices to be used on the L-Platform and register those with the type Firewall or SLB to the network pool.

Refer to "14.4 Network Devices" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

4. Register Network Resources

If the NIC and network resources are connected when an L-Server is created, the settings matching the network resource definition will be registered automatically for the VM host that the L-Server will operate on.

For details, refer to "[C.2.4 Automatic Network Configuration](#)".

A redundant NIC configuration will be configured. When configuring a non-redundant NIC, refer to "[C.2.5 Manual Network Configuration](#)".

Point

When using VMware vDS, in port group creation for distributed virtual switches, set the same VLAN ID used for the port group to the network resource.

For details on how to create a network resource, refer to "14.3 Network Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Information

For details on automatic configuration of network resources, refer to "[C.2.4 Automatic Network Configuration](#)".

- When using VMware vDS

Refer to "When Using Distributed Virtual Switch (VMware vDS)" in "E.1.4 Network Preparations" in the "Design Guide CE".

- When using the definition for port groups excluded from the selections for automatic network configuration

Refer to "When Using the Definition for Port Groups Excluded from the Selections for Automatic Network Configuration" in "E.1.4 Network Preparations" in the "Design Guide CE".

C.2.4 Automatic Network Configuration

If the NIC and network resources are connected when an L-Server is created, the following settings matching the network resource definition will be registered automatically for the VM host that the L-Server will operate on.

- LAN switch blade (when using blade servers)

When using a LAN switch blade in switch mode or end-host mode, a VLAN is configured on the internal connection port.

When creating a network resource, a tagged VLAN is automatically configured on the port of the LAN switch blade specified in the uplink port, using the following procedure.

- From the GUI:

In the [Create a network resource] dialog, check the [Automatically configure VLANs for the uplink ports.] checkbox.

- From the Command-line:

In the XML definition for the network resource, specify "true" for `vlanautosetting` (Automatic VLAN configuration for uplink ports).

- Virtual switches and port groups

If the required network resources do not exist, they are automatically created. A redundant NIC configuration will be configured.

If it already exists, the virtual switch and port group are used.

When the user configures the network automatically using an arbitrary physical NIC, define the physical NIC to be used in the server NIC definition file, and then specify the physical LAN segment in the server NIC definition from the network resource.

This enables automatic network configuration even in configurations using an arbitrary physical NIC.

To reflect the physical NIC configuration specified in the server NIC definition file on Resource Orchestrator, use the `rcxadm nicdefctl commit` command.

In addition, when using rack mount and tower servers, automatic network configuration including the configuration using an arbitrary physical NIC is possible by defining the physical NIC to be used in the server NIC definition file and then specifying the physical LAN segment defined in the server NIC definition from the network resource.

- VM guests

VM guests are connected to port groups. If an image is specified, the IP address is automatically configured.

In environments using the clustering function of VM management software, in order to enable the migration of VM guests and operation using the HA function, settings for LAN switch blades, virtual switches, and port groups are performed automatically for all VM hosts comprising the cluster.

When not configuring the tagged VLAN automatically for the uplink port of network resources, use the ROR console to configure the VLAN settings of uplink ports. Right-click the LAN switch in the server resource tree, and select [Modify]-[Network Settings] from the popup menu.

For details, refer to "5.4.4 Configuring VLANs on LAN Switch Blades" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".



See

- For details on the server NIC definitions, refer to "15.11 Server NIC Definition" in the "Reference Guide (Command/XML) CE".
- For details on the nicdefctl command, refer to "5.15 rcxadm nicdefctl" in the "Reference Guide (Command/XML) CE".
- For details on how to configure VLAN settings of LAN switch blade uplink ports, refer to "5.4.4 Configuring VLANs on LAN Switch Blades" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".



Note

- After creating an L-Server, if VM hosts are added to the cluster afterwards, Resource Orchestrator network settings are not performed automatically.
Perform the same settings as the existing VM hosts in the cluster configuration for the LAN switch blades and virtual switches of the additional VM hosts.
- For the gateway address, set the IP address of the existing node.

Default Blade Server Configuration to Support Automation of Network Configuration in Resource Orchestrator

Show the default blade server configuration to support automation of network configuration in Resource Orchestrator (server blade, specification of uplink port for network resource, correspondence relation of numbers of LAN switch blade and physical network adapter, etc.) in the following list. When there are no server NIC definitions, for network auto-configuration, the physical network adapter within the server blade is selected according to this list.

Table C.6 Default Blade Server Configuration for Network Auto-Configuration (for PRIMERGY BX900 S1/S2 Chassis)

Server Blade	Specification of Uplink Port (Location of LAN Switch Blade)	LAN Switch Blade to Use	Physical Network Adapter Number (*6)
BX920 S1 BX920 S2 BX920 S3 BX922 S2 BX924 S3	CB1 and CB2, or no specification for uplink port	PY-SWB102(PG-SW111) PY-SWB103(PG-SW112)	3,4
		PY-SWB101(PG-SW201) PY-SWB104(PG-SW109) (*1) PY-CNB101 (*2) PY-FEB101 (*3)	1,2

Server Blade	Specification of Uplink Port (Location of LAN Switch Blade)	LAN Switch Blade to Use	Physical Network Adapter Number (*6)
	CB3 and CB4	PY-SWB101(PG-SW201) PY-SWB102(PG-SW111) PY-SWB103(PG-SW112) PY-SWB104(PG-SW109) PY-CNB101 PY-FEB101 (*3)	5,6
	CB5 and CB6	PY-SWB104(PG-SW109) PY-CNB101 PY-FEB101 (*3)	9,10
	CB7 and CB8	PY-SWB102(PG-SW111) PY-SWB103(PG-SW112)	11,12
		PY-SWB101(PG-SW201)	9,10
BX924 S2	CB1 and CB2, or no specification for uplink port	PY-SWB101(PG-SW201) PY-SWB102(PG-SW111) PY-SWB103(PG-SW112) PY-SWB104(PG-SW109)	1,2
	CB3 and CB4	PY-SWB101(PG-SW201) PY-SWB102(PG-SW111) PY-SWB103(PG-SW112) PY-SWB104(PG-SW109) PY-CNB101 PY-FEB101 (*3)	3,4
	CB5 and CB6	PY-SWB104(PG-SW109) PY-CNB101 PY-FEB101 (*3)	7,8
	CB7 and CB8	PY-SWB102(PG-SW111) PY-SWB103(PG-SW112)	9,10
		PY-SWB101(PG-SW201)	7,8
BX960 S1	CB1 and CB2, or no specification for uplink port	PY-SWB101(PG-SW201) PY-SWB102(PG-SW111) PY-SWB103(PG-SW112) PY-SWB104(PG-SW109)	11,12
	CB3 and CB4 (*4)	PY-SWB101(PG-SW201) PY-SWB102(PG-SW111) PY-SWB103(PG-SW112) PY-SWB104(PG-SW109) PY-CNB101 PY-FEB101 (*3)	3,4
	CB5 and CB6 (*5)	PY-SWB104(PG-SW109) PY-CNB101 PY-FEB101 (*3)	7,8
	CB7 and CB8 (*5)	PY-SWB102(PG-SW111) PY-SWB103(PG-SW112)	9,10
		PY-SWB101(PG-SW201)	7,8

*1: When installing a PY-SWB104 (PG-SW109) on CB1 or CB2, set the transmission speed at the down link port of PY-SWB104 (PG-SW109) to 1 Gbps. For details on how to configure the settings, refer to the corresponding hardware manual.

*2: Only BX920 S3 and BX924 S3 are supported as server blades, when mounting PY-CNB101 on CB1 and CB2.

*3: Only BX920 S3 and BX924 S3 are supported as server blades, when using PY-FEB101.

*4: A LAN expansion card is mounted in expansion slot 1.

*5: A LAN expansion card is mounted in expansion slot 2.

*6: Use each physical network adapter, by performing redundancy using teaming.

Table C.7 Default Blade Server Configuration for Network Auto-Configuration (for PRIMERGY BX400 S1 Chassis)

Server Blade	Specification of Uplink Port (Location of LAN Switch Blade)	LAN Switch Blade to Use	Physical Network Adapter Number (*5)
BX920 S2 BX920 S3 BX922 S2 BX924 S3	CB1 and CB2 (*1), or no specification for uplink port	PY-SWB102(PG-SW111) PY-SWB103(PG-SW112)	3,7
		PY-SWB101(PG-SW201) PY-SWB104(PG-SW109) (*2) PY-CNB101 (*3) PY-FEB101 (*4)	2,6
	CB3 and CB4	PY-SWB101(PG-SW201) PY-SWB102(PG-SW111) PY-SWB103(PG-SW112) PY-SWB104(PG-SW109) PY-CNB101 PY-FEB101 (*4)	9,10
BX924 S2	CB1 and CB2 (*1), or no specification for uplink port	PY-SWB101(PG-SW201) PY-SWB102(PG-SW111) PY-SWB103(PG-SW112) PY-SWB104(PG-SW109)	2,4
	CB3 and CB4	PY-SWB101(PG-SW201) PY-SWB102(PG-SW111) PY-SWB103(PG-SW112) PY-SWB104(PG-SW109) PY-CNB101 PY-FEB101 (*4)	7,8

*1: The same LAN switch blade model should be mounted in CB1 and CB2.

*2: When installing a PY-SWB104 (PG-SW109) on CB1 or CB2, set the transmission speed at the down link port of PY-SWB104 (PG-SW109) to 1 Gbps. For details on how to configure the settings, refer to the corresponding hardware manual.

*3: Only BX920 S3 and BX924 S3 are supported as server blades, when mounting PY-CNB101 on CB1 and CB2.

*4: Only BX920 S3 and BX924 S3 are supported as server blades, when using PY-FEB101.

*5: Use each physical network adapter, by performing redundancy using teaming.

Table C.8 Default Blade Server Configuration for Network Auto-Configuration (for PRIMERGY BX600 S3 Chassis)

Server Blade	Specification of Uplink Port (Location of LAN Switch Blade)	LAN Switch Blade to Use	Physical Network Adapter Number (*)
BX600 series servers	NET1 and NET2, or no specification for uplink port	PG-SW107	3,4
	NET3 and NET4	PG-SW104	7,8

* Note: Use each physical network adapter, by performing redundancy using teaming.

The numbers of physical network adapters given above can be checked in "Network Properties" on the [Resource Details] tab.

When the LAN switch blade is in IBP mode, the same physical network adapter as in the case of "no specification for uplink port" in the list above is selected.

When the user configures the network automatically using an arbitrary physical NIC, define the physical NIC to be used in the server NIC definition file, and specify the physical LAN segment in the server NIC definition from the network resource.

To reflect the physical NIC configuration specified in the server NIC definition file on Resource Orchestrator, use the `rcxadm nicdefctl commit` command. This enables automatic network configuration even in configurations using an arbitrary physical NIC.

However, when using server NIC definitions, the operation must be performed from the command-line.

In addition, when using rack mount and tower servers, automatic network configuration including the configuration using an arbitrary physical NIC is possible by defining the physical NIC to be used in the server NIC definition file and then specifying the physical LAN segment defined in the server NIC definition from the network resource.



See

- For details on the server NIC definitions, refer to "15.11 Server NIC Definition" in the "Reference Guide (Command/XML) CE".
- For details on the `nicdefctl` command, refer to "5.15 rcxadm nicdefctl" in the "Reference Guide (Command/XML) CE".

In the diagram, the default blade server configurations as described in the following configuration example when using a PRIMERGY BX900 S1 chassis are shown.

Table C.9 Configuration Example 1

Server blades	BX920 S2
Specification of uplink port	CB1 and CB2
LAN switch blade to use	PY-SWB103(PG-SW112)

Table C.10 Configuration Example 2

Server blades	BX920 S2
Specification of uplink port	Both "no specification for uplink port" and "CB3 and CB4" are specified
LAN switch blade to use	PY-SWB104(PG-SW109)

Figure C.1 Blade Server Diagram of Configuration Example 1

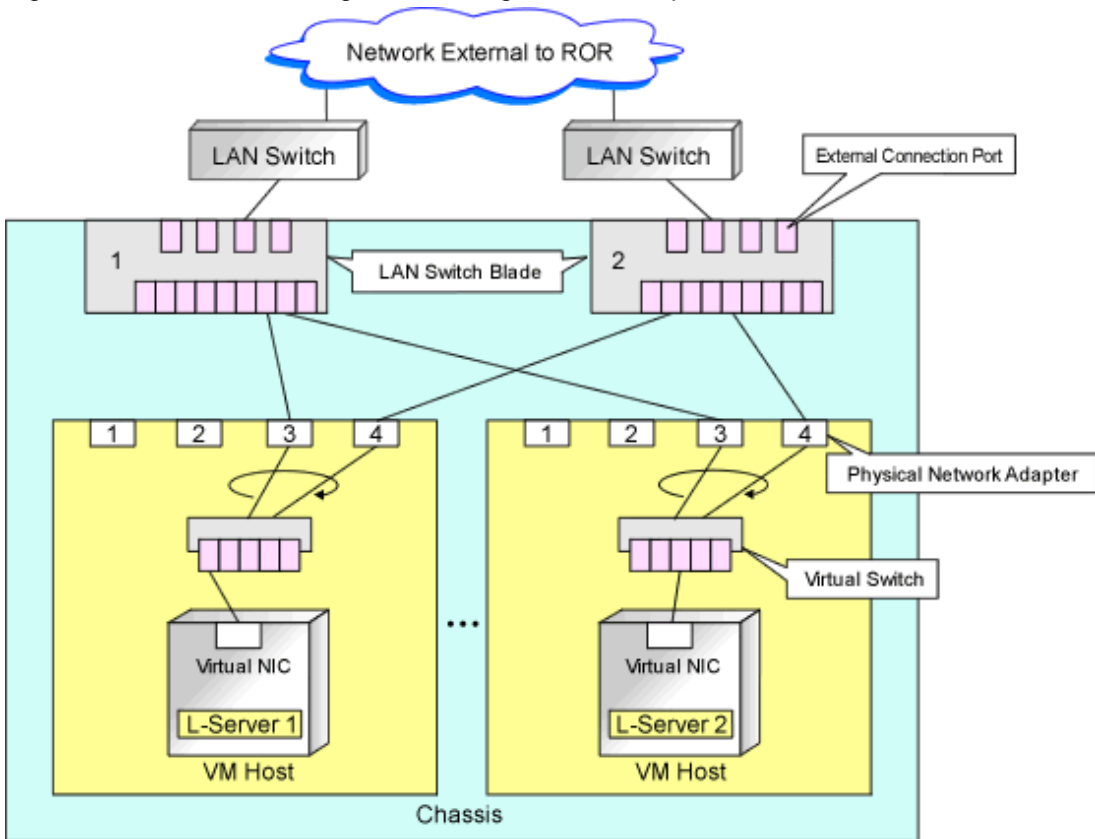
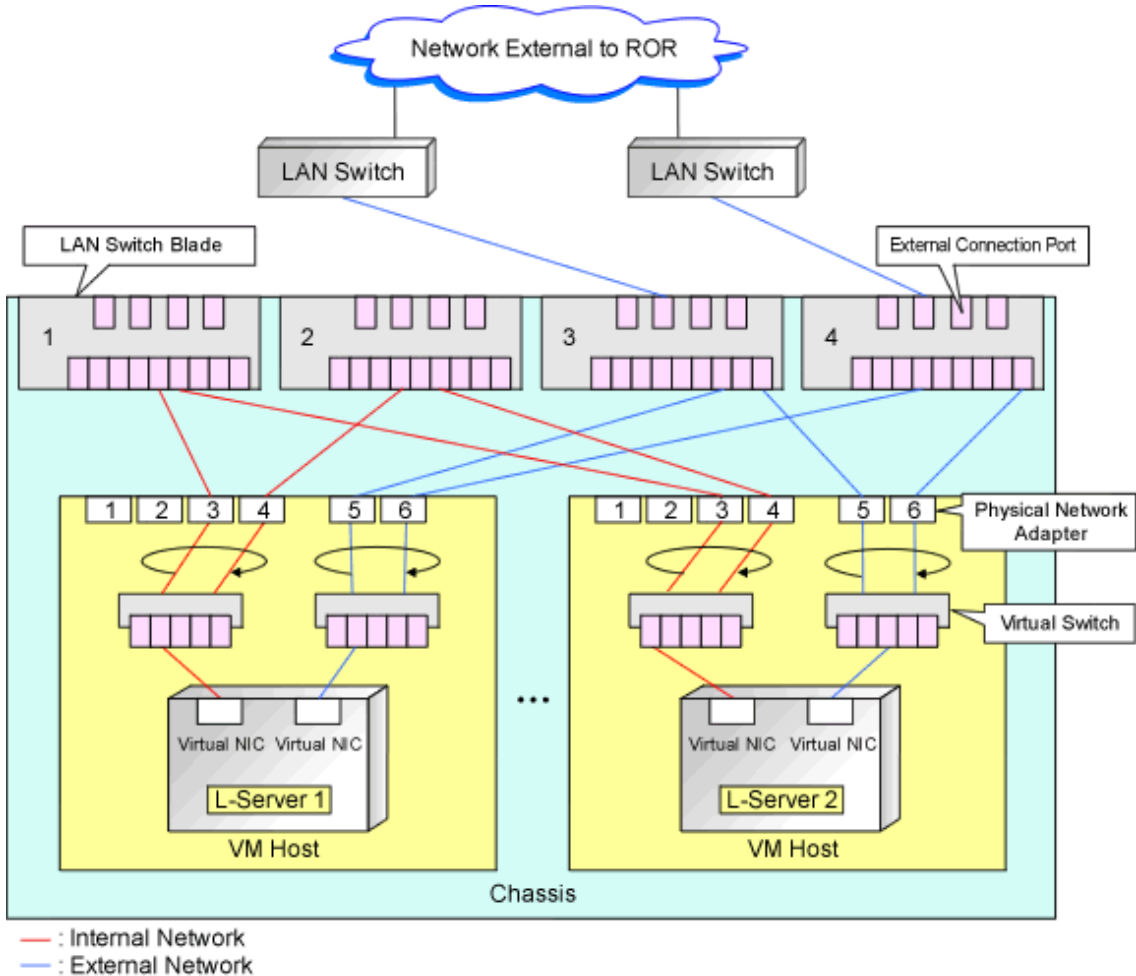


Figure C.2 Blade Server Diagram of Configuration Example 2



C.2.5 Manual Network Configuration

When using a configuration which is not supported for the network auto-configuration (such as triplicity or quadruplicity of NICs), configure the network using the following procedure:

Create port groups that use the same VLAN ID and have the same name (which is case sensitive) for all VM hosts that compose a cluster configuration.

When using server virtualization software other than VMware with the same manager, set a different port group name from the one used for the virtual switch, virtual network, and virtual bridge on the other server virtualization software.

1. Manually create a virtual switch connected to a physical NIC.
For details on how to create virtual switches, refer to the VMware manual.
2. On the virtual switch was created in step 1, manually create a port group for which a VLAN ID has been set.
For details on how to create port groups, refer to the VMware manual.
3. For the LAN switch blade connected to the physical NICs, configure a VLAN that includes a downlink port.
 - a. Right-click the target LAN switch in the server resource tree on the ROR console, and select [Modify]-[Network Settings] from the popup menu.
The [VLAN Settings] dialog is displayed.
 - b. Configure a VLAN.

4. Create a network resource.

- From the GUI:

- a. In the [Create a network resource] dialog containing the VLAN ID that was specified in steps 2 and 3, check the [Use configured virtual switches.] checkbox and create a network resource.

- From the Command-line:

- a. Create the XML file that defines network resources.

Define the VLAN ID specified in steps 2 and 3 in the XML file.

In this case, specify auto="false" in the Network element.

- b. To create the network resource, execute the rcxadm network create command specifying the XML file created in step a.

The network resources are created.

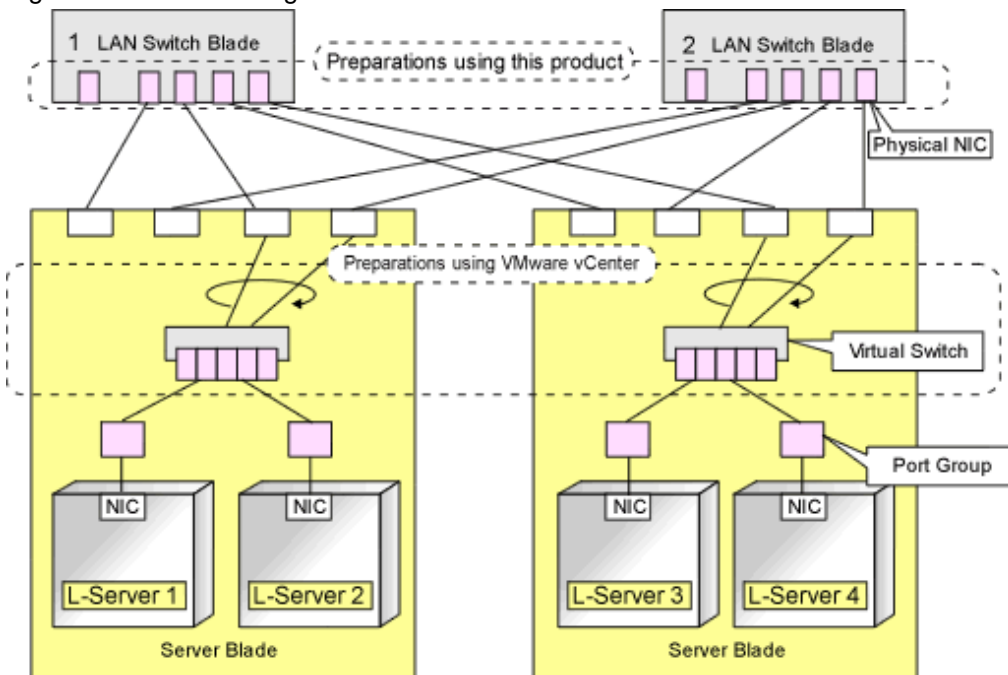
For details on the rcxadm network command, refer to "3.9 rcxadm network" in the "Reference Guide (Command/XML) CE".



See

- For details on the Network element and creation of XML files that define network resources, refer to "15.5 Network Resources" in the "Reference Guide (Command/XML) CE".
- For details on how to configure VLAN settings of LAN switch blade uplink ports, refer to "5.4.4 Configuring VLANs on LAN Switch Blades" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".
- For details on the rcxadm network command, refer to "3.9 rcxadm network" in the "Reference Guide (Command/XML) CE".

Figure C.3 Network Diagram



C.2.6 Creating L-Server Templates

This chapter explains how to create an L-Server template.

L-Server templates can be created using the following methods.

- Using the Wizard GUI

L-Server templates can be created using a GUI in the wizard format.

For details on the GUI in the wizard format, refer to "15.1 Operations Using the Wizard GUI" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- Manually

Use the following procedure to create an L-Server template:

1. Export an L-Server Template

The sample L-Server templates provided with Resource Orchestrator can be exported.

Refer to "15.2.1 Export" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Edit an L-Server Template

The L-Server template output in step 1 can be edited with an editor, etc.

For details on the L-Server templates for virtual L-Servers, refer to "15.2.2 Virtual L-Server Templates" in the "Reference Guide (Command/XML) CE".

3. Import an L-Server Template

Refer to "15.2.3 Import" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.2.7 Creating an L-Server

Use the following procedure to create L-Servers:

1. Create an L-Server Using an L-Server Template

a. When there are no cloning images, or when not using already registered cloning images

1. Create an L-Server, referring to "16.1 Creation Using an L-Server Template" in the "User's Guide for Infrastructure Administrators (Resource Management) CE". When creating the L-Server, select [None] for images.

2. Install an OS, referring to "[Manual OS Installation](#)".

3. When collecting cloning images after creating an L-Server, the cloning images are stored in the image pool. When collecting cloning images, refer to "[C.2.8 Collecting a Cloning Image](#)".

b. When using an existing cloning image

Create an L-Server, referring to "16.1 Creation Using an L-Server Template" in the "User's Guide for Infrastructure Administrators (Resource Management) CE". In this case, specify the cloning image that you want to use as an image.

2. Create an L-Server Specifying Individual Specifications

Refer to "16.3 Creation of Virtual L-Servers Using Parameters" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

For details on the [OS] tab settings, refer to "[C.2.9 \[OS\] Tab Configuration](#)".

Manual OS Installation

To manually install an operating system, use the following procedure.

1. Stop the L-Server.

If an L-Server is operating, stop it.

For details on how to stop an L-Server, refer to "17.1.2 Stopping an L-Server" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Connect a console to the L-Server.

Connect a console to the L-Server.

For details on how to connect the console, refer to "Console" in "17.3 Using the L-Server Console" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Connect DVD drives.

Perform connection of DVD drives from the console window.

4. Install an OS manually on the L-Server.

Start an L-Server, and manually install an OS on the L-Server.

When installing an OS manually, refer to the Guest Operating System Installation Guide.

Refer to the relevant version of the document, referring to the following web site:

Guest Operating System Installation Guide

URL: http://www.vmware.com/support/pubs/vs_pubs.html

Configuration after OS Installation

Install VMware Tools after installing an OS.

Use the following procedure to install VMware Tools.

1. Right-click the target L-Server in the orchestration tree, and select [Install VM Tool] from the popup menu.

The confirmation dialog is displayed.

2. Click <OK>.

The ISO images are connected to the L-Server for VM guest.

For details on VMware Tools, refer to the information on VMware Tools in "vSphere Basic System Administration" of VMware.

Refer to the relevant version of the document, referring to the following web site:

vSphere Basic System Administration

URL: <http://www.vmware.com/support/pubs/>



Note

When a connection with the ISO image of VMware Tools has already been established, subsequent operations for the connection will be completed normally. In some cases, a task error may be output on VMware vCenter Server. This error is output by ignoring the message already received from VMware vCenter Server that informs the user that connection has already been established, and does not affect the system operations.

C.2.8 Collecting a Cloning Image

This section explains how to collect cloning images.

Use the following procedure to collect cloning images:

After installing an OS, stop the target L-Server.

1. Right-click the target L-Server in the orchestration tree, and select [Cloning]-[Collect] from the popup menu.

2. Click <OK>.

A cloning image is collected.

A given cloning image (identified by its name attribute) can be managed by image version.

If a cloning image is created using VM management software, it can be used as is.

Point

When "Default" is specified in the [Collect a Cloning Image] dialog, it is assumed that the virtual storage resource containing the L-Server for collecting cloning images has been specified.

When performing cloning of a Windows OS on an L-Server, the Microsoft Sysprep tool is necessary. The necessary files vary depending on the CPU architecture (x86, x64) of the target system, and the OS version. It is not necessary to obtain new files, since the following OSs include Microsoft Sysprep:

- Windows Server 2008
- Windows Server 2008 R2
- Windows Server 2012
- Windows Vista
- Windows 7
- Windows 8

For details on obtaining tool and its installation, refer to the information regarding the Microsoft Sysprep tool in the "vSphere Basic System Administration" documentation and the following VMware web site.

Refer to the relevant version of the document, referring to the following web site:

vSphere Basic System Administration

URL: <http://www.vmware.com/support/pubs/>

VMware web site

URL:
http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=1005593

Note

- If an L-Server is created with a specified Windows image, when deploying the image use Sysprep, provided by Microsoft, to reconfigure the properties unique to the server. By executing Sysprep, the user information and OS setting information are reset. For details on Sysprep, refer to the information provided by Microsoft.
- If stopping or restarting of the manager is performed during execution of Sysprep, the operation being executed will be performed after the manager is started. Until the process being executed is completed, do not operate the target resource.
- When using MAK license authentication for activation for the following OSs, Sysprep can be executed a maximum of three times.
 - Windows Server 2008
 - Windows Server 2008 R2
 - Windows Vista
 - Windows 7

Since Sysprep is executed when creating L-Server with images specified or when collecting cloning images, collection of cloning images and creation of L-Servers with images specified cannot be performed more than four times. Therefore, it is recommended not to collect cloning images from L-Servers that have had cloning images deployed, but to collect them from a dedicated master server. The number is also included in the count when Sysprep is performed in the following cases:

- When customizing a guest OS using template functions in VMware
- When creating templates in SCVMM

- If an L-Server is created with a Windows image specified, use Sysprep to set the server specific information again, when starting for the first time after creating the L-Server. After startup and resetting of the server specific information, when the L-Server console is opened from the server virtualization software management window, you will be logged on with Administrator status. Therefore, it is recommended that you log off.
- Note the following points when collecting cloning images from an L-Server that was created using a cloning image.
 - As L-Servers which have not been used even once after creation do not have server specific information set, creation of L-Servers using cloning images collected from an L-Server may fail. When collecting cloning images, set the server specific information on L-Server, after starting the target L-Server.

C.2.9 [OS] Tab Configuration

Enter the parameters to set for the OS when creating the L-Server. This setting is valid only if an image is specified in the [General] tab.

The setting process is performed the first time the L-Server is started. If an image name is not specified, it is not necessary to enter all these items.

Table C.11 List of Settings

Item	Windows		Linux		Description
	Necessity of Entry	Values When Omitted	Necessity of Entry	Values When Omitted	
Host name/ Computer name	Possible	<i>L-Server Name</i>	Possible	<i>L-Server Name</i>	<p>[Windows] Enter a character string beginning with an alphanumeric character and containing up to 15 alphanumeric characters and hyphens ("-"). The string cannot be composed solely of numbers.</p> <p>[Linux] Enter a character string beginning with an alphanumeric character and containing up to 63 alphanumeric characters and hyphens ("-"). The string cannot be composed solely of numbers. If underscores ("_") or periods (".") are used in an L-Server name, they will be replaced with hyphens ("-"), because these characters cannot be used for host names or computer names. If the basic information is not specified, the L-Server name is converted and set as indicated above.</p>
Domain name	Possible	WORKGROUP (*1)	Possible	localdomain (*1)	<p>[Windows] Enter the workgroup name. Settings for participation in a domain cannot be made. The same workgroup name as the computer name cannot be</p>

Item	Windows		Linux		Description
	Necessity of Entry	Values When Omitted	Necessity of Entry	Values When Omitted	
					<p>specified.</p> <p>Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters, hyphens ("-"), and periods (".").</p> <p>Refer to the Microsoft information about the character string that can be input to the workgroup name.</p> <p>[Linux]</p> <p>Enter the domain name.</p> <p>Enter a character string beginning with an alphabetical character and containing up to 255 alphanumeric characters, hyphens ("-"), and periods (".").</p>
DNS search path	Not Required	-	Essential	-	<p>Enter a list of domain names to use for DNS searching, using between 1 and 32,767 characters. You can specify the same characters as the domain name.</p> <p>To specify multiple domain names, use a blank space as the separator character.</p>
Full name	Possible	WORKNAME (*1)	Not Required	-	<p>Enter the Windows full name using between 1 and 50 characters. By default, the value defined in the OS property definition file is entered.</p>
Organization name	Possible	WORKORGANIZATION (*1)	Not Required	-	<p>Enter the organization name displayed in the Windows system properties using between 1 and 50 characters.</p>
Product key	Possible	<p>If omitted, the following will happen when the OS is operated: (*1)</p> <ul style="list-style-type: none"> - For Windows Server 2003, the product key entry screen is displayed the first time the server is started. - For Windows Server 2008 or later, the product key is unregistered. 	Not Required	-	<p>Enter a product key.</p>

Item	Windows		Linux		Description
	Necessity of Entry	Values When Omitted	Necessity of Entry	Values When Omitted	
License mode	Possible	Server unit (*1)	Not Required	-	Specify "Seat Unit" (number of connected clients) or "Server Unit" (number of servers used at the same time).
Maximum number of connections	Possible	5 (*1)	Not Required	-	Specify this when "Server Unit" is set (number of servers used at the same time: server). Specify a number between 5 and 9,999.
Administrator password	Possible	- (*1)	Not Required	-	Configure the same password as that specified for the local administrator account during L-Server creation. Enter the password using between 1 and 128 alphanumeric characters or symbols. (*2)
Hardware clock configuration	Not Required	-	Possible	Local	Specify one of the following: - UTC - Local (LOCAL)
Time zone	Possible	<i>The same time zone as the OS of the manager</i>	Possible	<i>The same time zone as the OS of the manager</i>	Specify the time zone of the OS.

*1: When the value is specified in the OS property definition file, its values are configured.

*2: When a different password from the password of the local administrator account of the images specified during L-Server creation is specified, enter the values according to VM management software specifications.

For details on administrator password settings, refer to the section of customization for virtual machines of the "vSphere Basic System Administration".

vSphere Basic System Administration

URL: <http://www.vmware.com/support/pubs/>



Information

OS Property Definition File

By setting the default values in an OS property definition file in advance, the default values of the information on the [OS] tab, etc. are generated when creating an L-Server.

For details, refer to "[C.1.7 OS Property Definition File](#)".

C.2.10 Advisory Notes for VMware Usage

This section explains advisory notes for VMware.

Values for CPU Share and Memory Share

If CPU share and memory share for a virtual L-Server have been set to a value of 1,000,000 or greater using the ROR console, when the VM guest is edited from vSphereClient, these values may be forcibly replaced with 1,000,000.

When setting a value greater than 1,000,000, modify the configuration from the ROR console again.

Operating Systems for which Parameters can be Set and the Prerequisites for Performing the Settings

Depending on the server virtualization software used, some restrictions may apply to the operating systems that parameters can be set for and the prerequisites for performing the settings.

For details, refer to the manual of server virtualization software.

Information

Snapshot

The snapshot function provided by server virtualization software records the disk from the last update. Consequently, when a disk failure occurs, the snapshot function becomes unavailable at the same time.

Snapshot can be used as a corrective measure for problems such as the following:

Example

- For recovery when a problems occurs with the applied patch
- For recovery when a problem occurs when changing operating system parameters

VMware Storage VMotion

The following are advisory notes for when using VMware Storage VMotion.

- When disk resources are moved to a newly created datastore which has not yet been detected by Resource Orchestrator, the information of moved disk resources is reflected as follows:
 1. The newly created datastore is detected as a virtual storage resource during regular update.
 2. After being detected as virtual storage resources, the information of moved disk resources is reflected on Resource Orchestrator.
- When using VMware vSphere Client, after completing moving of disk resources, the newest datastore status may not be reflected. When performing update of the datastore, the newest status is displayed.

VMware FT

When an L-Server is linked with a virtual machine on which VMware FT has been configured, the secondary VM host information can be checked using the following method:

1. Select the target L-Server on the orchestration tree.

In the [Server recovery] on the [Resource Details] tab, VMware FT (*Secondary_VM_host_name*) is displayed.

Example

VMware FT(host2)

When migration to the secondary VM host occurs, the secondary VM host information will be updated by periodic update.

VMware DPM, VMware DRS

When starting an L-Server using VMware DPM or VMware DRS, if moving an L-Server (VM guest) between VM hosts using VMware DRS, or turning on a VM host using VMware DPM, refer to "When using VMware DRS or VMware DPM" in "E.1.2 Preparations for Servers" in the "Design Guide CE".

C.2.11 Overcommit

This section explains the overcommit function for L-Servers.

Overcommit

The VMware overcommit function for the CPU and memory is available on Resource Orchestrator.

The VMware overcommit function for the CPU and memory virtually allows a guest OS to use more resources than that of the actual CPU and memory of a server.

Resource Orchestrator provides the following functions to utilize the VMware overcommit function for the CPU and memory when creating L-Servers.

- Creating an L-Server with the overcommit function for the CPU and memory
 - CPU Performance
The maximum number of CPU resources to be allocated to a virtual machine (Limitation)
 - CPU Reservation Performance
The minimum number of CPU resources to be reserved for a virtual machine (Reservation)
 - CPU Shares
The relative proportion for allocation of CPU resources when there are competing virtual machines (Share)
 - Memory Size
 - Memory Reserved
The maximum amount of memory resources to be allocated to a virtual machine (Limitation)
 - Memory Size
The maximum amount of memory resources to be allocated to a virtual machine by the VM host (Memory Size)
- For the virtual L-Server created using Resource Orchestrator, the same value is set for both Memory Reserved and Memory Size.
- Memory Reservation Capacity
The minimum amount of memory resources to be reserved for a virtual machine (Reservation)
- Memory Shares
The relative proportion for allocation of memory resources when there are competing virtual machines (Share)
- Setting an overcommit attribute for a resource pool
Overcommit attributes can be set for resource pools. An L-Server with overcommit attributes can be created using overcommit attributes settings or a resource pool.
- Calculation of available space on VM pools, which uses values set for CPU reservation performance and memory reservation capacity
- Conversion of the free CPU capacity and free memory capacity of VM pools with overcommit attributes
For a VM pool with overcommit attributes, the conversion of free CPU capacity and free memory capacity can be displayed based on the CPU reservation values and memory allocation capacity of an L-Server created beforehand.
- Display of the number of L-Servers that can be created for a VM pool with overcommit attributes
For a VM pool with overcommit attributes, the number of L-Servers that can be created based on the CPU reservation values and memory reservation capacity specified in the L-Server template can be displayed.

For details on L-Servers, refer to "2.2.3 L-Server" in the "Design Guide CE", "[C.2.7 Creating an L-Server](#)", or "Chapter 16 Creating L-Servers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

For details on resource pools, refer to "2.2.2 Resource Pools" in the "Design Guide CE", or "Chapter 20 Resource Pool Operations" in the

"User's Guide for Infrastructure Administrators (Resource Management) CE".

For details on the available capacity view or the L-Server conversion view, refer to "20.6 Viewing" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Installation Procedure

Use the following procedure to install overcommit.

1. Create a VM Pool for Overcommit

For details on how to create a VM pool, refer to "Chapter 20 Resource Pool Operations" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Point

- When creating L-Servers that use overcommit and L-Servers that do not, both a VM pool that uses overcommit and a VM pool that does not must be created.
- It is necessary to edit the definition file separately, when migration is not executed using the configuration methods for overcommit functions after performing upgrade of the admin server from ROR V2.3.0 or V3.0.0. For details, refer to "[G.1.1 Overcommit Definition Files](#)".

Note

- For the VM pool for overcommit, register only VM hosts that support overcommit (VMware, Hyper-V, RHEL-KVM, or Solaris Containers). If VM hosts that do not support overcommit have been registered, move those VM hosts to another VM pool. If VM hosts that do not support overcommit have been registered in VM pools for overcommit, the following operations cannot be performed.
 - Creating an L-Server
 - Associating L-Servers with configured virtual machinesFor RHEL-KVM, associating L-Servers with configured virtual machines is not supported. The overcommit attributes are enabled for an L-Server linked with an OVM for SPARC virtual machine.
- When two or more VM pools using overcommit exist, the VM host the L-Server is deployed to is selected from all VM hosts in the resource pool, regardless of the priority configured.
- When the L-Server is linked to a virtual machine on the VM host in the VM pool used by overcommit, the overcommit attributes of the VM pool which the VM host is registered in are configured on the L-Server.

2. Create a VM Specific Information Definition File

Create a VM specific information definition file. Create a VM specific information definition file when configuring different settings for individual user groups without configuring overcommit settings on the L-Server template.

For VM specific information definition files, refer to "[C.1 Definition Files Commonly Shared when Creating Virtual L-Servers](#)".

3. Export an L-Server Template

For details on how to export L-Server templates, refer to "15.2.1 Export" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

L-Server template operations (steps 3 to 5) can be performed using the GUI.

For details on how to operate L-Server templates using the GUI, refer to "15.1 Operations Using the Wizard GUI" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

4. Edit an L-Server Template

Configure the overcommit settings for an L-Server template.

Edit the XML definition of L-Server templates, referring to "15.2.2 Virtual L-Server Templates" in the "Reference Guide (Command/XML) CE".

When configuring overcommit settings using the VM specific information definition file, do not configure the following parameters except "Enabling/disabling overcommit". When overcommit settings are configured in the L-Server template, priority is given to those settings.

- CPU Reservation Performance
- CPU Shares
- Memory Reservation Capacity
- Memory Shares

Information

If a template is imported without editing the L-Server template name, the content of the existing L-Server template is overwritten. If an L-Server template is imported after the name is edited from when it was exported, the L-Server template is added.

5. Import an L-Server Template

For details on how to import L-Server templates, refer to "15.2.3 Import" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

6. Create an L-Server

Create an L-Server using the L-Server template created in step 5.

For details, refer to "16.1 Creation Using an L-Server Template" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

When not using an L-Server template, create an L-Server using a command. Edit the L-Server XML referring to "Chapter 16 Creating L-Servers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE", and then execute the `rcxadm lserver create` command.

For details on the `rcxadm lserver` command, refer to "3.6 rcxadm lserver" in the "Reference Guide (Command/XML) CE".

Point

When you create the L-Server which uses the overcommit from the [Resource] Tab of a ROR console, please specify a L-Server template.

7. Confirm the Overcommit Function Settings for an L-Server

To confirm overcommit settings configured for an L-Server, execute the `rcxadm lserver show` command.

Confirm that the command output result includes the line starting with "OverCommit: true".

For details on the `rcxadm lserver` command, refer to "3.6 rcxadm lserver" in the "Reference Guide (Command/XML) CE".

Note

When starting of an L-Server fails, the retrieval method varies depending on the L-Server settings.

Perform the following:

- When "Boot Location" of the L-Server is set to "Relocate at startup"

Start the L-Server again. When there is a VM host with an available resource, the L-Server will start on that VM host after several attempts at startup.

- When [Boot Location] of the L-Server is set to [Fixed]

As no VM host is automatically selected, start the L-Server after changing its boot location, or moving or stopping other L-Servers on the same VM host.

For details on how to change the boot location, refer to "16.3 Creation of Virtual L-Servers Using Parameters" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

For details on how to move the boot location, refer to "17.7 Migration between VM Hosts" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Changing L-Server Specifications

This section explains how to modify L-Server specifications.

To change L-Server specifications, execute the `rcxadm lserver modify` command.

For details on the `rcxadm lserver` command, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".



Changing of L-Server specifications will fail if the resources (the number of CPUs, CPU frequency, and memory capacity) of a physical server where a VM host operates are less than the CPU reservation performance and memory reservation capacity.

When CPU performance and memory capacity are smaller than the CPU reservation performance and memory reservation capacity, modification of L-Server specifications fails.

When modifying specifications of an L-Server to which resources have been allocated, the information in the VM specific information definition file is not reflected because priority is given to the values already configured to the L-Server. In that case, enter the new values in the XML file and then use the appropriate commands to reflect the changes.

C.3 Hyper-V

This section explains how to configure Hyper-V as server virtualization software.

- When Creating a Virtual L-Server

Configure the settings referring to the information in "[C.3.1 Creating Definition Files](#)" or the following sections.

- When Associating L-Servers with Configured Virtual Machines

Refer to "18.4.3 For Virtual Machines" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- Importing to L-Platforms

Refer to "7.2.3 Importing to L-Platform" in the "Operation Guide CE".

C.3.1 Creating Definition Files

This section explains how to create definition files.

For definition files common to virtual L-Servers, refer to "[C.1 Definition Files Commonly Shared when Creating Virtual L-Servers](#)".

C.3.2 Registering Resources with Resource Orchestrator

When Using Blade Servers

1. Register VM Management Software

When registering VM management software, CSV files that are created in advance during pre-setup preparations, are automatically registered in Resource Orchestrator as virtual storage resources.

When configuring L-Server alive monitoring, domain users which belong to the Administrators group for all VM hosts must be specified for the login account for VM management software registered in Resource Orchestrator.

For details on how to register VM management software, refer to "5.2 Registering VM Management Software" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Register Chassis

Refer to "5.4.1 Registering Chassis" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Register Managed Servers (within Chassis)

Refer to "5.4.2 Registering Blade Servers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

4. Register LAN Switch Blades

Refer to "5.4.3 Registering LAN Switch Blades" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

5. Preparations for Networks (for Manual Network Configuration)

Preparation is necessary in the following cases.

For details, refer to "Preparations" of "[Connections with Virtual Networks Created in Advance](#)".

- When not performing network redundancy for L-Servers with blade servers
- When using servers other than blade servers

6. Network Resources

To register a network resource, specify a network pool when creating the network resource.

By creating network resources in advance, if the NIC and network resources are connected when an L-Server is created, the following settings matching the network resource definition will be registered automatically.

For details on automatic configuration of network resources, refer to "[C.3.4 Automatic Network Configuration](#)".

When Using a Server other than a Blade Server

1. Register VM Management Software

When registering VM management software, CSV files that are created in advance during pre-setup preparations, are automatically registered in Resource Orchestrator as virtual storage resources.

When configuring L-Server alive monitoring, domain users which belong to the Administrators group for all VM hosts must be specified for the login account for VM management software registered in Resource Orchestrator.

For details on how to register VM management software, refer to "5.2 Registering VM Management Software" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Register Managed Servers

Refer to "5.5.1 Registering Rack Mount or Tower Servers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Register LAN Switches

Refer to "5.13 Registering LAN Switches" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

4. Preparations for Networks (for Manual Network Configuration)

Preparation is necessary in the following cases.

For details, refer to "Preparations" of "[Connections with Virtual Networks Created in Advance](#)".

- When not performing network redundancy for L-Servers with blade servers
- When using servers other than blade servers

5. Network Resources

To register a network resource, specify a network pool when creating the network resource.

By creating network resources in advance, if the NIC and network resources are connected when an L-Server is created, the following settings matching the network resource definition will be registered automatically.

For details on automatic configuration of network resources, refer to "[C.3.4 Automatic Network Configuration](#)".

C.3.3 Registering Resources in Resource Pools

1. Register VM Host Resources

Refer to "14.1 VM Host Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Register Virtual Storage Resources

Refer to "14.5 Storage Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Register Network Resources

If the NIC and network resources are connected when an L-Server is created, a VLAN ID is automatically configured for the NIC of the VM guest, and connected to the virtual network.

For details, refer to "[C.3.4 Automatic Network Configuration](#)".

- a. In the ROR console orchestration tree, right-click the target network pool, and select [Create Network Resource].

When creating a new network resource, select [New].

When creating a resource using an already registered admin LAN subnet, select [Using existing admin subnet].

The [Create a network resource] dialog is displayed.

- b. Enter the items necessary for network resources.

For details, refer to "14.3 Network Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

4. Register Network Device Resources

Create network devices to be used on the L-Platform and register those with the type Firewall or SLB to the network pool.

Refer to "14.4 Network Devices" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.3.4 Automatic Network Configuration

Network settings on Hyper-V differ depending on hardware (such as blade servers and rack mount servers), and whether network redundancy will be performed for L-Servers.

- Automatic network configuration for blade servers

Refer to "[Automatic Network Configuration for Blade Servers](#)".

- When not performing network redundancy for L-Servers with blade servers

Refer to "[C.3.5 Manual Network Configuration](#)".

Automatic network configuration using an arbitrary physical NIC is also possible by defining the physical NIC to be used in the server NIC definition file and then specifying the physical LAN segment defined in the server NIC definition from the network resource.

This enables automatic network configuration even in configurations using an arbitrary physical NIC.

To reflect the physical NIC configuration specified in the server NIC definition file on Resource Orchestrator, use the `rcxadm nicdefctl commit` command.



See

- For details on the server NIC definitions, refer to "15.11 Server NIC Definition" in the "Reference Guide (Command/XML) CE".
- For details on the `nicdefctl` command, refer to "5.15 `rcxadm nicdefctl`" in the "Reference Guide (Command/XML) CE".

- Network configuration for servers other than blade servers

Refer to "[C.3.5 Manual Network Configuration](#)".

Automatic Network Configuration for Blade Servers

If the NIC and network resources are connected when an L-Server is created, the following settings will be registered automatically for the VM host that the L-Server will operate on.

- LAN Switch Blades

When using a LAN switch blade in switch mode or end-host mode, a VLAN is configured on the internal connection port.

When creating a network resource, a VLAN can be configured on the port of LAN switch blade specified as the uplink port, by using the following procedure.

- From the GUI:

In the [Create a network resource] dialog, check the [Automatically configure VLANs for the uplink ports.] checkbox.

- From the Command-line:

In the XML definition for the network resource, specify "true" for vlanautosetting (Automatic VLAN configuration for uplink ports).

- Virtual Network

When there is no virtual network on the public LAN, it will be created automatically using the virtual interface (IntelPROSet or PRIMECLUSTER GLS)) manually created in advance.

When a network already exists, the virtual network can be used.

- VM Guests

Configure a VLAN on the virtual NIC of the VM guest, and connect with the virtual network.

If an image is specified, the IP address is automatically configured. For details on how to configure IP addresses automatically, refer to "Network (NIC)" of "16.3.1 [General] Tab" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

In environments using the clustering function of VM management software, in order to enable the migration of VM guests and operation using the HA function, settings for LAN switch blades and virtual switches are performed automatically for all VM hosts comprising the cluster.

When not configuring the tagged VLAN automatically for the uplink port of network resources, use the ROR console to configure the VLAN settings of uplink ports. Right-click the LAN switch in the server resource tree, and select [Modify]-[Network Settings] from the popup menu.

For details, refer to "5.4.4 Configuring VLANs on LAN Switch Blades" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".



Note

After creating an L-Server, if VM hosts are added to the cluster afterwards, Resource Orchestrator network settings are not performed automatically.

Perform the same settings as the existing VM hosts in the cluster configuration for the LAN switch blades and virtual networks of the additional VM hosts.

Virtual network definition files for blade servers

- When configuring the network for blade servers automatically

It is not necessary to create a virtual network definition file.

- When a virtual network definition file exists and no virtual network with a VLAN ID is defined

The virtual network is automatically configured.

- When a virtual network with a VLAN ID is defined, using a virtual network definition file

It is necessary that a virtual network with the VLAN ID be manually configured beforehand.

For details, refer to "[C.3.5 Manual Network Configuration](#)".

Default Blade Server Configuration to Support Automation of Network Configuration in Resource Orchestrator

The default blade server configuration to support automation of network configuration in Resource Orchestrator (server blades, specification of uplink ports for network resource, correspondence relation of numbers of LAN switch blades and physical network

adapters, etc.) is shown in the following list. When there are no server NIC definitions, for network auto-configuration, a virtual network is created using the physical network adapter selected according to this list.

Table C.12 Default Blade Server Configuration for Network Auto-Configuration (for PRIMERGY BX900 S1/S2 Chassis)

Server Blade	Specification of Uplink Port (Location of LAN Switch Blade)	LAN Switch Blade to Use	Physical Network Adapter Number (*6)
BX920 S1 BX920 S2 BX920 S3 BX922 S2 BX924 S3	CB1 and CB2, or no specification for uplink port	PY-SWB102(PG-SW111) PY-SWB103(PG-SW112)	3,4
		PY-SWB101(PG-SW201) PY-SWB104(PG-SW109) (*1) PY-CNB101 (*2) PY-FEB101 (*3)	1,2
	CB3 and CB4	PY-SWB101(PG-SW201) PY-SWB102(PG-SW111) PY-SWB103(PG-SW112) PY-SWB104(PG-SW109) PY-CNB101 PY-FEB101 (*3)	5,6
	CB5 and CB6	PY-SWB104(PG-SW109) PY-CNB101 PY-FEB101 (*3)	9,10
	CB7 and CB8	PY-SWB102(PG-SW111) PY-SWB103(PG-SW112)	11,12
		PY-SWB101(PG-SW201)	9,10
BX924 S2	CB1 and CB2, or no specification for uplink port	PY-SWB101(PG-SW201) PY-SWB102(PG-SW111) PY-SWB103(PG-SW112) PY-SWB104(PG-SW109)	1,2
	CB3 and CB4	PY-SWB101(PG-SW201) PY-SWB102(PG-SW111) PY-SWB103(PG-SW112) PY-SWB104(PG-SW109) PY-CNB101 PY-FEB101 (*3)	3,4
	CB5 and CB6	PY-SWB104(PG-SW109) PY-CNB101 PY-FEB101 (*3)	7,8
	CB7 and CB8	PY-SWB102(PG-SW111) PY-SWB103(PG-SW112)	9,10
		PY-SWB101(PG-SW201)	7,8
BX960 S1	CB1 and CB2, or no specification for uplink port	PY-SWB101(PG-SW201) PY-SWB102(PG-SW111) PY-SWB103(PG-SW112) PY-SWB104(PG-SW109)	11,12
	CB3 and CB4 (*4)	PY-SWB101(PG-SW201) PY-SWB102(PG-SW111) PY-SWB103(PG-SW112) PY-SWB104(PG-SW109) PY-CNB101 PY-FEB101 (*3)	3,4

Server Blade	Specification of Uplink Port (Location of LAN Switch Blade)	LAN Switch Blade to Use	Physical Network Adapter Number (*6)
	CB5 and CB6 (*5)	PY-SWB104(PG-SW109) PY-CNB101 PY-FEB101 (*3)	7,8
	CB7 and CB8 (*5)	PY-SWB102(PG-SW111) PY-SWB103(PG-SW112)	9,10
		PY-SWB101(PG-SW201)	7,8

*1: When installing a PY-SWB104 (PG-SW109) on CB1 or CB2, set the transmission speed at the down link port of PY-SWB104 (PG-SW109) to 1 Gbps. For details on how to configure the settings, refer to the corresponding hardware manual.

*2: Only BX920 S3 and BX924 S3 are supported as server blades, when mounting PY-CNB101 on CB1 and CB2.

*3: Only BX920 S3 and BX924 S3 are supported as server blades, when using PY-FEB101.

*4: A LAN expansion card is mounted in expansion slot 1.

*5: A LAN expansion card is mounted in expansion slot 2.

*6: Configure a virtual network automatically on a virtual interface configured beforehand in a redundant configuration using individual physical network adapters. Configure the virtual interface on the managed server using one of following products beforehand.

- Intel PROSet
- PRIMECLUSTER GLS for Windows

Table C.13 Default Blade Server Configuration for Network Auto-Configuration (for PRIMERGY BX400 S1 Chassis)

Server Blade	Specification of Uplink Port (Location of LAN Switch Blade)	LAN Switch Blade to Use	Physical Network Adapter Number (*5)
BX920 S2 BX920 S3 BX922 S2 BX924 S3	CB1 and CB2 (*1), or no specification for uplink port	PY-SWB102(PG-SW111) PY-SWB103(PG-SW112)	3,7
		PY-SWB101(PG-SW201) PY-SWB104(PG-SW109) (*2) PY-CNB101 (*3) PY-FEB101 (*4)	2,6
	CB3 and CB4	PY-SWB101(PG-SW201) PY-SWB102(PG-SW111) PY-SWB103(PG-SW112) PY-SWB104(PG-SW109) PY-CNB101 PY-FEB101 (*4)	9,10
BX924 S2	CB1 and CB2 (*1), or no specification for uplink port	PY-SWB101(PG-SW201) PY-SWB102(PG-SW111) PY-SWB103(PG-SW112) PY-SWB104(PG-SW109)	2,4
	CB3 and CB4	PY-SWB101(PG-SW201) PY-SWB102(PG-SW111) PY-SWB103(PG-SW112) PY-SWB104(PG-SW109) PY-CNB101 PY-FEB101 (*4)	7,8

*1: The same LAN switch blade model should be mounted in CB1 and CB2.

*2: When installing a PY-SWB104 (PG-SW109) on CB1 or CB2, set the transmission speed at the down link port of PY-SWB104 (PG-SW109) to 1 Gbps. For details on how to configure the settings, refer to the corresponding hardware manual.

*3: Only BX920 S3 and BX924 S3 are supported as server blades, when mounting PY-CNB101 on CB1 and CB2.

*4: Only BX920 S3 and BX924 S3 are supported as server blades, when using PY-FEB101.

*5: Configure a virtual network automatically on a virtual interface configured beforehand in a redundant configuration using individual physical network adapters. Configure the virtual interface on the managed server using one of following products beforehand.

- Intel PROSet
- PRIMECLUSTER GLS for Windows

Table C.14 Default Blade Server Configuration for Network Auto-Configuration (for PRIMERGY BX600 S3 Chassis)

Server Blade	Specification of Uplink Port (Location of LAN Switch Blade)	LAN Switch Blade to Use	Physical Network Adapter Number (*)
BX600 series servers	NET1 and NET2, or no specification for uplink port	PG-SW107	3,4
	NET3 and NET4	PG-SW104	7,8

* Note: Configure a virtual network automatically on a virtual interface configured beforehand in a redundant configuration using individual physical network adapters. Configure the virtual interface on the managed server using one of following products beforehand.

- Intel PROSet
- PRIMECLUSTER GLS for Windows

The numbers of physical network adapters given above can be checked on the details window of the LAN switch blade.

The MAC address (IP address) information of managed servers can be confirmed in [Hardware Maintenance] on the [Resource Details] tab.

Configure the Intel PROSet or PRIMECLUSTER GLS settings on the managed server in advance, using this MAC address information.

When the LAN switch blade is in IBP mode, create a virtual network on the virtual interface configured beforehand in the redundant configuration using the same physical network adapter as in the case of "no specification for uplink port" in the list above.

Performing the following procedure enables automatic network configuration using an arbitrary physical NIC.

1. Create a server NIC definition and reflect it on Resource Orchestrator.
 - a. Create a server NIC definition
Edit the template file and create a server NIC definition.
 - b. Reflect the server NIC definition
Execute the `rxadm nicdefctl commit` command to reflect the physical NIC configuration specified in the server NIC definition file on Resource Orchestrator.
 - c. Confirm the reflected server NIC definition
Execute the `rxadm nicdefctl show` command and confirm the server NIC definition has been reflected on Resource Orchestrator.
2. Create a network resource.
 - From the GUI:
 - a. In the ROR console orchestration tree, right-click the network pool to create a network resource in, and select [Create Network Resource].
When creating a new network resource, select [New].
When creating a resource using an already registered admin LAN subnet, select [Using existing admin subnet].
 - b. In the [Create a network resource] dialog, clear the [Use configured virtual switches.] checkbox.
 - c. In the [Create a Network Resource] dialog, select "Settings" in "Physical LAN Segment".
 - d. In the [Physical LAN segment settings] dialog, select the physical LAN segment specified in PhysicalLANSegment name of the server NIC definition.
 - From the Command-line:
 - a. Create the XML file that defines network resources.
Specify the physical LAN segment name that was specified for "PhysicalLANSegment name" in the server NIC definition

file for "PhysicalLANSegment" in the XML file that defines network resources.
 In this case, specify auto="true" in the Network element.

b. Create a network resource.

Execute the rcxadm network create command specifying the XML file created in step a.

 See

- For details on the server NIC definitions, refer to "15.11 Server NIC Definition" in the "Reference Guide (Command/XML) CE".
- For details on the nicdefctl command, refer to "5.15 rcxadm nicdefctl" in the "Reference Guide (Command/XML) CE".
- For details on how to define network resources, refer to "15.5 Network Resources" in the "Reference Guide (Command/XML) CE".
- For details on the rcxadm network command, refer to "3.9 rcxadm network" in the "Reference Guide (Command/XML) CE".

 Note

- If there are VM hosts that meet the following conditions, automation of network configuration is not supported in the chassis.
 - Network resources with uplink ports specified are used
 - There is a virtual network that uses a NIC in a VM host configuration pattern that differs from the ones supporting automation of network configuration
- If there are VM hosts that meet the following conditions, automation of network configuration is not supported.
 - Network resources with no uplink port specified are used
 - There is a virtual network that uses a NIC in a VM host configuration pattern that differs from the ones supporting automation of network configuration

In the diagram, the default blade server configurations as described in the following configuration example when using a PRIMERGY BX900 S1 chassis are shown.

Table C.15 Configuration Example 1

Server blades	BX920 S2
Specification of uplink port	CB1 and CB2
LAN switch blade to use	PY-SWB103(PG-SW112)
Virtual interface	PRIMECLUSTER GLS

Table C.16 Configuration Example 2

Server blades	BX920 S2
Specification of uplink port	Both "no specification for uplink port" and "CB3 and CB4" are specified
LAN switch blade to use	PY-SWB104(PG-SW109)
Virtual interface	PRIMECLUSTER GLS

Figure C.4 Blade Server Diagram of Configuration Example 1

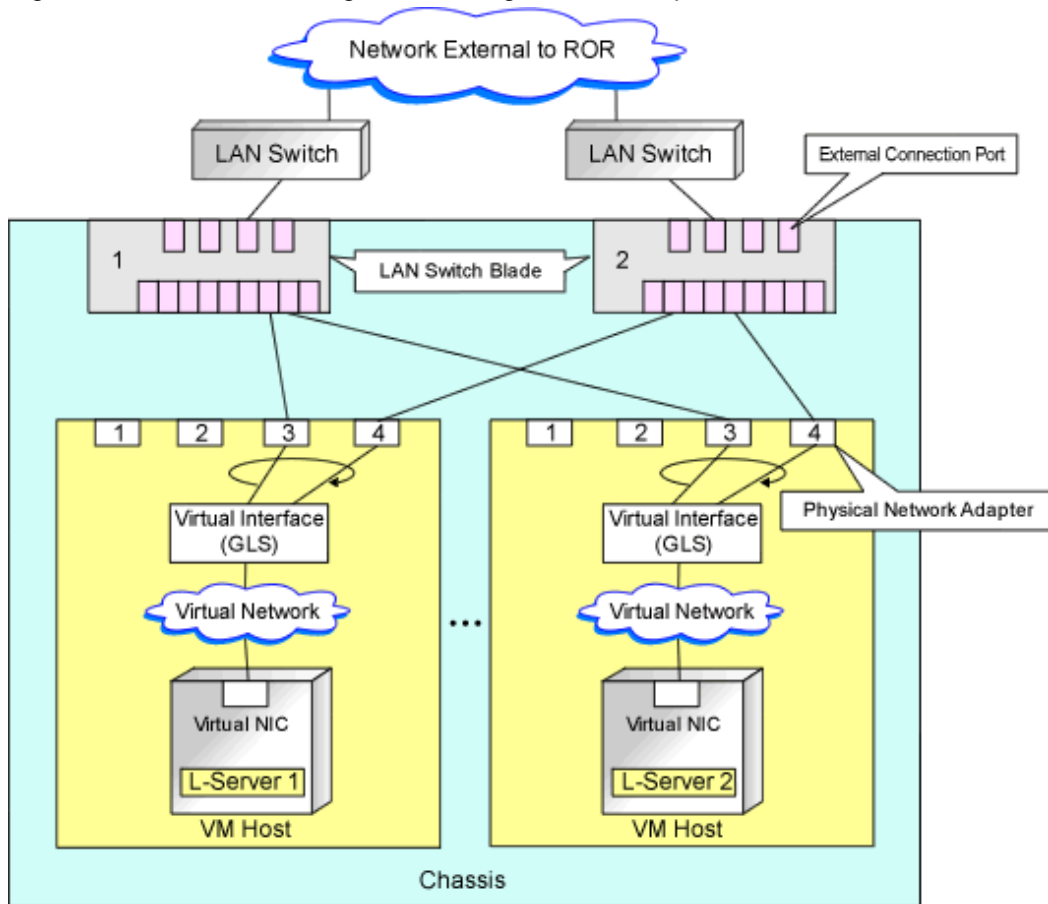
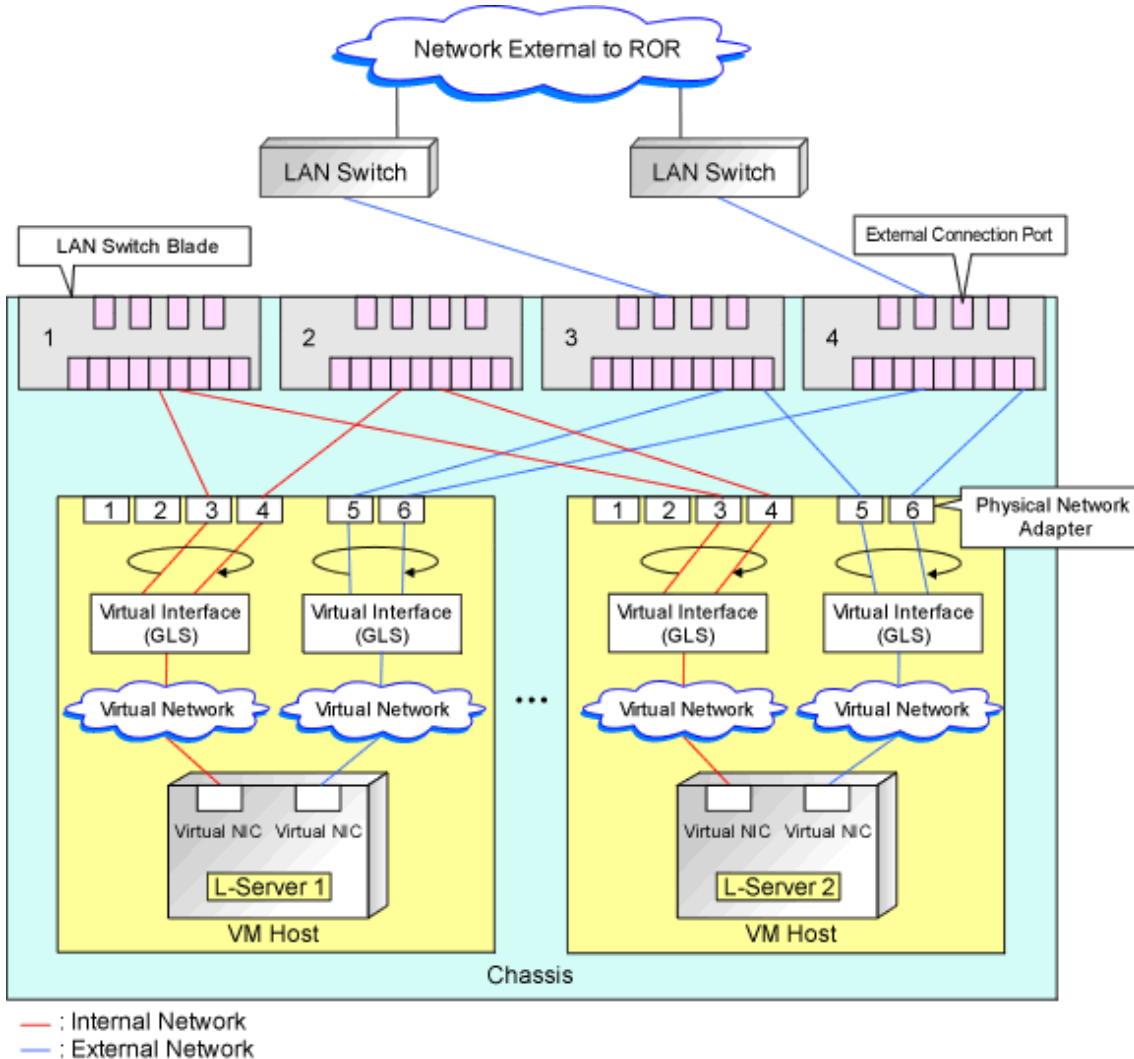


Figure C.5 Blade Server Diagram of Configuration Example 2



C.3.5 Manual Network Configuration

In the following cases, configure the network manually.

- When using a physical network adapter number that differs from configuration patterns of VM hosts which support automation of network configuration

Refer to ["Configuring Network Resources when Using a Physical Network Adapter Number that Differs from Configuration Patterns of VM Hosts which Support Automation of Network Configuration"](#).

- When not performing network redundancy for L-Servers with blade servers

Refer to ["Connections with Virtual Networks Created in Advance"](#).

- For environments using servers other than blade servers

Refer to ["Connections with Virtual Networks Created in Advance"](#).

When a virtual network has already been manually configured and server virtualization software other than Hyper-V is being used with the same manager, set a different name from the one used by the virtual switch, virtual network, and virtual bridge on the other virtualization software.

Configuring Network Resources when Using a Physical Network Adapter Number that Differs from Configuration Patterns of VM Hosts which Support Automation of Network Configuration

When using a physical network adapter number that is different from the one used in the configuration patterns mentioned above, create networks using the following procedure.

1. Create a virtual network with the same name (including upper and lower case characters) for all VM hosts comprising the cluster.

This enables migration of VM guests between VM hosts. When using System Center 2012 Virtual Machine Manager as VM management software, only "External" can be used for the type of virtual network which is the connection destination for the VM guest.

For details on how to create networks, refer to the SCVMM help.

2. Configure LAN switches to enable communication using the tagged VLAN between virtual networks using the same name.

Right-click the target LAN switch in the server resource tree on the ROR console, and select [Modify]-[Network Settings] from the popup menu.

The [VLAN Settings] dialog is displayed.

3. Configure a VLAN.

4. Define supported virtual networks and VLAN IDs in the following definition file:

Installation_folder\SVROR\Manager\etc\customize_data\vnetwork_hyperv.rcxprop

For details on definition file format, refer to "[File Format for Virtual Network Definitions](#)".

5. Create Network Resources

- From the GUI:

- a. In the [Create a network resource] dialog containing the VLAN ID that was specified in steps 2 and 4, uncheck the [Use configured virtual switches.] checkbox and create a network resource.

- From the Command-line:

- a. Create the XML file that defines network resources.

Define the VLAN ID specified in steps 2 to 4 in the XML file.

In this case, specify auto="false" in the Network element.

- b. To create the network resource, execute the rcxadm network create command specifying the XML file created in step a.

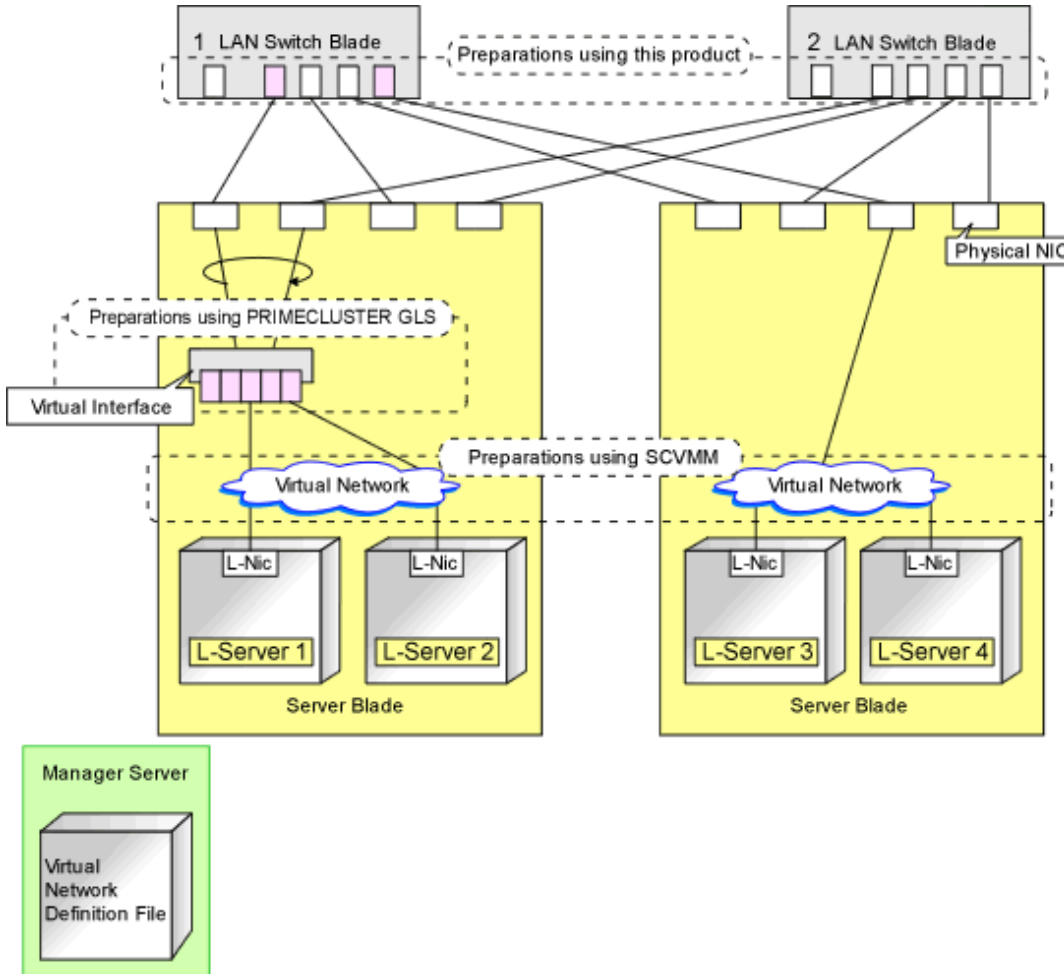
The network resources are created.



See

- For details on how to configure VLAN settings of LAN switch blade uplink ports, refer to "5.4.4 Configuring VLANs on LAN Switch Blades" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".
- For details on the Network element and creation of XML files that define network resources, refer to "15.5 Network Resources" in the "Reference Guide (Command/XML) CE".
- For details on the rcxadm network command, refer to "3.9 rcxadm network" in the "Reference Guide (Command/XML) CE".

Figure C.6 Network Diagram



Connections with Virtual Networks Created in Advance

When not performing network redundancy for L-Servers with blade servers, and in environments where blade servers are not used, only the function for configuring IP addresses and VLAN IDs on VM guest NICs and connecting NICs of VM guests is provided for virtual networks created in advance. Manually perform virtual network settings in advance.

Additionally, the following settings must be performed in advance.

Preparations

1. Create a Virtual Network

Create a virtual network with the same name (including upper and lower case characters) for all VM hosts comprising the cluster. This enables migration of VM guests between VM hosts. When using System Center 2012 Virtual Machine Manager as VM management software, only "External" can be used for the type of virtual network which is the connection destination for the VM guest.

For details on how to create networks, refer to the SCVMM help.

2. Configure the Virtual Network Communication

Configure LAN switches to enable communication using the tagged VLAN between virtual networks using the same name.

- a. Right-click the target LAN switch in the server resource tree on the ROR console, and select [Modify]-[Network Settings] from the popup menu.

The [VLAN Settings] dialog is displayed.

- b. Configure a VLAN.

3. Define the Supported Virtual Network and VLAN ID

Supported virtual networks and VLAN IDs are defined in the following definition file of Resource Orchestrator:

Installation_folder\SVROR\Manager\etc\customize_data\vnetwork_hyperv.rcxprop

For details on definition file format, refer to "[File Format for Virtual Network Definitions](#)".

4. Create Network Resources

- From the GUI:

In the [Create a network resource] dialog containing the VLAN ID that was specified in steps 2 and 3, uncheck the [Use configured virtual switches.] checkbox and create a network resource.

- From the Command-line:

- a. Create the XML file that defines network resources.

Define the VLAN ID specified in steps 2 to 3 in the XML file.

In this case, specify auto="false" in the Network element.

- b. To create the network resource, execute the rcxadm network create command specifying the XML file created in step a.

The network resources are created.



See

.....

- For details on how to configure VLAN settings of LAN switch blade uplink ports, refer to "5.4.4 Configuring VLANs on LAN Switch Blades" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- For details on the rcxadm network command, refer to "3.9 rcxadm network" in the "Reference Guide (Command/XML) CE".

.....

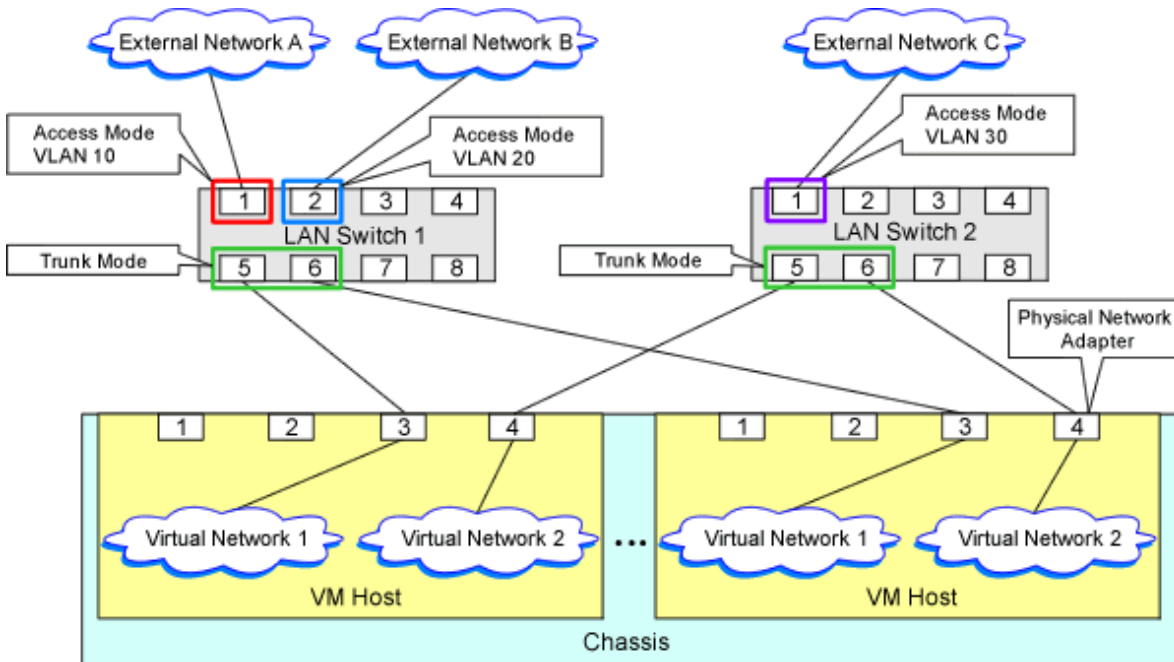
Virtual NIC Automatic Configuration for VM Guests

Configure a VLAN on the virtual NIC of the VM guest, and connect with the virtual network.

If an image is specified, the IP address is automatically configured. For details on how to configure IP addresses automatically, refer to "Network (NIC)" of "16.3.1 [General] Tab" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

For rack mount or tower servers, an example of virtual NIC configuration and connection with virtual networks using network resources is given below:

Figure C.7 Virtual NIC Configuration and Virtual Network Connection Using Network Resources for Rack Mount or Tower Servers



File Format for Virtual Network Definitions

Describe the virtual network definition file in one line as below:

```
"Virtual Network Name"= VLAN ID[, VLAN ID...]
```

For the *VLAN ID*, a value from 1 to 4094 can be specified. When specifying a sequence of numbers, use a hyphen ("-") such as in "1-4094".

Example

```
"Network A"=10
"Network B"=21,22,23
"Network C"=100-200,300-400,500
```

Blank spaces before and after equal signs ("=") and commas (",") are ignored.

Describe the virtual network correctly, as the entry is case-sensitive.
Save files using the UTF-8 character code.

When there are multiple lines with the same virtual network name, all specified lines are valid.

When the same VLAN ID is included in a line with a different virtual network name, the first occurrence in the file is valid and the lines after it are ignored.

Example

```
"Network D"=11
"Network D"=12 (*1)
"Network E"=11,15 (*2)
```

*1: Same as when "Network D"=11,12.
*2: 11 is ignored.

An error occurs during L-Server creation if the definition of the VLAN ID of the network resource connected to the NIC cannot be found.

Configuration for MAC Address Pools

In order to allocate a MAC address to the NIC when creating an L-Server connected to the NIC coordinating with System Center 2012 Virtual Machine Manager, use MAC address pools for System Center 2012 Virtual Machine Manager.

When not changing the default MAC address pool on System Center 2012 Virtual Machine Manager, or only one MAC address pool exists for a Hyper-V environment, use that MAC address pool.

When there is no MAC address pool for a Hyper-V environment on System Center 2012 Virtual Machine Manager, create a MAC address pool to allocate MAC addresses using System Center 2012 Virtual Machine Manager.

When there are multiple MAC address pools on System Center 2012 Virtual Machine Manager, use the following procedure to define the MAC address pool to use.

1. Settings When Using Tenants in Resource Orchestrator

When creating multiple host groups on System Center 2012 Virtual Machine Manager, use the following procedure to use the same tenant configurations as that of the host group.

1. Create the same number of tenants as the number of host groups in Resource Orchestrator.
2. Register the VM host located in each host group in the local pool of the corresponding tenant.

2. Definition of a MAC Address Pool Using an L-Server

Define the MAC address pool to use when creating an L-Server in the MAC address pool definition file in Resource Orchestrator.

When dividing MAC address pools for each tenant created in 1., define the MAC address pool used in each tenant in the MAC address definition file.

When creating multiple host groups in System Center 2012 Virtual Machine Manager, create a definition for each tenant, and specify the MAC address pool allocated to the host group.

For details on the definition file format for MAC address pools, refer to "[Definition File Format for MAC Address Pools](#)".

Definition File Format for MAC Address Pools

Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

Definition File Name

The definition file name can be used by dividing it into definitions that are available for each tenant and definitions that are common to the system.

If both a definition file for each tenant and a common definition file exist on the system, priority is given to the definitions indicated in the definition file for each tenant.

- By Tenant

scvmm_mac_pool_*tenant_name*.rcxprop

- Common on System

scvmm_mac_pool.rcxprop

Character Code

UTF-8

Line Break Code

CR/LF

Definition Configuration File Format

Key = Value

Table C.17 Definition File Items

Item	Description
Key	<ul style="list-style-type: none"> - When one SCVMM is registered all - When multiple SCVMMs are registered scvmm[SCVMM registered name]
Value	<p>Specify the name of a MAC address pool created in System Center 2012 Virtual Machine Manager.</p> <p>When the MAC address pool name being specified includes blank spaces, enclose the MAC address pool name in double quotes (").</p> <p>For details on the character types available for MAC address pools, refer to the SCVMM manual.</p>

 **Example**

- When only one SCVMM is registered, or when multiple SCVMMs are registered and the MAC address pool names used in each SCVMM are the same

```
all = "MAC pool A"
```

- When multiple SCVMMs are registered, and different MAC address pool names are used for each SCVMM

```
scvmm[scvmm1] = "MAC pool A"
scvmm[scvmm2] = "MAC pool B"
```

 **Note**

- When the VM management software to use is System Center Virtual Machine Manager 2008 R2, it is ignored even if the definition files exist.
- If you edit and save a UTF-8 text file using Windows Notepad, the Byte Order Mark (BOM) is stored in the first three bytes of the file, and the information specified on the first line of the file will not be analyzed correctly. When using Notepad, specify the information from the second line.
- More than one blank spaces or tabs at the beginning and end of the line, and before and after equal signs ("=").
- When a line starts with "#", that line is regarded as a comment.
- The details of lines that are not based on the format above are ignored.
- Only lower case is valid for "all", "scvmm[registration_name_of_SCVMM]", and "scvmm" used for keys. If upper case characters are included, the string is ignored.
- When the same key exists in the line, the definitions described last in the line are valid.
- When both the "all" key and "scvmm[registration_name_of_SCVMM]" key exist together, priority is given to the definitions for "scvmm[registration_name_of_SCVMM]".
- The definition file configurations are reflected without restarting the manager in Resource Orchestrator.

C.3.6 Creating L-Server Templates

This chapter explains how to create an L-Server template.

L-Server templates can be created using the following methods.

Using the Wizard GUI

L-Server templates can be created using a GUI in the wizard format.

For details on the GUI in the wizard format, refer to "15.1 Operations Using the Wizard GUI" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Manually

Use the following procedure to create an L-Server template:

Export an L-Server Template

The sample L-Server templates provided with Resource Orchestrator can be exported.

Refer to "15.2.1 Export" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Edit an L-Server Template

The L-Server template output in step 1 can be edited with an editor, etc.

For details on the L-Server templates for virtual L-Servers, refer to "15.2.2 Virtual L-Server Templates" in the "Reference Guide (Command/XML) CE".

Import an L-Server Template

Refer to "15.2.3 Import" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.3.7 Creating an L-Server

Use the following procedure to create L-Servers:

- Create an L-Server using an L-Server template
 - When there are no cloning images, or when not using cloning images which have been already registered
 1. Create an L-Server, referring to "16.1 Creation Using an L-Server Template" in the "User's Guide for Infrastructure Administrators (Resource Management) CE". When creating the L-Server, select [None] for images.

In this case, the created L-Server may not be displayed in the orchestration tree.
For details, refer to "Note- When the created L-Server is not displayed in the orchestration tree".
For details on the created VM guests or cloning images, refer to "Information- Information created during L-Server creation".
 2. Install an OS, referring to "[Manual OS Installation](#)".
 3. When collecting cloning images after creating an L-Server, the cloning images are stored in the image pool. When collecting cloning images, refer to "[C.3.8 Collecting and Deleting Cloning Images](#)".
 - When using an existing cloning image

Create an L-Server, referring to "16.1 Creation Using an L-Server Template" in the "User's Guide for Infrastructure Administrators (Resource Management) CE". In this case, specify the cloning image that you want to use as an image.
- Create an L-Server specifying individual specifications

Refer to "16.3 Creation of Virtual L-Servers Using Parameters" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

For details on the [OS] tab settings, refer to "[C.3.9 \[OS\] Tab Configuration](#)".



Note

When the created L-Server is not displayed in the orchestration tree

When using the following SCVMM functions for the VM of the created L-Server, after this, the L-Server will not be recognized or displayed in the orchestration tree, and operation of the L-Server becomes unavailable.

- Saving in the library, deploying from the library
- New template
- Transfer the template to a cluster node that is not managed by Resource Orchestrator

When "copying" is performed, the copied VM is not recognized as an L-Server.

Information

Information created during L-Server creation

- VM guests created as L-Servers have the following configuration:

Disk and DVD

First disk (system volume)

Connected to the primary channel (0) of IDE device

Second or later disk

Connected to a SCSI adapter as data disk (*)

DVD drive

Connected to the secondary channel (0) of IDE device

* Note: Cannot be used on guest OSs without the integrated service. Only boot disks connected to the IDE adapter can be used.

Virtual network adapter

When a guest OS that Hyper-V supports is specified, a converged network adapter will be used. When a different OS has been selected, an emulated network adapter will be added.

For details on the guest OSs supported by Hyper-V, refer to the following Microsoft web site.

Microsoft download web site

URL: [http://technet.microsoft.com/en-US/library/cc794868\(v=ws.10\).aspx](http://technet.microsoft.com/en-US/library/cc794868(v=ws.10).aspx)

URL: <http://technet.microsoft.com/en-us/library/hh831531.aspx>

CPU type

"1.00GHz Pentium III Xeon" or "3.60 GHz Xeon (2 MB L2 cache)" (the SCVMM default value) is specified. The CPU type is used for internal operations of SCVMM, and it does not indicate the CPU performance.

It is also different from the information displayed for the computer information of the guest OS.

- Using cloning images, collection or deployment of data disks other than system volumes can be selected.

When registering a template created using SCVMM in the image pool of Resource Orchestrator, use a template created from a VM guest that has the system volume (a disk connected to primary channel (0) of the IDE device).

In other configurations, deploying using Resource Orchestrator will create VM guests without system volumes.

Manual OS Installation

Manually install an OS, after configuring the DVD connection settings from the SCVMM management window.

To use a guest OS supported by Microsoft on Hyper-V, it is necessary to install a virtual guest service on the guest OS.

For details on virtual guest service installation, refer to the Help of SCVMM.

C.3.8 Collecting and Deleting Cloning Images

This section explains how to collect and delete cloning images.

Collecting Cloning Images

Use the following procedure to collect cloning images:
After installing an OS, stop the target L-Server.

1. Right-click the target L-Server in the orchestration tree, and select [Cloning]-[Collect] from the popup menu.
2. Click <OK>.

A given cloning image (identified by its name attribute) can be managed by image version.

If a cloning image is created using VM management software, it can be used as is.



- If an L-Server is created with a specified Windows image, when deploying the image use Sysprep, provided by Microsoft, to reconfigure the properties unique to the server. By executing Sysprep, the user information and OS setting information are reset. For details on Sysprep, refer to the information provided by Microsoft.
- If stopping or restarting of the manager is performed during execution of Sysprep, the operation being executed will be performed after the manager is started. Until the process being executed is completed, do not operate the target resource.
- When using MAK license authentication for activation for the following OSs, Sysprep can be executed a maximum of three times.
 - Microsoft(R) Windows Server(R) 2008 R2
 - Microsoft(R) Windows Server(R) 2008
 - Microsoft(R) Windows(R) 7
 - Microsoft(R) Windows Vista(R)

Since Sysprep is executed when creating L-Server with images specified or when collecting cloning images, collection of cloning images and creation of L-Servers with images specified cannot be performed more than four times. Therefore, it is recommended not to collect cloning images from L-Servers that have had cloning images deployed, but to collect them from a dedicated master server. The number is also included in the count when Sysprep is performed when a template is created using SCVMM.

- Creation of L-Servers by specifying cloning images on which Windows 2000 Server and Windows 2000 Advanced Server are installed is not supported.
- When using System Center 2012 Virtual Machine Manager as VM management software, only cloning images with high-availability attributes can be used in Resource Orchestrator.



Images are stored in the SCVMM library.

Specify a library that has sufficient disk space available to store the collected images.

When [Automatic selection] is specified in the [Collect a Cloning Image] dialog, selection is made from libraries registered with SCVMM, but collection of images may fail, as the available disk space of libraries is not managed by SCVMM.

Resource Orchestrator uses SCVMM templates for collection of images.

When collecting images from L-Servers, a template is created using a name with the version number added to the image name. When retrieving the template created by the user as an image, the template is treated as an image.

In order to collect images of L-Servers, a work area equal to the size of the disk (the system volume, all data disks, snapshot, and configuration definition file) of the target of L-Server creation is necessary. This work area is released, when collection of images is complete.

When collecting images, collecting only system volumes, or images including data disks can be selected.

In Resource Orchestrator, the virtual hard disk of the primary channel (0) of the IDE device is managed as the system volume.

DVD drives other than the secondary channel (0) of the IDE device are deleted. A DVD drive is added to the secondary IDE channel (0) even if there is no DVD drive in the image. If DVD drives other than this drive exist, they are deleted.

Collection of images cannot be collected, when there are snapshots. Collect images after deleting snapshots. When creating checkpoints from the SCVMM management console or creating snapshots from Hyper-V manager, collection of images will fail.

When retrieving SCVMM templates created by users using SCVMM, manage them as follows:

- The template name is the image name.
- The virtual hard disk of the primary channel (0) of the IDE device is managed as a system volume.
- When creating an L-Server using an image which contains data disks other than system volumes, creation of an L-Server including data disks or excluding data disks can be selected.
- When creating an L-Server from an image with no system volume, an L-Server with no system volume will be created.
- On L-Servers created by retrieving an image from a template where DVD drives are connected to somewhere other than the secondary IDE channel (0), these DVD drives will be deleted.
- When L-Servers are created from an image retrieved from a template not connected to a DVD drive, the DVD drive will be added to the secondary IDE channel (0).

Access Control Configuration File of Image Storage Location

By specifying unavailable library shared path names in the access control configuration file of the image storage destination in advance, cloning image storage destinations can be controlled based on user groups.

Storage Location of the Configuration File

[Windows Manager]
Installation_folder\SVROR\Manager\etc\customize_data

Configuration File Name

The configuration files can be divided into definitions that are available for each user group and definitions that are common to the system. When there are both types of files, the limitations of both are valid.

- For User Groups
library_share_user group name_deny.conf
- Common on System
library_share_deny.conf

Configuration File Format

In the configuration file, library shared path names are entered on each line.

Library_shared_path_name



Example

An example configuration file is indicated below:

```
\\rcxvmm1.rcxvmmshv.local\MSSCVMMLibrary  
\\rcxvmm2.rcxvmmshv.local\lib
```

Deleting Cloning Images

Use the following procedure to delete cloning images:

1. Select the target image pool on the orchestration tree.

The [Resource List] tab is displayed.

2. Right-click the cloning image to be deleted, and select [Delete] from the popup menu.

3. Click <OK>.

The cloning image is deleted.

When SCVMM template creation requirements are not met, or configuration changes are performed outside Resource Orchestrator, collection of images may fail.

When deleting cloning images, the corresponding templates in the SCVMM library are deleted.

When deleting these templates, related files (such as .vhd and .vfd) will remain in the SCVMM library as only template definition files are deleted.

When these related files are unnecessary, delete them individually from SCVMM.

Information

By creating the following setting file beforehand, when deleting cloning images, the related files that have no dependencies with other templates can be deleted at the same time.

Storage Location of the Configuration File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\vm

Configuration File Name

delete_image_all_files_scvmm

Configuration File Format

It is not necessary to describe content in the configuration file.

As in the case of deletion of related files from the SCVMM management console, only the related files are deleted from the SCVMM library. The folder where the related files are stored will remain.

C.3.9 [OS] Tab Configuration

Enter the parameters to set for the OS when creating the L-Server. This setting is valid only if an image is specified in the [General] tab.

The setting process is performed the first time the L-Server is started. If an image name is not specified, it is not necessary to enter all these items.

Table C.18 List of Settings

Item	Windows		Description
	Necessity of Entry	Values When Omitted	
Host name/ Computer name	Possible	<i>L-Server Name</i>	Enter the host name or computer name. Enter a character string beginning with an alphanumeric character and containing up to 15 alphanumeric characters and hyphens ("-"). The string cannot be composed solely of numbers. If underscores ("_") or periods (".") are used in an L-Server name, they will be replaced with hyphens ("-"), because these characters cannot be used for host names or computer names. If the basic information is not specified, the L-Server name is converted and set as indicated above.

Item	Windows		Description
	Necessity of Entry	Values When Omitted	
Domain name	Possible	WORKGROUP (*)	Enter the workgroup name. Settings for participation in a domain cannot be made. The same workgroup name as the computer name cannot be specified. Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters, hyphens ("-"), and periods ("."). Refer to the Microsoft information about the character string that can be input to the workgroup name.
DNS search path	Not Required	-	Enter a list of domain names to use for DNS searching, using between 1 and 32,767 characters. You can specify the same characters as the domain name. To specify multiple domain names, use a blank space as the separator character.
Full name	Possible	WORKNAME (*)	Enter the Windows full name using between 1 and 50 characters. By default, the value defined in the OS property definition file is entered. For the following OSs, full names are not configured. <ul style="list-style-type: none"> - Microsoft(R) Windows Server(R) 2012 - Microsoft(R) Windows Server(R) 2008 R2 - Microsoft(R) Windows Server(R) 2008 - Microsoft(R) Windows(R) 8 - Microsoft(R) Windows(R) 7 - Microsoft(R) Windows Vista(R)
Organization name	Possible	WORKORGANIZATION (*)	Enter the organization name displayed in the Windows system properties using between 1 and 50 characters. For the following OSs, organization names are not configured. <ul style="list-style-type: none"> - Microsoft(R) Windows Server(R) 2012 - Microsoft(R) Windows Server(R) 2008 R2 - Microsoft(R) Windows Server(R) 2008 - Microsoft(R) Windows(R) 8 - Microsoft(R) Windows(R) 7 - Microsoft(R) Windows Vista(R)
Product key	Essential	- (*)	Omission not possible. Ensure that you specify a valid product key.
License mode	Not Required	-	Even if the license mode is specified, it is not configured in the guest OS.
Maximum number of connections	Not Required	-	Even if the maximum number of connections is specified, it is not configured in the guest OS.
Administrator password	Possible	- (*)	Enter the same password as that specified for the local administrator account during L-Server creation. When specifying a new password, the local administrator account will be overwritten.

Item	Windows		Description
	Necessity of Entry	Values When Omitted	
			Enter the password using between 1 and 128 alphanumeric characters or symbols.
Hardware clock configuration	Not Required	-	Specify one of the following: - UTC - Local (LOCAL)
Time zone	Possible	<i>The same time zone as the OS of the manager</i>	Specify the time zone of the OS.

* Note: When the value is specified in the OS property definition file, its values are configured.

Information

OS Property Definition File

By setting the default values in an OS property definition file in advance, the default values of the information on the [OS] tab, etc. are generated when creating an L-Server.

For details, refer to "[C.1.7 OS Property Definition File](#)".

Information

VM Guest Administrator Account Settings Necessary When Creating an L-Server with an Image Specified

When creating an L-Server with an image specified, it is necessary to enter the "administrator password" as a parameter.

The entered "administrator password" is the one set for the Administrator of the built-in administrator account, but on some localized editions of Windows the account name may differ. In addition, when the client OS is Windows 7 or Windows Vista, on standard installations the built-in administrator account is disabled, and the user account created during installation becomes the administrator account.

When an L-Server is created with a cloning image that was collected from a localized edition of Windows or a client OS specified, it is necessary to either configure an administrator account for the administrator and set a password, or change the name of the administrator account with the "Administrator password" so that it fits the description given in the definition file below.

Note that when using a definition file, it is not possible to define different administrator ID settings for different versions of images.

Location of the Definition File

[Windows Manager]
Installation_folder\SVROR\Manager\etc\customize_data

Definition File Name

The definition file name can be used by dividing into definitions that are available for each user group and definitions that are common to the system. Search the definition file of each user group, from the start, for the administrator name corresponding to the image. When there is no corresponding definition, search in the system's common definition file.

Modification of the definition file is soon reflected, and it becomes valid for the creation of L-Servers from that point.

- For User Groups
image_admin_hyperv_user_group_name.rcxprop
- Common on System
image_admin_hyperv.rcxprop

Definition File Format

In the definition file, describe the image name and account name for which the administrator password has been configured on a single line.

```
Image_name = "Administrator_account_name"
```

The *Administrator_account_name* is displayed enclosed in double quotes (").

Blank spaces and tabs other than those in the *Administrator_account_name* are ignored.

It is possible to use an asterisk ("*") as a wildcard in image names. By specifying an asterisk ("*") it is possible to create substitute strings for strings of indefinite length.

When creating an L-Server from an image, the corresponding image name is searched for from the start of the definition file, and the specified "Administrator password" will be set for the specified administrator account name.

It is necessary to create the definition files using the following line break code and character codes:

- Line Break Code
CR+LF(0x0d0a)
- Character Code
Shift-JIS in a Japanese environment, UTF-8 in other environments



Example

An example definition file is indicated below.

- Image names and administrator account names are set in pairs.

```
FR_WIN2003_001 = "Administrator"  
EN_WIN7_001 = "root"  
EN_WIN7_002 = "admin"
```

- For image names that start with "FR_WIN", use "Administrator" as the name of the administrator account.

```
FR_WIN* = "Administrator"
```

- Use "Administrator" as the name of the administrator account for all images. When an image name is specified using only a wildcard, the definition after that line will be ignored.

```
* = "Administrator"
```

C.3.10 Advisory Notes for Hyper-V Usage

This section explains advisory notes for Hyper-V usage.

Operating Systems for which Parameters can be Set and the Prerequisites for Performing the Settings

Depending on the server virtualization software used, some restrictions may apply to the operating systems that parameters can be set for and the prerequisites for performing the settings.

For details, refer to the manual of server virtualization software.

VMware ESX Management

VMware ESX can be managed by SCVMM, but only VM host for Hyper-V can be managed when using SCVMM in Resource Orchestrator.

Management of Citrix(R) XenServer(TM)

Citrix(R) XenServer(TM) can be managed by Microsoft(R) System Center 2012 Virtual Machine Manager, but only VM hosts for Hyper-V can be managed when using SCVMM.

Attaching and Detaching Disks

- Data disks are connected to the L-Server as SCSI disks. They cannot be connected as IDE disks.
- 14 data disks are connected to the first SCSI card, and 15 data disks are connected to each of the second to fourth SCSI cards.
- When changing the configuration, a maximum of up to four disks can be specified at one time. To perform addition of five or more disks, please perform an additional configuration change.
- Adding data disks while the L-Server is operating is possible except when additional SCSI cards become necessary.

Snapshot

The Resource Orchestrator snapshot uses the checkpoint function of SCVMM. To collect snapshots, sufficient free space is necessary to create a difference disk on the storage destination of VM guest.

When connecting the VM management software using the path through disk, snapshot creation will fail.

Operation with snapshots collected is not recommended due to the following reasons:

- When snapshots are collected, operation uses disk difference, and performance may deteriorate.
- If a snapshot is created from a VM guest that has been moved between servers (migration), and the snapshot is restored to a different VM host, the status on SCVMM becomes "Stored" and the VM may not be able to be started. In this situation, it is necessary to return the VM guest to the VM host from which the snapshot was collected and then start it.
- For combining of difference disks, it is necessary to delete not only all snapshots collected using Resource Orchestrator, but also all checkpoints created using VM management software. Combining of the disk is automatically performed by SCVMM, but depending on the status of the VM guest, the operation may take a long time, because it is only performed while the target VM guest is stopped.



Information

The snapshot function provided by server virtualization software records the disk from the last update. Consequently, when a disk failure occurs, the snapshot function becomes unavailable at the same time.

Snapshot can be used as a corrective measure for problems such as the following:



Example

- For recovery when a problems occurs with the applied patch
- For recovery when a problem occurs when changing operating system parameters

L-Server Parameter Details [General] Tab

When a guest OS that Hyper-V supports is specified for the OS type, a converged network adapter will be added to VM.

When another OS has been selected, an emulated network adapter will be added.

When using a converged network adapter, it is necessary to install a virtual guest service on the guest OS.

For details on virtual guest service installation, refer to the Help of SCVMM.

L-Server Parameter Details [Server] Tab

If an unsupported OS type is specified, there is a chance that installation may fail or the OS of the VM guest may not operate correctly. Additionally, if an incorrect OS type is specified, there is a chance that image collection or L-Server creation for a specified image may fail, and a guest OS may start but hang while awaiting entry. This occurs because Microsoft's Sysprep cannot be processed correctly during personalization processing.

The OS types displayed in the list are the guest OSs which can be specified on the SCVMM management console.

Resource Orchestrator displays all guest OSs in the list in order not to limit user selection, however this does not mean that all guest OSs are supported by SCVMM.

Hyper-V does not support some server type settings such as number of CPUs depending on the OS type. When an incorrect OS type and server type are selected, operation is not guaranteed.

Additionally, even when a service pack is not listed in the OS type list, it may be necessary to install the service pack.

When a guest OS that Hyper-V supports is specified for the OS type, a converged network adapter will be added to VM.

When a different OS has been selected, an emulated network adapter will be added.

Creation of L-Servers by specifying cloning images on which Windows 2000 Server and Windows 2000 Advanced Server are installed is not supported.

For details on the guest OSs supported by SCVMM, refer to the Help of SCVMM.

For details on the guest OSs supported by Hyper-V, refer to the following Microsoft web site.

Microsoft download web site

URL: [http://technet.microsoft.com/en-US/library/cc794868\(v=ws.10\).aspx](http://technet.microsoft.com/en-US/library/cc794868(v=ws.10).aspx)

URL: <http://technet.microsoft.com/en-us/library/hh831531.aspx>

L-Server Parameter Details [Disk] Tab

When creating an L-Server or changing the configuration, a maximum of four disks can be specified at one time.

To perform addition of five or more disks, please perform an additional configuration change.

L-Server Parameter Details [Network] Tab

IP addresses can be automatically configured, on the following guest OSs on which the integrated services are installed.

- Microsoft(R) Windows Server(R) 2012
- Microsoft(R) Windows Server(R) 2008 R2
- Microsoft(R) Windows Server(R) 2008
- Microsoft(R) Windows Server(R) 2003 R2
- Microsoft(R) Windows Server(R) 2003
- Microsoft(R) Windows(R) 8
- Microsoft(R) Windows(R) 7
- Microsoft(R) Windows Vista(R)
- Microsoft(R) Windows(R) XP

DVD Disk Operations

DVD disk operations cannot be performed for L-Servers. When using a DVD, use VM management software functions.

Automatic Network Configuration with Intel PROSet for Blade Servers

- The VLAN functions of Intel PROSet are not supported by Resource Orchestrator. Do not use the VLAN functions of Intel PROSet.
- User Accounts used when logging in to the SCVMM server must belong to the Administrator's group of each managed server.
- With SCVMM, NIC information of a managed server recognized once is not updated even if the NIC information is changed.

When changing the Intel PROSet settings of a managed server, use the following procedure to make SCVMM re-realize the NIC information:

1. Disable the virtual NIC of Intel PROSet using the Device Manager of the managed server (Hyper-V).
2. In the SCVMM management console of the admin server (SCVMM), right-click the target host, then select [Refresh].
3. Change the settings of Intel PROSet, and enable the virtual NIC using the Device Manager of the managed server (Hyper-V).
4. In the SCVMM management console of the admin server (SCVMM), right-click the target host, then select [Refresh].

If the information recognized by SCVMM is not reflected even after performing the above operations, follow the steps below to release and reconfigure Intel PROSet.

1. Cancel teaming settings for Intel PROSet on the managed server (Hyper-V).
 2. In the SCVMM management console of the admin server (SCVMM), right-click the target host, then select [Refresh].
 3. Reconfigure teaming settings for Intel PROSet on the managed server (Hyper-V).
 4. In the SCVMM management console of the admin server (SCVMM), right-click the target host, then select [Refresh].
- When setting "ALB" for the teaming mode of Intel PROSet, disable the RLB (Receive Load Balancing) function. This configuration is not supported by Hyper-V.
 - Do not disable NIC devices teamed using Intel PROSet.



Note

.....
If this procedure is not performed correctly, automatic network configuration will fail.
.....

Alive Monitoring Settings

In Resource Orchestrator, alive monitoring functions are enabled by using heartbeat function for Virtual machine resources on MSFC.

The default settings of heartbeat differ depending on the host OS versions. In Resource Orchestrator, if the alive monitoring settings are not specified during creation of L-Servers, the heartbeat settings are disabled, regardless of the default settings.

In order to enable the heartbeat function, enable the alive monitoring function of Resource Orchestrator first.



Information

.....
When using the following OS, the MSFC functions corresponding to these settings are disabled.

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

When using the following OS, the MSFC functions corresponding to these settings are enabled.

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

C.3.11 Overcommit

This section explains the overcommit function for L-Servers.

Overcommit

Resource Orchestrator supports the Hyper-V overcommit function for the CPU and dynamic memory.

The Hyper-V overcommit function for the CPU allows virtual allocation of more resources than that of the actual CPU installed on a server to a guest OS.

Hyper-V dynamic memory allows virtual allocation of more memory than that of the actual memory installed on a server to a guest OS.



When using the dynamic memory or the memory weight, the VM host must be one of the following:

- Microsoft(R) Windows Server(R) 2008 R2 SP1 or later
- Microsoft(R) Windows Server(R) 2012

SCVMM must be one of the following in order to be able to manage the target VM hosts:

- System Center Virtual Machine Manager 2008 R2 SP1 or later
- System Center 2012 Virtual Machine Manager

If there is no VM host or SCVMM as above, creation and modification of L-Servers with dynamic memory and memory weight enabled will fail.

The guest OSs able to utilize dynamic memory are limited to particular Windows software versions. Refer to the Microsoft web site below.

URL: [http://technet.microsoft.com/en-us/library/ff817651\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/ff817651(WS.10).aspx)

It is not possible to set it from this product though the minimum memory value exists as a setting of the dynamic memory when the VM host is Windows Server 2012 or later.

The same value as startup memory size is set.

Resource Orchestrator provides the following functions to utilize the Hyper-V overcommit function for the CPU and dynamic memory when creating L-Servers.

- Creating an L-Server with CPU overcommit and dynamic memory configured
 - CPU Performance
The maximum number of CPU resources to be allocated to a virtual machine (Limitation)
 - CPU Weight
The priority of CPU allocated to a virtual machine
 - Memory Size
 - Maximum Memory
The maximum amount of memory resources to be allocated to a virtual machine (Limitation)
 - Virtual Machine Memory
The maximum amount of memory resources to be allocated to a virtual machine by the VM host (Memory Size)

For virtual L-Servers created using Resource Orchestrator, set the memory size as follows, depending on the dynamic memory setting:

When Dynamic Memory is Disabled

Set only the virtual machine memory.

When Dynamic Memory is Enabled

Set only the maximum memory.

- Dynamic Memory
 - Initial Memory Size
Initial memory size to be allocated at startup
 - Memory Buffer
Available memory to be reserved for a virtual machine as a buffer
 - Memory Weight
The priority of memory resources to be allocated to a virtual machine
- Setting an overcommit attribute for a resource pool
Overcommit attributes can be set for resource pools. An L-Server with overcommit attributes can be created using overcommit attributes settings or a resource pool.
- Deployment of L-Servers with more resources than those of the server
Creation of an L-Server with more resources than that of the actual CPU or memory installed on a server is possible.
Whether the resulting L-Server can be started depends on the resources available on the VM host.
- Calculation of available space on VM pools, which uses values set for CPU reservation performance
- Conversion of the free CPU capacity and free memory capacity of VM pools with overcommit attributes
For a VM pool with overcommit attributes, the conversion of free CPU capacity and free memory capacity can be displayed based on the CPU reservation values and memory allocation capacity of an L-Server created beforehand.
- L-Server Conversion of a VM Pool with Overcommit Attributes
For the free CPU capacity and free memory capacity of a VM pool with overcommit attributes, L-Server conversion can be displayed based on the CPU reservation values and memory reservation capacity specified in the L-Server template.
For details on L-Servers, refer to "2.2.3 L-Server" in the "Design Guide CE", "[C.3.7 Creating an L-Server](#)", or "Chapter 16 Creating L-Servers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".
For details on resource pools, refer to "2.2.2 Resource Pools" in the "Design Guide CE", or "Chapter 20 Resource Pool Operations" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".
For details on the available capacity view or the L-Server conversion view, refer to "20.6 Viewing" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Prerequisites

Admin Server

When using the function for coordination with Resource Orchestrator, Hyper-V, or the overcommit function for the CPU and memory, the only supported admin server OS is Windows.

Installation Procedure

Use the following procedure to install overcommit.

1. Create a VM Pool for Overcommit

For details on how to create a VM pool, refer to "Chapter 20 Resource Pool Operations" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Point

Refer to the "Point" described in "1. Create a VM Pool for Overcommit" in "[Installation Procedure](#)" in "[C.2.11 Overcommit](#)".

Note

Refer to the "Note" described in "1. Create a VM Pool for Overcommit" in "Installation Procedure" in "C.2.11 Overcommit".

2. Create the Definition Files

Create a definition file (VM specific information definition file) when configuring different settings for individual user groups without configuring overcommit settings on the L-Server template.

For VM specific information definition files, refer to "C.1 Definition Files Commonly Shared when Creating Virtual L-Servers".

3. Export an L-Server Template

For details on how to export L-Server templates, refer to "15.2.1 Export" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

L-Server template operations (steps 3 to 5) can be performed using the GUI.

For details on how to operate L-Server templates using the GUI, refer to "15.1 Operations Using the Wizard GUI" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

4. Edit an L-Server Template

Configure the overcommit settings for an L-Server template.

Edit the XML definition of L-Server templates, referring to "15.2.2 Virtual L-Server Templates" in the "Reference Guide (Command/XML) CE".

- When overcommit settings are configured in both the L-Server template and the VM specific information definition file
Priority is given to the settings in the L-Server template.

- When configuring individual values for overcommit using the VM specific information definition file

Configure only the following element on the L-Server template.

- Enabling/Disabling Overcommit

Do not specify the following elements:

- CPU Reservation Performance
- CPU Weight
- Initial Memory Size
- Memory Buffer
- Memory Weight

Information

If a template is imported without editing the L-Server template name, the content of the existing L-Server template is overwritten. If an L-Server template is imported after the name is edited from when it was exported, the L-Server template is added.

When editing an L-Server template, check the combination of enabling/disabling dynamic memory, initial memory size, and memory buffer.

- When Dynamic Memory is Enabled
Initial memory size and memory buffer will be adopted when creating an L-Server
- When Dynamic Memory is Disabled
Initial memory size and memory buffer will be ignored when creating an L-Server

5. Import an L-Server Template

For details on how to import an L-Server template, refer to "15.2.3 Import" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

6. Create an L-Server

Create an L-Server using the L-Server template created in step 5.

For details, refer to "16.1 Creation Using an L-Server Template" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

When not using an L-Server template, create an L-Server using a command. Edit the L-Server XML referring to "Chapter 16 Creating L-Servers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE", and then execute the `rcxadm lserver create` command.

For details, refer to "3.6 rcxadm lserver" and "15.2.2 Virtual L-Server Templates" in the "Reference Guide (Command/XML) CE".

Point

When you create the L-Server which uses the overcommit from the [Resource] Tab of a ROR console, please specify a L-Server template.

7. Confirm the Overcommit Function Settings for an L-Server

To confirm overcommit settings configured for an L-Server, execute the `rcxadm lserver show` command.

Confirm that the command output result includes the line starting with "OverCommit: true".

Additionally, confirm the combination of the dynamic memory setting, initial memory size, and memory buffer.

For details on the `rcxadm lserver` command, refer to "3.6 rcxadm lserver" in the "Reference Guide (Command/XML) CE".

Note

When starting of an L-Server fails, the procedures vary depending on the L-Server settings. Perform the following procedures:

- When [Boot Location] of the L-Server is set to [Relocate at startup]

Start the L-Server again. When there is a VM host with an available resource, the L-Server will start on that VM host after several attempts at startup.

- When [Boot Location] of the L-Server is set to [Fixed]

As no VM host is automatically selected, start the L-Server after changing its boot location, or moving or stopping other L-Servers on the same VM host.

For details on changing the boot location, refer to "16.3 Creation of Virtual L-Servers Using Parameters" in the "User's Guide for Infrastructure Administrators (Resource Management) CE". For details on moving the boot location, refer to "17.7 Migration between VM Hosts" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Changing L-Server Specifications

This section explains how to modify L-Server specifications.

To change L-Server specifications, execute the `rcxadm lserver modify` command.

For details, refer to "3.6 rcxadm lserver" in the "Reference Guide (Command/XML) CE".

Note

Changing of L-Server specifications will fail if the resources (the number of CPUs, CPU frequency, and memory capacity) of a physical server where a VM host operates are less than the CPU reservation performance and memory size.

When CPU performance and memory capacity are smaller than the CPU reservation performance and memory reservation capacity, modification of L-Server specifications fails.

When modifying specifications of an L-Server to which resources have been allocated, the information in the VM specific information definition file is not reflected because priority is given to the values already configured to the L-Server. In that case, enter the new values in the XML file and then execute the appropriate commands to reflect the changes.

C.4 RHEL5-Xen

This section explains how to configure RHEL5-Xen as server virtualization software.

C.4.1 Creating Definition Files

This section explains how to create definition files.

For definition files common to virtual L-Servers, refer to "[C.1 Definition Files Commonly Shared when Creating Virtual L-Servers](#)".

This section explains the definition files specific to RHEL5-Xen.

Storage Connection Definition Files

Give descriptions, separating the admin IP addresses of VM hosts belonging to the scope of PRIMECLUSTER GDS shared classes using commas, and giving the scopes of shared clusters on individual lines.

When changing the shared class configuration, modify the definition files.

Location of the Definition File

```
[Linux Manager]
/etc/opt/FJSVrcvmr/customize_data
```

Definition File Name

```
storage_vmhost.rcxprop
```

Definition File Format

```
vmhost_ipaddr,vmhost_ipaddr,...
```

C.4.2 Registering Resources with Resource Orchestrator

1. Register Storage Management Software

Register PRIMECLUSTER GDS on VM hosts as storage management software.

Register 1 of the VM hosts belonging to the scope of PRIMECLUSTER GDS shared classes. It is not necessary to register all VM hosts which belong to the scope.

When registering PRIMECLUSTER GDS as storage management software, single disks which were created in advance during pre-setup preparations, are automatically registered in Resource Orchestrator as virtual storage resources.

Execute the rcxadm storagemgr command to register storage management software.

For details on the rcxadm storagemgr command, refer to "5.17 rcxadm storagemgr" in the "Reference Guide (Command/XML) CE".

2. Register Managed Servers (Domain 0)

a. Register Managed Servers

Refer to "5.5.1 Registering Rack Mount or Tower Servers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

b. Register LAN Switches

Refer to "5.13 Registering LAN Switches" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.4.3 Registering Resources in Resource Pools

1. Register VM Host Resources (Domain 0)
 - a. In the ROR console orchestration tree, right-click the target VM pool, and select [Register Resources] from the popup menu.
The [Register Resources] dialog is displayed.
 - b. Select the VM host to register.
 - c. Click <OK>.
2. Register Virtual Storage Resources
 - a. In the ROR console orchestration tree, right-click the target storage pool, and select [Register Resources] from the popup menu.
The [Register Resources] dialog is displayed.
 - b. Select the virtual storage resource to register.
 - c. Click <OK>.
3. Register Network Resources

If the NIC and network resources are connected when an L-Server is created, the settings matching the network resource definition will be registered automatically for the VM host that the L-Server will operate on.
For details, refer to "[C.4.4 Manual Network Configuration](#)".

 - a. In the ROR console orchestration tree, right-click the target network pool, and select [Create Network Resource].
When creating a new network resource, select [New].
When creating a resource using an already registered admin LAN subnet, select [Using existing admin subnet].
The [Create a network resource] dialog is displayed.
 - b. Enter the items necessary for network resources.
For details, refer to "14.3 Network Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".
4. Register Network Device Resources

Create network devices to be used on the L-Platform and register those with the type Firewall or SLB to the network pool.
Refer to "14.4 Network Devices" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".
5. Register Address Set Resources (MAC Addresses)

Create and register an address set resource (MAC address) in the address pool.
For details, refer to "14.6 Address Set Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.4.4 Manual Network Configuration

For the virtual bridge created in advance, only provide the function for connection with the virtual bridge. Manually perform virtual bridge settings in advance.

Use a different VLAN ID for each virtual bridge to connect with the virtual bridge.

Additionally, the following settings must be performed in advance.

1. Create a Virtual Bridge

Create a virtual bridge with the same name (including upper and lower case characters) for all VM hosts comprising the cluster.
This enables migration of VM guests between VM hosts.

When a virtual bridge has already been manually configured and server virtualization software other than RHEL5-Xen is being used with the same manager, set a different name from the one used by the virtual switch, virtual network, and virtual bridge on the other virtualization software.

2. Configure Virtual Bridge Communication Settings

Right-click the LAN switch in the server resource tree, and select [Modify]-[Network Settings] from the popup menu.

Configure LAN switches to enable communication using the tagged VLAN between virtual bridges using the same name.

The ROR console can be used for VLAN configuration of LAN switch blade external ports.

For details, refer to "5.4.4 Configuring VLANs on LAN Switch Blades" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Define the Supported Virtual Bridge and VLAN ID

Supported virtual bridges and VLAN IDs are defined in the virtual bridge definition file of Resource Orchestrator.

For details on definition file format, refer to "File Format for Virtual Bridge Definitions".

4. Create Network Resources

- From the GUI:

- a. In the [Create a network resource] dialog containing the VLAN ID that was specified in steps 2 and 3, check the [Use configured virtual switches.] checkbox and create a network resource.

- From the Command-line:

- a. Create the XML file that defines network resources.

Define the VLAN ID specified in steps 2 and 3 in the XML file.

In this case, specify auto="false" in the Network element.

- b. To create the network resource, execute the rxcadm network create command specifying the XML file created in step a.

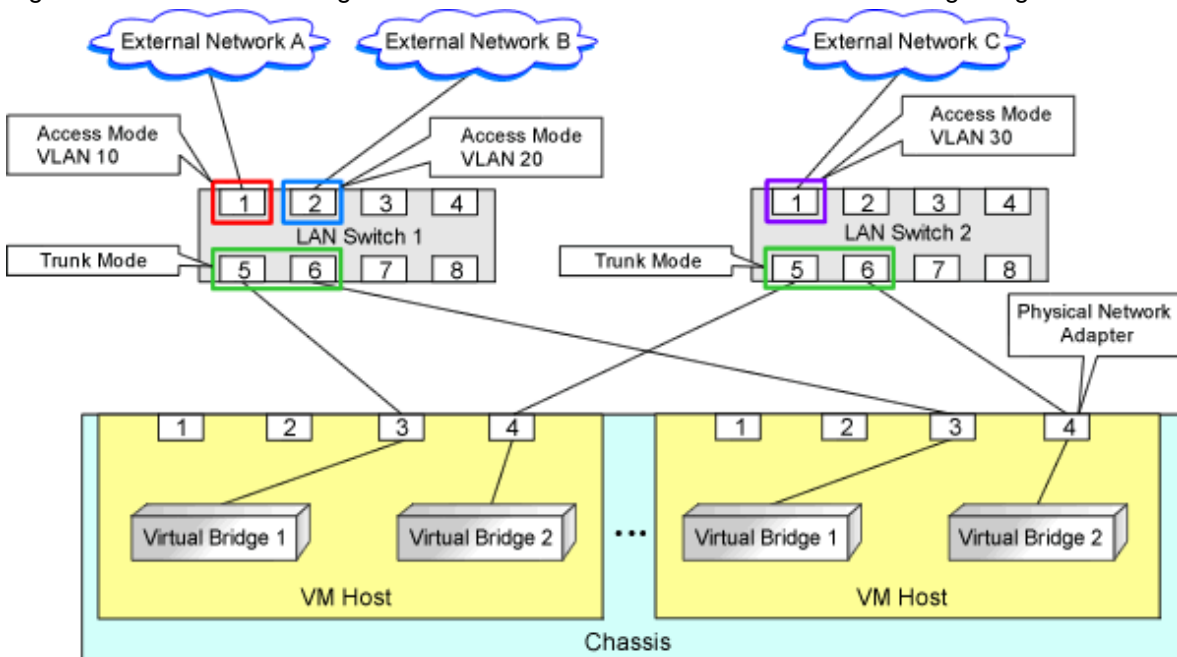
The network resources are created.

For details on the rxcadm network command, refer to "3.9 rxcadm network" in the "Reference Guide (Command/XML) CE".

For details on the Network element, refer to "15.5 Network Resources" in the "Reference Guide (Command/XML) CE".

An example of virtual NIC configuration and connection with virtual bridge using network resources is given below:

Figure C.8 Virtual NIC Configuration and Connection with Virtual Networks Using Bridge Resources



File Format for Virtual Bridge Definitions

Location of the Definition File

```
[Linux Manager]
/etc/opt/FJSVrcvnr/customize_data
```

Definition File Name

```
vnetwork_rhelxen.rcxprop
```

Definition File Format

Describe the virtual bridge definition file in one line as below:

```
"Virtual_bridge_name"=VLAN ID
```

For the *VLAN ID*, a value from 1 to 4094 can be specified.



Example

```
"xenbr0"=10
```

Blank spaces before and after equal signs ("=") are ignored.

Describe the virtual bridge correctly, as the entry is case-sensitive.

Save files using the UTF-8 character code.

When there are multiple lines with the same virtual bridge name, all specified lines are valid.

When the same VLAN ID is included in a line with a different virtual bridge name, the first occurrence in the file is valid and the lines after it are ignored.

An error occurs during L-Server creation if the definition of the VLAN ID of the network resource connected to the NIC cannot be found.

C.4.5 Creating L-Server Templates

This chapter explains how to create an L-Server template.

Create an L-Server using an L-Server template.

The L-Server is the L-Server to collect cloning images from.

L-Server templates can be created using the following methods.

- Using the Wizard GUI

L-Server templates can be created using a GUI in the wizard format.

For details on the GUI in the wizard format, refer to "15.1 Operations Using the Wizard GUI" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- Manually

Use the following procedure to create an L-Server template:

1. Export an L-Server Template

Refer to "15.2.1 Export" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Edit an L-Server Template

The L-Server template output in step 1 can be edited with an editor, etc.

For details on the XML definition of L-Server templates, refer to "15.2.2 Virtual L-Server Templates" in the "Reference Guide (Command/XML) CE".

In this case, perform the following configuration:

- Specify RHEL-Xen for the VM type.
- Specify "None" for the redundancy.
- Specify "Fixed" for the positioning.

3. Import an L-Server Template

Refer to "15.2.3 Import" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.4.6 Creating an L-Server

Use the following procedure to create L-Servers:

- Create an L-Server using an L-Server template.

1. Create an L-Server using an L-Server Template.

Execute the `rcxadm lserver create` command, and create an L-Server.

For details on the `rcxadm lserver create` command, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".

In this case, perform the following configuration:

- For the name of an L-Server template, specify the name of the L-Server template that has been created in advance.
- For VM host, specify the VM host (admin OS) to allocate to the L-Server.

2. Install an OS

For manual OS installation, use the virtual machine manager.

For manual OS installation, refer to the "Red Hat Enterprise Linux 5 Virtualization Guide".

Red Hat Enterprise Linux 5 Virtualization Guide

URL: http://docs.redhat.com/docs/en-US/Red_Hat_Enterprise_Linux/5/html/Virtualization/index.html

3. Collect a Cloning Image

Collect cloning images after creating an L-Server. Execute `rcxadm image create` to collect cloning images.

When executing `rcxadm image create`, the cloning images are stored in the storage pool.

For details on the `rcxadm image create` command, refer to "4.1 `rcxadm image`" in the "Reference Guide (Command/XML) CE".

Point

When the destination folder for image storage is omitted during the cloning image collection, virtual storage in the same storage pool as the virtual storage used by the L-Server that is the target for collecting cloning images is automatically selected.

- Create an L-Server using Systemwalker Software Configuration Manager.

For details, refer to the "Systemwalker Software Configuration Manager Operation Guide".

In this case, specify the cloning images collected during L-Server creation for images.

Note

When sharing disks among L-Servers, create the *Mh* L-Server, after completing creation of the *Mh-1* L-Server.

When copying the data during the L-Server creation, perform the operation after powering off the L-Server that is the source of the data to be copied. When creating an L-Server while copying data, do not perform power operations on the source of the data to be copied.

L-Server Operations

When using RHEL5-Xen, L-Server operations cannot be performed using the ROR console. Use the `rcxadm lserver` command, for L-Server operations. For details, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".

Changing L-Server Specifications

To change L-Server specifications, execute `rcxadm lserver modify`. For details on the specifications that can be changed, refer to "15.3.2 Definition Information for Virtual L-Servers (XML)" in the "Reference Guide (Command/XML) CE".

The value after changing the specifications can be checked in the [Resource List] tab in the orchestration tree.

From the command-line, execute `rcxadm lserver list` and `rcxadm lserver show`. For details, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".

Check the CAP value of a guest domain that is operating, using the `virsh schedinfo` command.

Check the CAP value of a guest domain that has been stopped, using the domain configuration files.

For details, refer to the "Red Hat Enterprise Linux 5 Virtualization Guide".

Red Hat Enterprise Linux 5 Virtualization Guide

URL: http://docs.redhat.com/docs/en-US/Red_Hat_Enterprise_Linux/5/html/Virtualization/index.html

The CAP value is calculated as follows:

$$\text{CAP value} = ((\text{Specified_CPU_clock_speed GHz} * 1000) * \text{CPU_number} * 100) / \text{physical_CPU_clock_speed MHz}$$

C.4.7 Advisory Notes for RHEL5-Xen Usage

This section explains advisory notes for RHEL5-Xen.

Required Software

When using RHEL5-Xen, Systemwalker Software Configuration Manager is required.

Admin Server

When using RHEL5-Xen as managed servers, the only supported OS of the admin server is Linux.

Managed Server

When using RHEL5-Xen as managed servers, the only server type available for use as managed servers is RHEL5-Xen.

L-Server OS

When using RHEL5-Xen as managed servers, the only OS supported for the L-Server is Linux.

Snapshot

When using RHEL5-Xen, snapshots cannot be used.

Collect L-Server snapshots using PRIMECLUSTER GDS.

The part of the virtual storage name before "-" is the PRIMECLUSTER GDS class name, and the part after "-" is the single disk name.

The disk resource name corresponds to the volume name.

For details on snapshots, refer to the PRIMECLUSTER GDS manual.

VM Type View

In the ROR console, the VM type of VM host and VM guest for RHEL5-Xen is displayed as "Xen".

Shared Disk View

On the ROR console, when multiple L-Servers have shared disk resources, only the information of one L-Server to which the resources are allocated is displayed.

Check the disk shared information, using the rcxadm disk show command.

Max. Number of Possible L-Servers View

The available space on resources and the space displayed for [the number of L-Servers that can be created] are calculated as follows:

Available Amount of CPUs and [Number of L-Servers that can be Created]

$\text{Total resource space} * 80\% - (\text{Total of resources used for L-Server})$
--

Attaching Resources

When attaching VM hosts, virtual storage or networks, perform the same procedure as in "[C.4.2 Registering Resources with Resource Orchestrator](#)" or "[C.4.3 Registering Resources in Resource Pools](#)".

Hardware Maintenance

When server failure is detected on Systemwalker Software Configuration Manager, open the ROR console, and identify the failed server. For details on server hardware replacement, refer to "Chapter 9 Hardware Maintenance" in the "Operation Guide CE".

Directory for collecting performance information

When registering resources, create the directories and files on the server where the resources are registered that are necessary for performance monitoring.

Refer to "[C.6.9 Advisory Notes for RHEL-KVM Usage](#)" for details.

C.5 OVM for x86 2.2

This section explains how to configure OVM for x86 2.2 as server virtualization software.

C.5.1 Creating Definition Files

This section explains how to create definition files.

For definition files common to virtual L-Servers, refer to "[C.1 Definition Files Commonly Shared when Creating Virtual L-Servers](#)".

C.5.2 Registering Resources with Resource Orchestrator

1. Register VM Management Software (Oracle VM Manager)

When registering VM management software, the storage repositories that were created in advance during pre-setup preparations, are automatically registered in Resource Orchestrator as virtual storage resources.

Use the following procedure to register VM management software:

- a. In the ROR console, select [Settings]-[Register]-[Management Software (OVM Manager)].

The [Management Software (OVM Manager)] dialog is displayed.

- b. Define the following settings:

Management software name

Enter the name of the target VM management software.

Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters and hyphens ("-").

Location

Select the location where the VM management software to register is operating.

- For Resource Orchestrator admin servers

Specify [Admin Server].

- For servers other than Resource Orchestrator admin servers

Specify [Other Server].

In the IP address entry field, enter the IP address of the server on which VM management software is operating.

"Admin Server" is selected by default.

IP address

Enter the IP address of VM management software. When specifying "Admin Server" for the location, entry is not possible, as the IP address of admin server remains displayed.

Enter the IP address using periods ".".

User ID

Enter the user ID to use to control VM management software.

The string must be composed of alphanumeric characters and symbols (ASCII characters 0x20 to 0x7e), and can be up to 128 characters long.

Specify a user ID with administrative privileges.

Password

Enter the password for VM management software.

The string must be composed of alphanumeric characters and symbols (ASCII characters 0x20 to 0x7e), and can be up to 128 characters long.

- c. Click <OK>.

VM management software is registered.

2. Register Managed Servers (Domain 0)

- a. Register Chassis (for Blade Servers)

Refer to "5.4.1 Registering Chassis" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- b. Register Managed Servers

Refer to "5.4.2 Registering Blade Servers" or "5.5.1 Registering Rack Mount or Tower Servers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- c. Register LAN Switch Blades (for Blade Servers) or LAN Switches (for Rack Mount Servers)

Refer to "5.4.3 Registering LAN Switch Blades" and "5.13 Registering LAN Switches" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Network Resources

To register a network resource, specify a network pool when creating the network resource.

By creating network resources in advance, if the NIC and network resources are connected when an L-Server is created, the following settings matching the network resource definition will be registered automatically.

For details on automatic configuration of network resources, refer to "[C.5.4 Manual Network Configuration](#)".

C.5.3 Registering Resources in Resource Pools

1. Register VM Host Resources (Domain 0)
 - a. In the ROR console orchestration tree, right-click the target VM pool, and select [Register Resources] from the popup menu. The [Register Resources] dialog is displayed.
 - b. Select the VM host to register.
 - c. Click <OK>.
2. Register Virtual Storage Resources
 - a. In the ROR console orchestration tree, right-click the target storage pool, and select [Register Resources] from the popup menu. The [Register Resources] dialog is displayed.
 - b. Select the virtual storage resource to register.
 - c. Click <OK>.

3. Register Network Resources

If the NIC and network resources are connected when an L-Server is created, the settings matching the network resource definition will be registered automatically for the VM host that the L-Server will operate on.

For details, refer to "[C.5.4 Manual Network Configuration](#)".

- a. In the ROR console orchestration tree, right-click the target network pool, and select [Create Network Resource].
When creating a new network resource, select [New].
When creating a resource using an already registered admin LAN subnet, select [Using existing admin subnet].
The [Create a network resource] dialog is displayed.
- b. Enter the items necessary for network resources.
For details, refer to "14.3 Network Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

4. Register Network Device Resources

Create network devices to be used on the L-Platform and register those with the type Firewall or SLB to the network pool.

Refer to "14.4 Network Devices" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.5.4 Manual Network Configuration

For the virtual bridge created in advance, only provide the function for connection with the virtual bridge. Manually perform virtual bridge settings in advance.

Use a different VLAN ID for each virtual bridge to connect with the virtual bridge.

Additionally, the following settings must be performed in advance.

1. Create a Virtual Bridge

When configuring a cluster, create a virtual bridge with the same name (including upper and lower case characters) for all VM hosts comprising the cluster. This enables migration of VM guests between VM hosts.

When a virtual bridge has already been manually configured and server virtualization software other than OVM for x86 2.2 is being used with the same manager, set a different name from the one used by the virtual switch, virtual network, and virtual bridge on the other virtualization software.

2. Configure Virtual Bridge Communication Settings

Right-click the LAN switch in the server resource tree, and select [Modify]-[Network Settings] from the popup menu.

Configure LAN switches to enable communication using the tagged VLAN between virtual bridges using the same name.

The ROR console can be used for VLAN configuration of LAN switch blade external ports.

For details, refer to "5.4.4 Configuring VLANs on LAN Switch Blades" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Define the Supported Virtual Bridge and VLAN ID

Supported virtual bridges and VLAN IDs are defined in the virtual bridge definition file of Resource Orchestrator.

For details on definition file format, refer to "File Format for Virtual Bridge Definitions".

4. Create Network Resources

- From the GUI:

- a. In the [Create a network resource] dialog containing the VLAN ID that was specified in steps 2 and 3, check the [Use configured virtual switches.] checkbox and create a network resource.

- From the Command-line:

- a. Create the XML file that defines network resources.

Define the VLAN ID specified in steps 2 and 3 in the XML file.

In this case, specify auto="false" in the Network element.

- b. To create the network resource, execute the rxcadm network create command specifying the XML file created in step a.

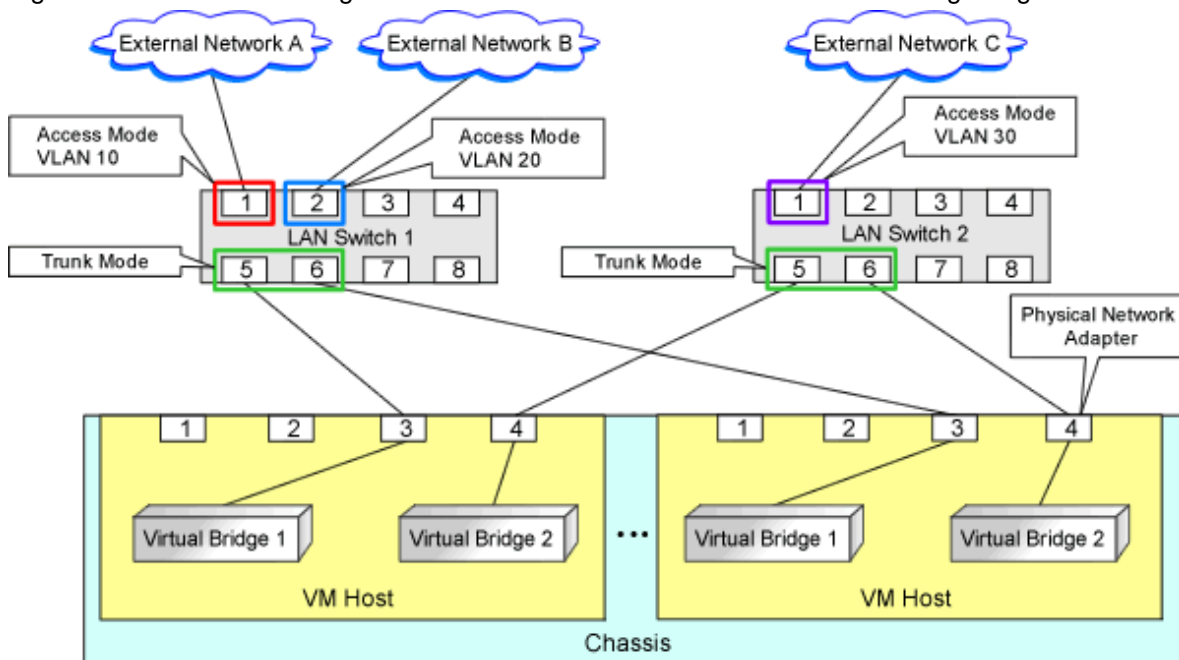
The network resources are created.

For details on the rxcadm network command, refer to "3.9 rxcadm network" in the "Reference Guide (Command/XML) CE".

For details on the Network element, refer to "15.5 Network Resources" in the "Reference Guide (Command/XML) CE".

An example of virtual NIC configuration and connection with virtual bridge using network resources is given below:

Figure C.9 Virtual NIC Configuration and Connection with Virtual Networks Using Bridge Resources



File Format for Virtual Bridge Definitions

Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvnr/customize_data

Definition File Name

vnetwork_oraclevm.rcxprop

Definition File Format

Describe the virtual bridge definition file in one line as below:

```
"Virtual_bridge_name"=VLAN ID
```

For the *VLAN ID*, a value from 1 to 4094 can be specified.



Example

```
"xenbr0"=10
```

Blank spaces before and after equal signs ("=") are ignored.

Describe the virtual bridge correctly, as the entry is case-sensitive.

Save files using the UTF-8 character code.

When the same VLAN ID is included in a line with a different virtual bridge name, the first occurrence in the file is valid and the lines after it are ignored.



Example

```
"xenbr4"=11
```

```
"xenbr5"=11 (*)
```

* Note: This line is ignored.

An error occurs during L-Server creation if the definition of the VLAN ID of the network resource connected to the NIC cannot be found.

C.5.5 Creating L-Server Templates

1. Export an L-Server Template

Refer to "15.2.1 Export" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Edit an L-Server Template

Refer to "15.2.2 Editing" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Import an L-Server Template

Refer to "15.2.3 Import" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.5.6 Creating an L-Server

Use the following procedure to create L-Servers:

1. Create an L-Server Using an L-Server Template

Create an L-Server, referring to "16.1 Creation Using an L-Server Template" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

In this case, specify the cloning image that you want to use as an image.

2. Create an L-Server Specifying Individual Specifications

Refer to "16.3 Creation of Virtual L-Servers Using Parameters" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

For details on the [OS] tab settings, refer to "[C.5.8 \[OS\] Tab Configuration](#)".

Manual OS Installation

To manually install an operating system, use VM management software.

When installing an OS manually, refer to the virtual machine creation section of the "Oracle VM Server User's Guide".

Refer to the relevant version of the document, referring to the following web site:

URL: http://www.oracle.com/technetwork/indexes/documentation/index.html
--

C.5.7 Collecting Cloning Images

This section explains how to collect cloning images.

Use the following procedure to collect cloning images:

After installing an OS, stop the target L-Server.

1. On the ROR console, right-click the target L-Server in the orchestration tree, and select [Cloning]-[Collect] from the popup menu.
2. Click <OK>.

A given cloning image (identified by its name attribute) can be managed by image version.

If a cloning image is created using VM management software, it can be used as is.

DVD Drive Configuration

The same DVD drive as the one in the image to be deployed is configured for the L-Server to be created. If there is no DVD drive in the image, no DVD drive will be created on the L-Server.

C.5.8 [OS] Tab Configuration

For OVM for x86 2.2, the values specified in the [OS] tab are not set.

Instead, it is necessary to specify a console password in the OS property definition file.

OS Property Definition File

When creating a VM guest using Oracle VM Manager, specify a console password for connection from Oracle VM Manager to VM guest console. The console password should be specified in the OS definition file in advance. Use the UTF-8 character code for OS property definition files.

Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvmr/customize_data

Definition File Name

The definition file name can be used by dividing into definitions that are available for each user group and definitions that are common to the system. If the key of the definition file common to the system is the same as a definition file for a user group, priority is given to the values indicated in the definition file for the user group.

- For User Groups

`os_setting_user_group_name.rcxprop`

- Common on System

`os_setting.rcxprop`

Definition File Format

In the definition file, an item to define is entered on each line. Each line is entered in the following format.

```
Key = Value
```

When adding comments, start the line with a number sign ("#").

Definition File Items

Specify the following items in a definition file. Other key specifications will be ignored.

Table C.19 List of Items

Item	Key	Value	Remarks
Console password	console_password	The string must be composed of alphanumeric characters and underscores ("_"), and can be up to 24 characters long.	Specify the password required to open the console.

Example Definition File

An example definition file is indicated below.

```
# group A  
console_password = xxxxxxxx
```

C.5.9 Advisory Notes for OVM for x86 2.2 Usage

This section explains advisory notes for when using OVM for x86 2.2.

Operating Systems for which Parameters can be Set and the Prerequisites for Performing the Settings

Depending on the server virtualization software used, some restrictions may apply to the operating systems that parameters can be set for and the prerequisites for performing the settings.

For details, refer to the manual of server virtualization software.

VM Host Functions

VM Hosts that have no ability to provide virtual machine and virtual server functions cannot be registered in VM pools.

If those VM Hosts were registered, when a VM host specification used to create L-Servers is omitted, one of the VM host may be selected as the operational VM host.

In this case, even if the VM host is registered in the VM pool, when it is selected to create an L-Server, creation will fail.

Snapshot

When using OVM for x86 2.2, snapshots cannot be used.

Creating an L-Server

When creating L-Servers, set the destination VM host to the Preferred Server of a created VM guest.

L-Server Disk

Disks cannot be detached while they are powered ON.

L-Server Network (NIC)

One or more networks must be specified.

L-Server CPU Performance

For L-Server CPU performance, do not specify a value of less than 1GHz.

Moving an L-Server between Servers (Migration)

When performing migration with an L-Server powered on, after powering it off, the L-Server may be moved back to the previous server.

In this case, power off the L-Server before migration, and power it on again after moving it.

When the L-Server is an HVM (Hardware Virtualized Machine)

Installation of paravirtual drivers is required to connect data disks as SCSI disks.

If paravirtual drivers are not installed, the OS may fail to recognize the data disks.

SSL Access Method for VM Management Software

When starting VM management software from the management console, SSL-enabled URL or SSL-disabled URL can be specified as the destination. In Oracle VM Manager configurations, if SSL is enabled for access to Oracle VM Manager, the following definition file is required: Use the UTF-8 character code for definition files.

Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvnr/customize_data

Definition File Name

ovmm.rcxprop

Definition File Format

The definition file is entered in the following format.

<i>Key = Value</i>

Definition File Items

Specify the following items in a definition file. Other key specifications will be ignored.

Table C.20 List of Items

Item	Key	Value	Remarks
Enable/Disable SSL	SSL	"vmm_ip[:port][,vmm_ip[:port]...]" vmm_ip: IP address of SSL-enabled VM management software port: Port number of SSL-enabled VM management software	If the port number is omitted, the default port number (4443) is set.

Example Definition File

An example definition file is indicated below.

```
# Oracle VM Manager
ssl = 192.168.2.2:4443,192.168.2.3:4443
```

Name and Number of Detected Virtual Storage Resources

Even if multiple storage repositories are connected to a VM host, only a single virtual storage resource is detected for each VM host. The displayed name of virtual storage resources is the string of the VM host root repository, excluding the path name (/var/ovs/mount).



Example

D1567B83A58D41FEB28FB8897801C7ED

Virtual Storage Resource Free Space

When multiple storage repositories have been connected to the VM host, a storage repository that has the largest available space is displayed as the available space of the virtual storage resource.

Therefore, the space may not decrease in proportion to the virtual disk space created during L-Server creation.

Total Virtual Storage Resource Size

Not displayed.

Virtual Storage Resource Used Space

Not displayed.

Cloning Images Collected from L-Servers

Cloning images are stored in Oracle VM Manager, using the following template name:

```
"cloning_image_name[_index]@version_number"
```

However, in the template editor window of Oracle VM Manager, "@" cannot be included in the template name. When using Oracle VM Manager to edit the template information collected using Resource Orchestrator, modify the template name so that it does not contain"@".

VM Host Status

Even when a VM host is running and the xend daemon is not running, "normal" is displayed as the status of the VM host. If L-Server operation fails when the VM host status is "normal", execute the following command from the VM host to check the status of the xend daemon. If the xend daemon is not running, start it.

- Status Check for the xend Daemon

```
>service xend status <RETURN>
```

- Starting the xend Daemon

```
>service xend start <RETURN>
```

When Managing Multiple Server Pools Using Oracle VM Manager

When creating an L-Server or attaching a disk, specify an image, VM host, or virtual storage that satisfies the following conditions:

- Belongs to the same server pool as the image and VM host
- The disk created is a virtual storage recognized by the VM host

Check the server pool to which the image and the VM host belong using Oracle VM Manager

- Image

"Server Pool Name" in the "Virtual Machine Templates" list

- VM Host

"Server Pool Name" in the "Servers" list

The name of a virtual storage recognized by the VM host is the string of the root storage repository, excluding the path name (/var/ovs/mount). To check the root storage repository, log in to the VM host, then execute the following command:

```
# ls -l /OVS <RETURN>
```

Example

```
lrwxrwxrwx 1 root root 47 Apr 11 23:15 /OVS -> /var/ovs/mount/D1567B83A58D41FEB28FB8897801C7ED
```

C.6 RHEL-KVM

This section explains how to configure RHEL-KVM as server virtualization software.

C.6.1 Creating Definition Files

This section explains how to create definition files.

For definition files common to virtual L-Servers, refer to "[C.1 Definition Files Commonly Shared when Creating Virtual L-Servers](#)".

Selecting Disk Data Type for Virtual L-Servers [KVM]

When performing the following operations for a virtual L-Server on RHEL-KVM, the data type to be deleted can be selected.

When the definition file has been edited, restart the manager.

- Deleting an L-Server
- Detaching L-Server Disks

- Deleting Cloning Images

Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvnr/customize_data

Definition File Name

storage.rcxprop

Definition File Format

In the definition file, the items to set are entered on individual lines. Each line is entered in the following format.

Specified item = Specified value

Definition File Items

CLEAN_VM_GUEST_DISK_RESOURCE

When performing the following operations for a virtual L-Server on RHEL-KVM, the data type to be deleted can be selected.

- Deleting an L-Server
- Detaching L-Server Disks
- Deleting Cloning Images
- When the following values are used for specified values.
 - If "true" is specified
The data of disks is deleted.
 - If "false" is specified
The data of disks is not deleted.
- If nothing is specified
"false" is set.

Example

An example definition file is indicated below.

CLEAN_VM_GUEST_DISK_RESOURCE = true

Note

When specifying "true" for the specified value, check the following advisory notes.

- Operations such as deleting virtual L-Servers on RHEL-KVM will take more time. Operation time changes depending on the number of disks and the disk size.
- When starting to delete disks, message 22502 is output in the event log.
While deleting the disk data, the status of disk resource will be "unknown".
When deletion of the data is complete, the message 22503 is output in the event log, and the status of disk resource changes to "normal".
If the deletion of data fails, message 42504 is output in the event log. The status of disk resources will not be changed from "unknown".

Definition File for Setting the Resources Reserved for VM Hosts [KVM]

When setting the resources reserved for VM hosts, configure the amount of resources in the following definition files:

Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvnr/customize_data

Definition File Name

host_config_RHEL-KVM.rcxprop

Definition File Format

In one line, specify the following format separated by commas (",").

ALL,amount_of_memory_capacity,amount_of_cpu_capacity

or

range_of_class,setting_range,amount_of_memory_capacity,amount_of_cpu_capacity

Definition File Items

list of items is as below.

- When describe definitions that are common on the system

Items	Description	Remarks
ALL	identifier for the system	
Memory Capacity	value <ul style="list-style-type: none"> - unit: GB - use a number with up to one decimal place - value in the range from 0 	- you don't need to specify unit.
CPU Capacity	{value} {unit} <ul style="list-style-type: none"> - unit <ul style="list-style-type: none"> - percentage: % - number of physical cpu core: core - value <ul style="list-style-type: none"> - When specifying %, <ul style="list-style-type: none"> - an integer - between 0 and 100 - When specifying core, <ul style="list-style-type: none"> - an integer - 0 or later 	<ul style="list-style-type: none"> - you need to specify unit. - When specifying %, we define amount of VM hosts as 100%. amount of VM hosts is physical cpu spec * number of physical cpu core.

- When describe definitions that are tenants or pools or physical servers

Items	Description	Remarks
range of class	identifier for range of class. the following identifiers are available <ul style="list-style-type: none"> - When specifying tenants 	

Items	Description	Remarks
	TENANT - When specifying pools POOL - When specifying physical servers PHYSICAL_SERVER	
range	the following ranges are available - When specifying tenants tenant name include resource folders - When specifying pools pool name include resource folders or tenants - When specifying physical servers physical server's name	
Memory Capacity	refer to the above table	
CPU Capacity	refer to the above table	

Example

An example definition file is indicated below.

```

ALL, 3, 10%

TENANT, /hoge_FLODER/HOGE_TENANT, 4, 20%

POOL, /hoge/VMPool, 3, 1core
POOL, /TENANT_1/hoge_pool, , 20%

PHYSICAL_SERVER, bx600_1, 1
PHYSICAL_SERVER, bx900_1, 4, 3core

```

Note

- About comment line
When the descriptions start with a "#", the string is regarded as a comment line.
Or, the line configured only blank spaces(" "), tab, line break signs regarded as a comment line.
A comment line is skipped.
- If there is same definition, the last definition is available.
- The definitions of physical servers is available even if physical servers of KVM hosts are not registered in VM pools.
- If you don't describe definitions of amount_of_memory_capacity,
Please not to write between commas (",")

Example

```
POOL, /VMPool, , 3core
```

- If you don't describe definitions of amount_of_cpu_capacity, please write nothing.



Example

POOL,/VMPool,1

C.6.2 Registering Resources with Resource Orchestrator

When Using Blade Servers

1. Register Chassis

Refer to "5.4.1 Registering Chassis" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Register Managed Servers (Hosts)

The procedure is different depending on the managed server to be used.

Refer to "5.4 When Using Blade Servers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Register LAN Switch Blades

Refer to "5.4.3 Registering LAN Switch Blades" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

To register a network resource device, specify a network pool when creating the network resource device.

To register a network resource, specify a network pool when creating the network resource.

Refer to "Chapter 5 Registering Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

When Using Something other than a Blade Server

1. Register Managed Servers (Hosts)

The procedure is different depending on the managed server to be used.

Refer to "5.5 When Using Rack Mount and Tower Servers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

1. Register LAN Switches

Refer to "5.13 Registering LAN Switches" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

To register a network resource device, specify a network pool when creating the network resource device.

To register a network resource, specify a network pool when creating the network resource.

Refer to "Chapter 5 Registering Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.6.3 Registering Resources in Resource Pools

1. Register VM Host Resources (Hosts)

Refer to "14.1 VM Host Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Register Disk Resources (Raw Devices or Partitions)

Register the raw devices or partitions recognized by VM hosts as disk resources.

When migrating VM guests for virtual L-Servers, register the raw devices or the partitions shared between multiple VM hosts as disk resources defined to be shared.

Register the raw devices or the partitions to store cloning images shared between multiple VM hosts as disk resources defined as shared.

Disk resources can be registered by executing the rcxadm disk register command.

For details on the rcxadm disk register command, refer to "3.3 rcxadm disk" in the "Reference Guide (Command/XML) CE".

To register disk resources, an XML file that contains the information of the disk resources to be registered is necessary.

For the definition of the XML file, refer to "15.4.1 Disk Resources [KVM]" in the "Reference Guide (Command/XML) CE".

For the commands that support creation of XML files, refer to "5.24 rcxvmdisk" and "5.25 rcxvmdiskagt" in the "Reference Guide (Command/XML) CE".

Point

.....
Please register the disk resource that one VM host can use in one storage pool. Creating the L-Server might fail when the disk resource has been divided to two or more storage pools.
.....

3. Register Network Resources

If the NIC and network resources are connected when an L-Server is created, the settings matching the network resource definition will be registered automatically for the VM host that the L-Server will operate on.

For details, refer to "[C.6.4 Manual Network Configuration](#)".

- In the ROR console orchestration tree, right-click the target network pool, and select [Create Network Resource].

When creating a new network resource, select [New].

When creating a resource using an already registered admin LAN subnet, select [Using existing admin subnet].

- The [Create a network resource] dialog is displayed.
- Enter the items necessary for network resources. For details, refer to "14.3 Network Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

4. Register Network Device Resources

Create network devices to be used on the L-Platform and register those with the type Firewall or SLB to the network pool.

Refer to "14.4 Network Devices" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

5. Register Address Set Resources (MAC Addresses)

Create and register an address set resource (MAC address) in the address pool.

For details, refer to "14.6 Address Set Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.6.4 Manual Network Configuration

For the virtual bridge created in advance, only provide the function for connection with the virtual bridge. Manually perform virtual bridge settings in advance.

Use a different VLAN ID for each virtual bridge to connect with the virtual bridge.

Additionally, the following settings must be performed in advance.

1. Create a Virtual Bridge

Create a virtual bridge with the same name (including upper and lower case characters) for VM hosts managed by Resource Orchestrator.

This enables migration of VM guests between VM hosts.

When configuring a virtual bridge and server virtualization software other than RHEL-KVM is being used with the same manager, set a different name from the one used by the virtual switch, virtual network, and virtual bridge on the other virtualization software.

2. Configure Virtual Bridge Communication Settings

Right-click the LAN switch in the server resource tree, and select [Modify]-[Network Settings] from the popup menu.

Configure LAN switches to enable communication using the tagged VLAN between virtual bridges using the same name.

The ROR console can be used for VLAN configuration of LAN switch blade external ports.
 For details, refer to "9.3.6 Pre-configuring LAN Switch Blades on Managed Blade Systems" in the "Design Guide CE".

3. Define the Supported Virtual Bridge and VLAN ID

Supported virtual bridges and VLAN IDs are defined in the virtual bridge definition file of Resource Orchestrator.

For details on definition file format, refer to "File Format for Virtual Bridge Definitions".

4. Create Network Resources

- From the GUI:

- a. In the [Create a network resource] dialog containing the VLAN ID that was specified in steps 2 and 3, check the [Use configured virtual switches.] checkbox and create a network resource.

- From the Command-line:

- a. Create the XML file that defines network resources.

Define the VLAN ID specified in steps 2 and 3 in the XML file.

In this case, specify auto="false" in the Network element.

- b. To create the network resource, execute the rcxadm network create command specifying the XML file created in step a.

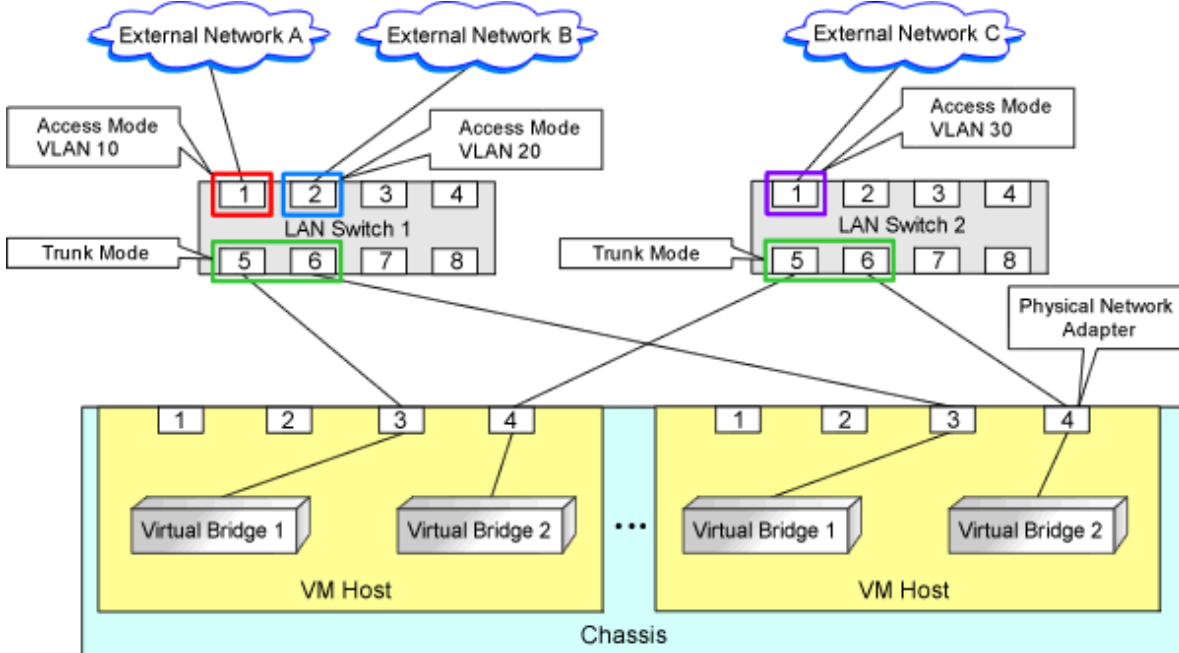
The network resources are created.

For details on the rcxadm network command, refer to "3.9 rcxadm network" in the "Reference Guide (Command/XML) CE".

For details on the Network element, refer to "15.5 Network Resources" in the "Reference Guide (Command/XML) CE".

An example of virtual NIC configuration and connection with virtual bridge using network resources is given below:

Figure C.10 Virtual NIC Configuration and Connection with Virtual Networks Using Bridge Resources



File Format for Virtual Bridge Definitions

Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]
/etc/opt/FJSVrcvnr/customize_data

Definition File Name

vnetwork_rhelkvm.rcxprop

Definition File Format

Describe the virtual bridge definition file in one line as below:

```
"Virtual_bridge_name"=VLAN ID
```

For the *VLAN ID*, a value from 1 to 4094 can be specified.

Example

"br0"=10

Blank spaces before and after equal signs ("=") are ignored.

Describe the virtual bridge correctly, as the entry is case-sensitive.
Save files using the UTF-8 character code.

When there are multiple lines with the same virtual bridge name, all specified lines are valid.

When the same VLAN ID is included in a line with a different virtual bridge name, the first occurrence in the file is valid and the lines after it are ignored.

An error occurs during L-Server creation if the definition of the VLAN ID of the network resource connected to the NIC cannot be found.

C.6.5 Creating L-Server Templates

Create an L-Server to collect cloning images from using an L-Server template.

1. Export an L-Server Template

Refer to "15.2.1 Export" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Edit an L-Server Template

For details on the XML definition of L-Server templates, refer to "15.2 L-Server Template" in the "Reference Guide (Command/XML) CE".

In this case, perform the following configuration:

- Specify [RHEL-KVM] for the VM type.
- Specify "None" for the redundancy.
- Specify "Fixed" for the positioning.

3. Import an L-Server Template

Refer to "15.2.3 Import" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.6.6 Creating an L-Server

Use the following procedure to create L-Servers:

- Create an L-Server using an L-Server template

- When there are no cloning images, or when not using already registered cloning images

1. Create an L-Server, referring to "16.1 Creation Using an L-Server Template" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

When creating the L-Server, select [None] for images.

2. Install an OS

For manual OS installation, use the virtual machine manager.

For manual OS installation, refer to the "Red Hat Enterprise Linux 6 Virtualization Administration Guide".

Red Hat Enterprise Linux 6 Virtualization Administration Guide

URL: http://docs.redhat.com/docs/en-US/Red_Hat_Enterprise_Linux/6/html/Virtualization_Administration_Guide/index.html

You can refer to the above URL from the following URL for the manuals of Red Hat Enterprise Linux.

URL: <http://www.redhat.com/docs/manuals/enterprise/RHEL-6-manual/index.html>

3. Collect a Cloning Image

When collecting cloning images after creating an L-Server, the cloning images are stored in the image pool.

When collecting cloning images, refer to "[C.6.7 Collecting Cloning Images](#)".

- When using an existing cloning image

Create an L-Server, referring to "16.1 Creation Using an L-Server Template" in the "User's Guide for Infrastructure Administrators (Resource Management) CE". In this case, specify the cloning image that you want to use as an image.

- Create an L-Server specifying individual specifications

Refer to "16.3 Creation of Virtual L-Servers Using Parameters" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

For details on the [OS] tab settings, refer to "[C.6.8 \[OS\] Tab Configuration](#)".



- When a virtual L-Server on which an OS is not installed is powered on, the same amount of memory as the physical memory on the VM host is secured.
- When using a Linux cloning image, ensure that the system volume for the guest OS is not in an LVM configuration.

C.6.7 Collecting Cloning Images

This section explains how to collect cloning images.

Use the following method to collect cloning images:

After installing an OS, stop the target L-Server.

1. Right-click the target L-Server in the orchestration tree, and select [Cloning]-[Collect] from the popup menu.
2. Click <OK>.

A cloning image is collected.

A given cloning image (identified by its name attribute) can be managed by image version.



When the destination folder for image storage is omitted during the collection of cloning images, an accessible disk from a VM host in the same storage pool as the disk used by the L-Server that is the target for collecting cloning images is automatically selected.

When automatically configuring the IP address or the host name on the OS for the L-Server to create, follow the procedures below, as the preparations and conditions differ depending on the OS type of the cloning image to use.

- When using a Linux cloning image

Ensure the following conditions are satisfied:

- The SELinux setting for the guest OS is "disabled"
- The system volume for the guest OS is not in an LVM configuration
- When starting the guest OS, configure the settings not to start the Network Manager of the guest OS.

- When using a Linux(SELinux) cloning image

Ensure the following conditions are satisfied:

- The system volume for the guest OS is not in an LVM configuration
- When starting the guest OS, configure the settings not to start the Network Manager of the guest OS.
- Preparations

Perform the following preparations:

Install the packages described below on the VM host on which Virtual L-Servers created.

the line of "[KVM] Necessary when using a Linux(SELinux) cloning image" in the "Table 2.39 Required Packages of Agent for Red Hat Enterprise Linux 6 [Linux] [KVM]" in the "2.4.2.3 Required Packages" in the "Design Guide CE"

- When using a Windows cloning image

- Agent versions supporting the OS auto-configuration functions
 - Red Hat(R) Enterprise Linux(R) 6.2
 - Red Hat(R) Enterprise Linux(R) 6.3
- OS versions supporting the OS auto-configuration functions
 - Microsoft(R) Windows Server(R) 2008 R2

Versions other than the above are not configured, even if the version is entered on the [OS] tab.

- Preparations

Perform the following preparations:

- Install the packages described below on the VM host on which Virtual L-Servers created.

the line of "[KVM] Necessary when using a Windows cloning image" in the "Table 2.39 Required Packages of Agent for Red Hat Enterprise Linux 6 [Linux] [KVM]" in the "2.4.2.3 Required Packages" in the "Design Guide CE"

For L-Servers from which cloning images will be collected, install the virtio driver (the driver to recognize virtual devices) for Windows.

There are virtio drivers related to memory, network, and disk I/O.

When drivers related to memory or disk I/O are provided by RedHat, ensure that they are installed.

For details, refer to the following section in the "Red Hat Enterprise Linux 6 Virtualization Host Configuration and Guest Installation Guide".

Chapter 9. Installing a fully-virtualized Windows guest

Chapter 10. KVM Para-virtualized Drivers

```
URL:
http://docs.redhat.com/docs/en-US/Red_Hat_Enterprise_Linux/6/html/
Virtualization_Host_Configuration_and_Guest_Installation_Guide/index.html
```

You can refer to the above section from the following URL for the manuals of Red Hat Enterprise Linux.

```
URL:
http://www.redhat.com/docs/manuals/enterprise/RHEL-6-manual/index.html
```

- Edit the registry of the L-Server the cloning image will be collected from as follows:

Value Name	Data Type	Value
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\WindowsNT\CurrentVersion\Winlogon\DefaultPassword	REG_SZ	Administrator's password (*)

* Note: Ensure the Administrator's password is entered.

OS auto-configuration cannot be performed, even if the password of another user ID with Administrator privileges is entered.

The tool to edit the registry above is stored in the Resource Orchestrator DVD-ROM (the first one).

Storage Location for Tool

/DISK1/Common/kvm_windows_setting

File Name for Tool

passwd_for_cloning.bat

Use the following procedure to execute the tools.

1. Store the tools in the folder for the L-Server to collect cloning images from.
2. Execute the command prompt as an administrator.
3. Execute the tools from the command prompt.
The prompt to enter the password is displayed.
4. Enter the password for the Administrator.
The password entered in the registry above is configured.

 **Example**

C:\> passwd_for_cloning.bat

When performing OS auto-configuration, the following registries are edited by Resource Orchestrator.

Value Name

- HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\ RunOnce
- HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\WindowsNT\CurrentVersion\Winlogon\AutoAdminLogon
- HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\WindowsNT\CurrentVersion\Winlogon\DefaultUserName

Also, the following registries are read by Resource Orchestrator.

Value Name

- HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\ProductName
- HKEY_LOCAL_MACHINE\SYSTEM\ControlSet001\Control\SessionManager\Environment\PROCESSOR_ARCHITECTURE

 **Information**

The response files that exist in the L-Server OS to collect a cloning image from cannot be used in the OS auto-configuration functions of Resource Orchestrator.

 **Note**

- If an L-Server is created with a specified Windows image, when deploying the image use Sysprep, provided by Microsoft, to reconfigure the properties unique to the server. By executing Sysprep, the user information and OS setting information are reset.

For details on Sysprep, refer to the information provided by Microsoft.

- If stopping or restarting of the manager is performed during execution of Sysprep, the operation being executed will be performed after the manager is started.

Until the process being executed is completed, do not operate the target resource.

- When using MAK license authentication for activation of Windows Server 2008 images OS, Sysprep can be executed a maximum of three times. Since Sysprep is executed when creating L-Server with images specified, collection of cloning images and creation of L-Servers with images specified cannot be performed more than four times. Therefore, it is recommended not to collect cloning images from L-Servers that have had cloning images deployed, but to collect them from a dedicated master server.
- If an L-Server is created with a Windows image specified, use Sysprep to set the server specific information again, when starting for the first time after creating the L-Server. After startup, and resetting of the server specific information, when the L-Server console is opened you will be logged on with Administrator status. Therefore, it is recommended that you log off.
- Note the following points when collecting cloning images from an L-Server that was created using a cloning image.

As L-Servers which have not been used even once after creation do not have server specific information set, creation of L-Servers using cloning images collected from an L-Server may fail.

When collecting cloning images, set the server specific information on L-Server, after starting the target L-Server.

Information

The disk resource in which cloning images are stored will be "already allocated" in the "Allocation" in the "Configuration Information" confirmed in "Disk Details", and in the state where there is no information in "L-Server Properties".

When collecting cloning images, enter the disk resource name to use for storing cloning images in Comment. The relationship between the cloning image and the disk resource can be checked in "Comment" for each resource in the "Resource List".

C.6.8 [OS] Tab Configuration

Enter the parameters to set for the OS when creating the L-Server. This setting is valid only if an image is specified in the [General] tab. The setting process is performed the first time the L-Server is started. If an image name is not specified, it is not necessary to enter all these items.

When the OS type on the [Server] tab is "Linux" or "Windows" or "Linux(SELinux)", the items can be entered, but when the OS type is "Other", the items cannot be entered.

The [OS] tab cannot be configured in the following cases:

- When the SELinux setting for the host OS is "Enable"
- When the system volume for the guest OS is LVM

Table C.21 List of Settings

Item	Linux/Linux(SELinux)		Windows		Description
	Necessity of Entry	Values When Omitted	Necessity of Entry	Values When Omitted	
Host name/Computer name	Possible	<i>L-Server Name</i>	Possible	<i>L-Server Name</i>	Enter the host name or computer name. [Windows] Enter a character string beginning with an alphanumeric character and containing up to 15 alphanumeric characters and hyphens ("-"). The string cannot be composed solely of numbers. [Linux] Enter a character string beginning with an

Item	Linux/Linux(SELinux)		Windows		Description
	Necessity of Entry	Values When Omitted	Necessity of Entry	Values When Omitted	
					alphanumeric character and containing up to 63 alphanumeric characters and hyphens ("-"). The string cannot be composed solely of numbers.
Domain name	Possible	localdomain (*1)	Possible	WORKGROUP (*1)	[Linux] Enter the domain name. Enter a character string beginning with an alphabetical character and containing up to 255 alphanumeric characters, hyphens ("-"), and periods ("."). [Windows] Enter the workgroup name. Settings for participation in a domain cannot be made. The same workgroup name as the computer name cannot be specified. Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters, hyphens ("-"), and periods ("."). Refer to the Microsoft information about the character string that can be input to the workgroup name.
DNS search path	Possible	-	Not Required	-	Enter a list of domain names to use for DNS searching, using between 1 and 32,767 characters. You can specify the same characters as the domain name.
Full name	Not Required	-	Possible	WORKNAME (*1)	Enter the Windows full name using between 1 and 50 characters. By default, the value defined in the OS property definition file is entered.
Organization name	Not Required	-	Possible	WORKORGANIZATION (*1)	Enter the organization name displayed in the Windows system properties using between 1 and 50 characters.
Product key	Not Required	-	Possible	- (*1)	Enter a product key.
License mode	Not Required	-	Not Required	-	Even if the license mode is specified, it is not configured in the guest OS.
Maximum number of connections	Not Required	-	Not Required	-	Even if the maximum number of connections is specified, it is not configured in the guest OS.
Administrator password	Not Required	-	Possible	- (*1)	Configure the same password as that specified for the local administrator account during L-Server creation. When specifying a new password, the local administrator account will be overwritten.

Item	Linux/Linux(SELinux)		Windows		Description
	Necessity of Entry	Values When Omitted	Necessity of Entry	Values When Omitted	
					Enter the password using between 1 and 128 alphanumeric characters or symbols.
Hardware clock configuration	Not Required	Local	Not Required	-	Specify one of the following: - UTC - Local (LOCAL) Even if the above is specified, it is not reflected on the guest OS.
Time zone	Possible	<i>The same time zone as the OS of the manager</i>	Possible	<i>The same time zone as the OS of the manager</i>	Specify the time zone of the OS.

*1: When the value is specified in the OS property definition file, its values are configured.

*2: In case OS type of the cloning image is Windows, The values for the [OS] Tab or the OS property definition file can only be configured automatically when you use the version of OS which the following reference describes.

"OS versions supporting the OS auto-configuration functions" in "When using a Windows cloning image" in ["C.6.7 Collecting Cloning Images"](#)



Information

OS Property Definition File

By setting the default values in an OS property definition file in advance, the default values of the information on the [OS] tab, etc. are generated when creating an L-Server.

For details, refer to ["C.1.7 OS Property Definition File"](#).

L-Server Operations

Use the ROR console or the rxcadm lserver command for L-Server operations.

For details on how to operate an L-Server using the ROR console, refer to "Chapter 17 L-Server Operations" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

For details on the rxcadm lserver command, refer to "3.6 rxcadm lserver" in the "Reference Guide (Command/XML) CE".

Changing L-Server Specifications

Use the ROR console or the rxcadm lserver modify command to change L-Server specifications.

For details on the specifications that can be changed, refer to "Chapter 17 L-Server Operations" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

The value after changing the specifications can be checked in the [Resource List] tab in the orchestration tree.

From the command-line, execute rxcadm lserver list and rxcadm lserver show.

For details, refer to "3.6 rxcadm lserver" in the "Reference Guide (Command/XML) CE".

C.6.9 Advisory Notes for RHEL-KVM Usage

This section explains advisory notes for RHEL-KVM.

VM Type View

In the ROR console, the VM type of RHEL-KVM VM hosts and VM guests is displayed as "RHEL-KVM".

Snapshot

When using RHEL-KVM, snapshots cannot be used.

Guest OS Automatic Configuration

When using RHEL-KVM, guest OS auto-configuration can be used for Linux or Windows.



When the OS type is Windows, OS auto-configuration can be used for the OS versions described below.

"[C.6.7 Collecting Cloning Images](#)"

- When using a Windows cloning image
 - OS versions supporting the OS auto-configuration functions

Detaching Disks and Deleting L-Servers

The data in the disk resources for virtual L-Servers cannot be deleted when detaching disks or deleting L-Servers, except when deleting the disk details for virtual L-Servers is enabled using the definition files.

Therefore, it is recommended to delete the data from the disk.

For details on how to delete data on disks, refer to "14.5 Storage Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

For details on how to specify definition files, refer to "[C.6.1 Creating Definition Files](#)".

Configuration of Swap Area for the Host OS

As a guide, set the twice the amount of memory of a VM host for the swap area of a host OS.

When there is insufficient swap area for the host OS, the virtual L-Server may fail to start.

When it is difficult to secure sufficient swap area, it is also possible to configure the kernel parameters (`/proc/sys/vm/overcommit_memory`) to avoid failure of start operations due to a lack of virtual L-Server memory space.

For details, refer to the following section in the "Red Hat Enterprise Linux 6 Virtualization Administration Guide".

- Chapter 6. Overcommitting with KVM

URL: http://docs.redhat.com/docs/en-US/Red_Hat_Enterprise_Linux/6/html/Virtualization_Administration_Guide/index.html

You can refer to the above section from the following URL for the manuals of Red Hat Enterprise Linux.

URL: <http://www.redhat.com/docs/manuals/enterprise/RHEL-6-manual/index.html>

Prerequisites for L-Server Live Migration

Before performing live migration of a virtual L-Server, it is necessary to confirm the configuration of Resource Orchestrator in advance.

If the conditions are not satisfied, live migration will fail. Execute live migration after checking the configuration.

For details on prerequisites for L-Server live migration, refer to "E.5.2 Preparations for Servers" in the "Design Guide CE".

Configuration for L-Server Live Migration

In RHEL-KVM environments, use SSH to perform live migration on virtual L-Servers.

It is necessary to configure each involved host to enable live migration of an L-Server from the manager.

For details, refer to "E.5.2 Preparations for Servers" in the "Design Guide CE".



When performing live migration using the `virsh migrate` command for KVM, specify both the `--undefinesource` and `--persistent` options.

If the command is executed without specifying these two options, the same VM guests may exist on both the destination and source VM hosts. In this state, the VM guests cannot be turned on using Resource Orchestrator. This occurs to prevent double VM guest startup operations in the state that multiple instances of the same VM guest exist on different VM hosts.

When turning on VM guests, the state where there are multiple instances of the same VM guest must be avoided by using the `virsh` command. For details on the `virsh` command, refer to the following section in the "Virtualization Administration Guide".

- Chapter 14. Managing guests with `virsh`

URL: http://docs.redhat.com/docs/en-US/Red_Hat_Enterprise_Linux/6/html/Virtualization_Administration_Guide/index.html

You can refer to the above section from the following URL for the manuals of Red Hat Enterprise Linux.

URL: <http://www.redhat.com/docs/manuals/enterprise/RHEL-6-manual/index.html>

Max. Number of Possible L-Servers View

The available space on resources and the space displayed for [the number of L-Servers that can be created] are calculated as follows:

Available Amount of CPUs and [Number of L-Servers that can be Created]

Total resource space - (Total of resources reserved for VM hosts + Total of resources used for L-Server)

Directory for collecting performance information

When resources are registered, the directories and files that are necessary for performance monitoring are created on the server where the resources are registered.

The directories and files are created in the following location. (Files with the same name in the same location are overwritten.)

`{Home directory of the user ID specified when registering the resources}/dsa_temp_*`

Do not delete the above directory until the resources themselves are deleted.

Performance information will not be collected if this directory is deleted. Restart the Manager if the directory is deleted accidentally.

The above directory is not automatically deleted when the resources are deleted. Delete it manually.

C.6.10 Overcommit

This section explains the overcommit function for L-Servers.

Overcommit

The RHEL-KVM overcommit function for the CPU and memory is available on Resource Orchestrator.

The RHEL-KVM overcommit function for the CPU and memory virtually allows a guest OS to use more resources than that of the actual CPU and memory of a server.

Resource Orchestrator provides the following functions to utilize the RHEL-KVM overcommit function when creating L-Servers.

- Setting an overcommit attribute for a resource pool

Overcommit attributes can be set for resource pools. If an L-Server template with the overcommit attribute configured is used, an L-Server with the overcommit attribute configured can be created by selecting the resource from the resource pool with overcommit configured.

- Deployment of L-Servers with more resources than those of the server

Creation of an L-Server with more resources than that of the actual CPU or memory installed on a server is possible. Whether the resulting L-Server can be started depends on the resources available on the VM host.

Installation Procedure

1. Create a VM Pool for Overcommit

For details on how to create a VM pool, refer to "Chapter 20 Resource Pool Operations" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".



Refer to the "Point" described in "1. Create a VM Pool for Overcommit" in "Installation Procedure" in "C.2.11 Overcommit".



Refer to the "Note" described in "1. Create a VM Pool for Overcommit" in "Installation Procedure" in "C.2.11 Overcommit".

2. Create a VM Specific Information Definition File

Create a VM specific information definition file. Create a VM specific information definition file when configuring different settings for individual user groups without configuring overcommit settings on the L-Server template.

For VM specific information definition files, refer to "C.1 Definition Files Commonly Shared when Creating Virtual L-Servers".

For details on how to edit the L-Server template, or create and check an L-Server, perform the operations of step 3 and later described in "C.2.11 Overcommit". Since the values that can be configured in the L-Server template or the VM specific information definition files as described in the reference differ depending on the VM types, replace the values with ones for KVM.



Due to limitations of the KVM management application, it may take a few minutes until the amount of memory used by VM is reflected on the ROR console.

C.7 Solaris Zones

This section explains the settings used when using Solaris Zones as server virtualization software.

- When Creating a Virtual L-Server

Configure the settings referring to the information in "C.7.1 Creating Definition Files" or the following sections.

- When Associating L-Servers with Configured Virtual Machines

Refer to "18.4.3 For Virtual Machines" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- Importing to L-Platforms

Refer to "7.2.3 Importing to L-Platform" in the "Operation Guide CE".



When using Solaris 11 Zones as VM hosts, association of L-Servers with configured virtual machines is supported.

C.7.1 Creating Definition Files

This section explains how to create definition files.

For definition files common to virtual L-Servers, refer to "[Chapter 8 Creating Definition Files](#)".

This section explains the definition files specific to Solaris Zones.

Definition Files of Managed Resource Pools

In Resource Orchestrator, the resource pool for Solaris Zones, with the name "pool_resource", is the target of management.

When changing the managed resource pools for Solaris Zones, specify either MANAGED_POOL or the admin IP address for the VM host, or both of them, in the definition file in advance.

When MANAGED_POOL and the admin IP address of the VM host are both specified, priority is given to the admin IP address of the VM host.

Use the UTF-8 character code for definition files.

Storage Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvnr/customize_data



The sample definition file (container_resource.sample.rcxprop) is stored in the storage location above.

When using the sample as the definition file, place the file after deleting the ".sample" included in the file name.

Definition File Name

container_resource.rcxprop

Definition File Format

In the definition file, an item to define is entered on each line. Each line must be entered in the following format.

Key = Value

If there is duplicated configuration information for the same VM host, the values that appear first will be used.

Table C.22 Definition File Items

Key	Description
MANAGED_POOL	Specify this item when using common resource pools in the overall managed VM host (global zone) in Resource Orchestrator.
<i>Admin IP address of the VM host</i>	Define a resource pool for each managed VM host (global zone) in Resource Orchestrator.

When there are no definitions corresponding to the managed VM host, the resource pool with the name "pool_resource" will be the target of management.

Note

- When definitions are changed during operation, or the resource pool name is changed in a Solaris Zone environment, also change the calculation and display of the resource capacity in Resource Orchestrator. Do not change the definitions during operation.
- When changing the VM host IP address, also modify the definition files.
- When the descriptions start with a "#", the string is regarded as a comment line.

Definition Files of Reserved Memory Size for VM Hosts

Define the reserved memory size for the global zone of a Solaris Zone.

When calculating and displaying available memory resources, the reserved memory size for VM hosts specified in this definition file is used.

Use the UTF-8 character code for definition files.

Storage Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvnr/customize_data

Information

The sample definition file (*global_zone_reserved_memory.rcxprop.sample*) is stored in the location above.

When using the sample as the definition file, place the file after deleting the ".sample" included in the file name.

Definition File Name

global_zone_reserved_memory.rcxprop

Definition File Format

In the definition file, an item to define is entered on each line. Each line must be entered in the following format.

<i>Key = Value</i>

When the same key is stated in multiple lines, the definition in the line described last is valid.

Definition File Items

Specify the following items:

Key	Description
ALL	Specify the reserved memory size to be used between VM hosts (<i>global_zone</i>) managed by ROR. Enter an integer. The unit of the value is MB.
<i>Admin IP address of the VM host</i>	Specify the reserved memory size for the VM host (<i>global_zone</i>) to which the specified IP address has been assigned. Enter an integer. The unit of the value is MB. Priority is given to this setting over the value specified for ALL.

Note

- If this definition is modified during operation, the resource amount calculated and displayed by Resource Orchestrator will be changed as well.
- When changing the IP address of the VM host, modify this definition file.
- If valid values are not specified in this definition file, it will be treated as if the value for capped-memory configured for the global zone has been specified.
If capped-memory has not been configured for the global zone, it will be treated as if 0 has been specified.

Definition Files for Enabling Solaris Zones

Define if registering VM hosts as Solaris Zones regardless of whether the Logical Domains Manager daemon is enabled or disabled.

Storage Location of the Definition File

[Windows]
Installation_folder\Manager\etc\customize_data

[Linux]
/etc/opt/FJSVrcvnr/customize_data

Information

The sample definition file (sparc_vm.rcxprop.sample) is stored in the location above.
When using the sample as the definition file, delete the ".sample" included in the file name after changing the content.

Definition File Name

sparc_vm.rcxprop

Character Code

UTF-8

Line Break Code

[Windows Manager]
CR/LF

[Linux Manager]
LF

Definition File Format

In the definition file, an item to define is entered on each line. Each line must be entered in the following format.

<i>Key = Value</i>

Definition File Items

Specify the following items:

Key	Description
ALWAYS_ZONE	Specify if registering VM hosts as Solaris Zones regardless of whether the Logical Domains Manager daemon is enabled or disabled. <ul style="list-style-type: none">- If "true" is specified Registers VM hosts as Solaris Zones regardless of whether the Logical Domains Manager daemon is enabled or disabled.

Key	Description
	<ul style="list-style-type: none"> - If "false" is specified Registers VM hosts based on whether the Logical Domains Manager daemon is enabled or disabled.

Example

When registering VM hosts as Solaris Zones regardless of whether the Logical Domains Manager daemon is enabled or disabled

```
ALWAYS_ZONE=true
```

Note

- When more than two lines are written, the configurations described in the last line are valid.
- Blank spaces and tabs directly before and after an equal sign ("=") are ignored.
- Describe the definitions carefully, as entry is case-sensitive.
- If you edit and save a UTF-8 text file using Windows Notepad, the Byte Order Mark (BOM) is stored in the first three bytes of the file, and the information specified on the first line of the file will not be analyzed correctly. When using Notepad, specify the information from the second line.
- The definition file configurations are reflected without restarting the manager in Resource Orchestrator.

C.7.2 Registering Resources with Resource Orchestrator

Register Server Management Software

Register BMC BladeLogic Server Automation as server management software. Perform the necessary preparations before registration.

For details on preparations, refer to ["I.1 Coordination with BMC BladeLogic Server Automation"](#).

For details on how to register server management software, refer to "5.12 Registering BMC BladeLogic Server Automation" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Register Managed Servers (Global Zone)

Refer to "5.9 When Using Fujitsu M10/SPARC Enterprise" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.7.3 Registering Resources in Resource Pools

Use the following procedure to register a resource to a resource pool:

1. Register VM Host Resources (Global Zone)
 - a. In the ROR console orchestration tree, right-click the target VM pool, and select [Register Resources] from the popup menu.
The [Register Resources] dialog is displayed.
 - b. Select the VM host to register.
 - c. Click <OK>.

For details, refer to "14.1 VM Host Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- When deploying multiple L-Servers to an L-Platform at the same time, deploy the same number of L-Servers as the number of VM hosts in the VM pool.
- When using multiple L-Platforms that use the same network, create different VM pools for each L-Platform.

2. Register Disk Resources

Register the disks used in the non-global zone as disk resources.

When migrating a non-global zone for virtual L-Servers, register the disks shared between multiple global zones as disk resources defined to be shared.

Disk resources can be registered by executing the `rcxadm disk register` command.

For details on the `rcxadm disk register` command, refer to "3.3 `rcxadm disk`" in the "Reference Guide (Command/XML) CE".

To register disk resources, an XML file that contains the information of the disk resources to be registered is necessary.

For the definition of the XML file, refer to "15.4.3 Disk Resources [Solaris Zones]" in the "Reference Guide (Command/XML) CE".

For the commands that support creation of XML files, refer to "5.24 `rcxvmdisk`" and "5.25 `rcxvmdiskagt`" in the "Reference Guide (Command/XML) CE".

3. Register Network Resources

If the NIC and network resources are connected when an L-Server is created, the settings matching the network resource definition will be registered automatically for the VM host that the L-Server will operate on.

For details, refer to "[C.7.4 Manual Network Configuration](#)".

Check the information of VLANs and subnets to which the NICs for the VM guest to be imported are connected. These settings are not necessary when there are already network resources corresponding to the combinations of VLANs and subnets. When there are no network resources, use the following procedure to create a new network resource.

- a. In the ROR console orchestration tree, right-click the target network pool, and select [Create Network Resource].

When creating a new network resource, select [New].

When creating a resource using an already registered admin LAN subnet, select [Using existing admin subnet].

The [Create a network resource] dialog is displayed.

- b. Enter the items necessary for network resources.

- VLAN ID

When using a VLAN, specify the value. When not using a VLAN, specify an arbitrary VLAN ID that is not used for already created network resource and will not be used in the future.

- Uplink port

Do not specify anything.

- Detail configuration

Do not configure anything.

For details on how to add the NIC information to the L-Server, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".

4. Register Network Device Resources

Create a network resource to be used on the L-Platform. If the type of the network devices is Firewall or SLB, register them to the network pool.

For details, refer to "14.4 Network Devices" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

5. Register Virtual Image Resources

Register the virtual image resources used when creating virtual L-Servers in the resource pool.

It is necessary to create a BladeLogic virtual package in advance and register it with Resource Orchestrator.

a. Create a BladeLogic virtual package

From the BladeLogic console, create a BladeLogic virtual package in the following folder.

```
Depot/ROR/Solaris/vm/container
```

The name of the virtual package must start with an alphabetic character (upper or lower case), and can contain up to 32 alphanumeric characters or underscores ("_").

For details, contact Fujitsu technical staff.

 **Point**

- There are two methods to create packages. One is to copy the virtual package created when registering the server management software, and the other is to create a new package without using the package created in advance.

Create a package using one of the following methods:

When Creating a New Virtual Package

Configure any necessary additional settings after setting the following items:

[General Settings]

- Zone Name: zone
- Zone Path: /zone
- Resource Pool: pool_resource
- Auto boot on host reboot: unchecked
- Boot Zone after creation: unchecked
- Processor Settings: Default
- Memory Settings: Default

[Network Settings]

- IP Type: Exclusive

[ZFS Data Sets]

- Only UFS can be used as a file system. Do not specify this item.

[Inherited Package-Directories]

- Zone Type: Whole Root

[Custom Attributes]

- zone.cpu-cap is reconfigured, when creating or modifying an L-Server.

When Copying a Virtual Package

Copy the BladeLogic virtual package stored in the following location.

```
Depot/ROR/Solaris/vm/container/template/Zones
```

In the virtual package, only the minimum parameters necessary for operations described in "When Creating a New Virtual Package" are configured. Modify the parameters depending on your environment.

The virtual package is added to Resource Orchestrator, when server management software is registered.

- When deploying the created images to VM hosts in Solaris Zones, the images can also be used for other VM hosts.
-

b. Register the BladeLogic virtual package with Resource Orchestrator

Refer to "17.5.1 Collecting and Registering" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

c. Register the virtual image resource in the resource pool

For details, refer to "14.7.1 Virtual Image Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.7.4 Manual Network Configuration

Specify the network interface to be allocated to an L-Server (non-global zone) based on the network resource. Therefore, it is necessary to associate the network resource and the network interface in the global zone in advance.

In the global zone, only one network interface can be associated with the network resource. When there are multiple network interfaces in the global zone, create a network resource for each network interface.

When using exclusive IP settings, the network interface in the global zone must be allocated to only one non-global zone. Only specify the network resources for one L-Server.

Use the VLAN ID as an identifier in order to associate the network resource with the network interface in the global zone. Use different VLAN IDs for each network interface in the global zone.

The VLAN ID is used as an identifier, but VLAN settings are not performed. When VLAN settings are required, configure them in advance.

It is necessary to configure the following settings beforehand.

1. Check the Network Interface

In VM hosts (global zones) managed with Resource Orchestrator, check that the network interfaces used by VM guests are not being used.

When migrating VM guests (non-global zone) between VM hosts (global zones), check if the source and destination network interfaces have the same name.

When configuring the network interface, if using a server virtualization software other than a Solaris Zone on the same manager, check that a different name from the one used for a virtual switch, a virtual network, or a virtual bridge on the other server virtualization software is used.

2. Define the Supported Network Interface and VLAN IDs.

Define the supported network interface and VLAN IDs in the virtual network definition file for Resource Orchestrator.

For details on definition file format, refer to "[File Format for Virtual Network Definitions](#)".

3. Create Network Resources

- From the GUI:

Create network resources using the VLAN IDs specified in step 2.

In the [Create a network resource] dialog, check the [Use configured virtual switches.] checkbox.

- From the Command-line:

Create the XML file that defines network resources.

Define the VLAN ID specified in step 2. in the XML file.

In this case, specify auto="false" in the Network element.

To create the network resource, execute the rxcadm network create command specifying the XML file created in step a.

The network resources are created.

For details on the rxcadm network command, refer to "3.9 rxcadm network" in the "Reference Guide (Command/XML) CE".

For details on the Network element, refer to "15.5 Network Resources" in the "Reference Guide (Command/XML) CE".

File Format for Virtual Network Definitions

Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvnr/customize_data

Definition File Name

vnetwork_solariscontainer.rcxprop

Definition File Format

Describe the network definition file in one line as below:

```
"Network interface name"=VLAN ID
```

For the VLAN ID, a value from 1 to 4094 can be specified.



Example

```
"bge1"=10
```

Blank spaces before and after equal signs ("=") are ignored.

Describe the network interface name correctly, as the entry is case-sensitive.

Save files using the UTF-8 character code.

When the same VLAN ID is included in a line with a different network interface name, the first occurrence in the file is valid and the lines after it are ignored.

An error occurs during L-Server (non-global zone) creation if the definition of the VLAN ID of the network resource connected to the NIC cannot be found.

C.7.5 Creating L-Server Templates

This section explains how to create an L-Server template.

L-Server templates can be created using the following methods.

- Using the Wizard GUI

L-Server templates can be created using a GUI in the wizard format.

For details on the GUI in the wizard format, refer to "15.1 Operations Using the Wizard GUI" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- Manually

Use the following procedure to create an L-Server template:

1. Export an L-Server Template

The sample L-Server templates provided with Resource Orchestrator can be exported.

For details on how to export L-Server templates, refer to "15.2.1 Export" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Edit an L-Server Template

The L-Server template output in step 1 can be edited with an editor, etc.

For details on the L-Server templates for virtual L-Servers, refer to "15.2.2 Virtual L-Server Templates" in the "Reference Guide (Command/XML) CE".

3. Import an L-Server Template

For details on how to import L-Server templates, refer to "15.2.3 Import" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.7.6 Creating an L-Server

Use the following procedure to create L-Servers:

In this case, specify the cloning image that you want to use as an image.

1. Create an L-Server Using an L-Server Template

Create an L-Server, referring to "16.1 Creation Using an L-Server Template" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Create an L-Server Specifying Individual Specifications

Refer to "16.3 Creation of Virtual L-Servers Using Parameters" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

For details on the [OS] tab settings, refer to "C.7.7 [OS] Tab Configuration".

The cap values configured in the non-global zone are calculated using the CPU performance and the number of CPUs for L-Servers. The calculation formula is as below.

$$\text{cap value} = \text{CPU performance(GHz)} * \text{number of CPUs} / \text{physical CPU performance(GHz)} * 100$$

C.7.7 [OS] Tab Configuration

Enter the parameters to set for the OS when creating the L-Server.

In L-Server creation, perform settings to start the non-global zone.

For Oracle Solaris Zones, only the following parameters are reflected.

If any other parameters are set, they will be ignored.

Table C.23 List of Settings

Item	Solaris		Description
	Necessity of Entry	Values When Omitted	
Host name	Possible	L-Server Name	<p>Enter the host name.</p> <p>When creating multiple NICs in the host name of the non-global zone, the second and later NICs will be configured in the following format: Specified host name-sequential number</p> <p>Enter a character string containing up to 21 alphanumeric characters and hyphens ("-").</p> <p>Hyphens ("-") cannot be specified for the first or last characters.</p> <p>If underscores ("_") or periods (".") are used in an L-Server name, they will be replaced with hyphens ("-"), because these characters cannot be used for host names or computer names.</p> <p>If the basic information is not specified, the L-Server name is converted and set as indicated above.</p>
Administrator password	Possible	- (*)	<p>Set the administrator password for the L-Server.</p> <p>Enter the password using between 1 and 255 alphanumeric characters or symbols.</p>

* Note: When the value is specified in the OS property definition file, its values are configured.

Information

OS Property Definition File

By setting the default values in an OS property definition file in advance, the default values of the information on the [OS] tab, etc. are generated when creating an L-Server.

For details, refer to "C.1.7 OS Property Definition File".

C.7.8 Advisory Notes for Solaris Zone Usage

Resource Pools for Solaris Zones Managed in Resource Orchestrator

In Resource Orchestrator, resource management is performed with one resource pool for a Solaris Zone being managed in each global zone.

The target resource pool can be changed.

For details, refer to "[C.7.1 Creating Definition Files](#)".

Non-Global Zone Names in Solaris Zones

When specifying the names of non-global zones managed by Resource Orchestrator, ensure that those names are unique.

When managing multiple non-global zones with the same names as L-Servers, do not manage only some of those non-global zones as L-Servers. Either manage all or none of such non-global zones as L-Servers.

When there are multiple non-global zones with the same name, if only some of them are managed as L-Servers, those zones may be erroneously recognized as the same non-global zone.

Operations when uuids Change in Solaris Zones

In Resource Orchestrator, manage the non-global zone using uuids.

As a Solaris Zone configures a uuid for each OS, when the OS is reinstalled in a non-global zone or when the global zone on which a non-global zone is started is changed, the uuid of the non-global zone changes. When a uuid changes, the operation varies depending on whether the zone is managed as an L-Server.

- When the non-global zone is not being managed as an L-Server

If an operation that leads to uuid change is performed, the non-global zone with the changed uuid will be recognized as a new non-global zone. As a result, the label, comment, and home position setting which were configured for the non-global zone will be cleared. Reconfigure those settings.

- When the non-global zone is being managed as an L-Server

If an operation that leads to uuid change is performed, when the non-global zone with the changed uuid is detected, whether the non-global zone is the same or not is determined based on the non-global zone name. If the zone is determined to be the same, settings which had been configured for that zone before the uuid changed will be inherited.

If the zone is determined to be different, such as when there are multiple non-global zones with the same name, that zone will be recognized as a new non-global zone. In that case, it is necessary to associate the zone with the L-Server and import it into the L-Platform again.

Release the L-Server from the L-Platform and delete the L-Server, then associate the server with the L-Server and import the L-Server to the L-Platform.

For details about releasing the L-Server from the L-Platform, refer to "7.2.3.3 Releasing L-Servers" in the "Operation Guide CE".

For details about deleting the L-Server, refer to "17.4 Deleting an L-Server" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

For details about importing the L-Server to the L-Platform, refer to "7.2.3 Importing to L-Platform" in the "Operation Guide CE".

Migration Operations

Resource Orchestrator provides a function which migrates non-global zones between global zones (cold migration only). This function is realized by performing the following procedure.

Prerequisites

- The non-global zone to migrate is stopped.
- The servers at the migration source and destination have the same system environment.

Process

1. Detach the non-global zone at the migration source.

Do this using `zoneadm detach`.

2. In the global zone at the migration source, unmount the disk which is mounted on the zone path of the non-global zone.
3. In the global zone at the migration destination, mount the disk on the zone path to be used by the non-global zone, according to the definition in `vfstab`.

The zone path used for the non-global zone is configured according to the definition of the registered disk resource.

4. In the global zone at the migration destination, create a non-global zone.
5. In the global zone at the migration destination, attach the non-global zone.

Here, perform this using `zoneadm attach` with the `-u` option specified.

It is not recommended to perform normal operations while carrying out migration, for the following reasons. Consider the risks before performing migration.

- If the disk resources or global zones are incorrectly configured, Resource Orchestrator will try to attach the non-global zone using an incorrect disk at the destination server. As a result, the data in the non-global zone may be corrupted or the non-global zone may disappear.
- If a migration operation fails, the zone will not be automatically rolled back to the state before the operation.

In that case, log in to the global zones at the migration source and destination and perform recovery.

When doing this, be sure to recover the migration destination first. If you recover the migration source first, the disk will be accessed from both global zones, which may corrupt the data.

CPU Performance and the Number of CPUs for L-Servers

Update the CPU performance and the number of CPUs, using the values calculated by the cap values, when the CPU performance and the number of CPUs for L-Servers are different from the values calculated from the cap values configured in the non-global zone.

When the cap values calculated using the CPU performance and the number of CPUs for L-Servers are the same as those configured for the non-global zone, the CPU performance and the number of CPUs for L-Servers are not updated, and the values are not changed from the configured values.

CPU Performance and the Number of CPUs for L-Servers when Changing cap Values in the Non-global Zone

When increasing the cap value in the non-global zone, the CPU performance for L-Servers may be the same as the value before changing of the cap value, not the CPU performance calculated by the cap value.

If this occurs, increase the cap value by one. After checking if the CPU performance for L-Servers has changed, change the cap value to the intended value.

Changing L-Server Specifications

If the CPU performance is increased by 0.1 GHz when modifying L-Server specifications, but the number of CPUs is not changed, the cap values in the non-global zone may not have been changed.

To change the cap values for certain, change the value by 0.2 GHz or more.

LUNs Shared between Multiple Global Zones

Do not mount LUNs that are shared between multiple global zones or the LUNs for the zone path used by virtual L-Servers by selecting them from the other global zone. Data may be damaged when deploying the virtual L-Server using the disk for the corresponding LUN, due to conflicting LUN access.

Non-global Zone Charges

The following settings need to be made when creating the non-global zone if the non-global zone's CPU or memory will be using the metering and usage fee functions.

However, these settings are not necessary if metering and usage fee functions are not used, or if the CPU or memory are not made the subject of charges.

Table C.24 Setting Items when creating a non-global zone

Subject of charges	Required settings
CPU	Perform CPU sharing settings
Memory	Perform memory capping settings

Refer to the documentation that that comes with the Operating System for information on CPU sharing and memory capping.

C.7.9 Overcommit

This section explains the overcommit function for L-Servers.

Overcommit

The Solaris Zone overcommit function for the CPU and memory is available on Resource Orchestrator.

The Solaris Zone overcommit function for the CPU and memory virtually allows a guest OS to use more resources than that of the actual CPU and memory of a server.

Resource Orchestrator provides the following functions to utilize the Solaris Zone overcommit function when creating L-Servers.

- Setting an overcommit attribute for a resource pool

Overcommit attributes can be set for resource pools. If an L-Server template with the overcommit attribute configured is used, an L-Server with the overcommit attribute configured can be created by selecting the resource from the resource pool with overcommit configured.

- Deployment of L-Servers with more resources than those of the server

Creation of an L-Server with more resources than that of the actual CPU or memory installed on a server is possible.

Whether the resulting L-Server can be started depends on the resources available on the VM host.

Installation Procedure

1. Create a VM Pool for Overcommit

For details on how to create a VM pool, refer to "Chapter 20 Resource Pool Operations" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".



.....
Refer to the "Point" described in "1. Create a VM Pool for Overcommit" in "[Installation Procedure](#)" in "[C.2.11 Overcommit](#)".
.....



.....
Refer to the "Note" described in "1. Create a VM Pool for Overcommit" in "[Installation Procedure](#)" in "[C.2.11 Overcommit](#)".
.....

For details on how to edit the L-Server template, or create and check an L-Server, perform the operations of step 3 and later described in "[C.2.11 Overcommit](#)". The values that can be configured in the L-Server template or the VM specific information definition files as described in the reference differ depending on the VM types. In Solaris Zones, the values can only be specified when configuring overcommit in the L-Server template.

C.7.10 Managing Solaris Zones Configured on a Guest Domain of OVM for SPARC

In this product, the Solaris zones constructed on the guest domain of OVM for SPARC can be managed.

When the Solaris zones constructed on the guest domain of OVM for SPARC is managed, it is necessary to register the guest domain that constructs the Solaris zones as VM host. The introduction procedure to this product is as follows.

1. Installation of software on control domain of OVM for SPARC

The software and the agent of this product is installed in the control domain of OVM for SPARC.

Please refer to the following.

- ["2.2.1 Preparations"](#)
- ["2.2.4 Installation \[Solaris\] \[Solaris Zones\] \[OVM for SPARC\]"](#)

2. Server registration of OVM for SPARC

The server of OVM for SPARC is registered.

Refer to "5.9 When Using Fujitsu M10/SPARC Enterprise" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Construction of global zone on guest domain of OVM for SPARC

Refer to Oracle manuals.

4. Installation of software on guest domain of OVM for SPARC

The software and the agent of this product is installed in the guest domain of OVM for SPARC.

Please refer to the following.

- ["2.2.1 Preparations"](#)
- ["2.2.4 Installation \[Solaris\] \[Solaris Zones\] \[OVM for SPARC\]"](#)
- Refer to "E.6.2 Preparations for Servers" in the "Design Guide CE".

5. Registration of resource of guest domain

When the guest domain is registered as VM host, non-global zone made on the guest domain is displayed as VM guest.

After it is confirmed that OS of the guest domain starts, it registers as VM host.

Refer to "5.9.3 Registering Guest Domain on Oracle VM for SPARC" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

6. Registration of resource to resource pool

The guest domain of OVM for SPARC is registered in the VM pool.

Refer to "14.1 VM Host Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

7. Registration of network resource

The network resource is registered in the network pool.

Refer to "14.3 Network Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

8. Registration of storage resource

The storage resource is registered in the storage pool.

Refer to "14.5 Storage Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

9. Linking L-Server

It can be managed that it is non-global zone on the guest domain of OVM for SPARC and non-global zone on the guest domain of constructed OVM for SPARC L-Server is linked as virtual L-Server, and take it into L-Platform.

Refer to "7.2.3 Importing to L-Platform" in the "Operation Guide CE".

There are notes in the operation with this product when the guest domain of OVM for SPARC is registered as VM host.

Refer to "[C.8.5 Advisory Notes for OVM for SPARC Usage](#)".

C.8 OVM for SPARC

This section explains the settings used when using OVM for SPARC as server virtualization software.

- When Associating L-Servers with Configured Virtual Machines

Refer to "18.4.3 For Virtual Machines" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- Importing to L-Platforms

Refer to "7.2.3 Importing to L-Platform" in the "Operation Guide CE".



For OVM for SPARC, the following functions are supported:

- Associating of L-Servers with configured virtual machines
- Reversion of L-Server
- Power control of L-Server
- Modifying L-Server specifications or the basic information of L-Servers
- Attaching and detaching disks of L-Servers
- Migration of a VM guest to a different VM host
- Importing to L-Platforms (*)

*Note: When Solaris zones are constructed on the guest domain and the guest domain is registered as a VM host, virtual L-Server linked with the guest domain cannot be taken into L-Platform.

C.8.1 Creating Definition Files

This section explains how to create definition files.

For definition files common to virtual L-Servers, refer to "[Chapter 8 Creating Definition Files](#)".

Configure the definition files for enabling Solaris Zones so that VM hosts are registered based on whether the Logical Domains Manager daemon is enabled or disabled.

For details, refer to "[C.7.1 Creating Definition Files](#)".

Definition file of whether to execute saving of vm guest(s) configuration

Define whether executing saving of VM guest(s) configuration automatically when there is change in VM guest(s) configuration.

This Definition is applied for all VM hosts.

The target operation is as follows.

- When the following operations are performed from this product
 - Power Control of VM guest(ON/OFF/OFF(Forced)/Reboot/Reboot(Forced))
 - Migration of VM guest / Virtual L-Server
 - Modification of CPU num and memory on Virtual L-Server
 - Adding and removing of disk on Virtual L-Server
- When the following operations for guest domain are performed from control domain.
 - Creation / removing of guest domain
 - Binding / unbinding resources

- Starting / stopping of guest domain
- Modification of VCPU's num and memory size of guest domain
- Adding / removing virtual disk to guest domain
- Migration of guest domain

Storage Location of Definition File

[Windows Manager]
Installation_folder\Manager\etc\customize_data

[Linux Manager]
 /etc/opt/FJSVrcvnr/customize_data



Information

In the storage location above, the sample definition file (sparc_vm.rcxprop.sample) is stored.
 When using the sample as the definition file, delete the ".sample" included in the file name.

Definition File Name

sparc_vm.rcxprop

Character Code

UTF-8

Line Break Code

[Windows Manager]
 CR/LF

[Linux Manager]
 LF

Definition File Format

In the definition file, an item to define is entered on each line. Enter each line in the following format.

Key= <i>Value</i>

When describing a comment, please describe # in a head character.

Definition File Items

One of the following items can be specified.

Key	Description
OVM_AUTO_SAVE_CONFIG	Specify if executing saving of vm guest(s) configuration. - If "true" is specified Executing saving of vm guest(s) configuration - If "false" is specified Do not Executing saving of vm guest(s) configuration.



Example

When Executing saving of vm guest(s) configuration

OVM_AUTO_SAVE_CONFIG=true



- When more than two lines are written, the configurations described in the last line are valid.
- Blank spaces and tabs directly before and after an equal sign ("=") are ignored.
- Describe the definitions carefully, as entry is case-sensitive.
- When it corresponds to the following conditions, operation becomes the same as the case when "true" is specified.
 - When a definition is omitted
 - When value other than "true" and "false" is specified
- If you edit and save a UTF-8 text file using Windows Notepad, the Byte Order Mark (BOM) is stored in the first three bytes of the file, and the information specified on the first line of the file will not be analyzed correctly. When using Notepad, specify the information from the second line.
- The definition file configurations are reflected without restarting the manager in Resource Orchestrator.

C.8.2 Registering Resources with Resource Orchestrator

Register Managed Servers

Refer to "5.9 When Using Fujitsu M10/SPARC Enterprise" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Register Server Management Software

Register BMC BladeLogic Server Automation as server management software. Perform the necessary preparations before registration.

For details on preparations, refer to ["I.1 Coordination with BMC BladeLogic Server Automation"](#).

For details on how to register server management software, refer to "5.12 Registering BMC BladeLogic Server Automation" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.8.3 Registering Resources in Resource Pools

1. Register VM Host Resources
 - a. In the ROR console orchestration tree, right-click the target VM pool, and select [Register Resources] from the popup menu.
The [Register Resources] dialog is displayed.
 - b. Select the VM host to register.
 - c. Click <OK>.

For details, refer to "14.1 VM Host Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Register Disk Resources (Raw Devices or Partitions)

Register the raw devices or partitions recognized by VM hosts as disk resources.

When migrating VM guests for virtual L-Servers, register the raw devices or the partitions shared between multiple VM hosts as disk resources defined to be shared.

Register the raw devices or the partitions to store cloning images shared between multiple VM hosts as disk resources defined as shared.

Disk resources can be registered by executing the rxcadm disk register command.

For details on the rxcadm disk register command, refer to "3.3 rxcadm disk" in the "Reference Guide (Command/XML) CE".

To register disk resources, an XML file that contains the information of the disk resources to be registered is necessary.

For the definition of the XML file, refer to "15.4.4 Disk Resources [OVM for SPARC]" in the "Reference Guide (Command/XML) CE".

When raw devices or partitions are recognized in a VM host that only uses the control domain, without using the I/O domain, creation of XML files by using the rcxvmdisk command and the rcxvmdiskagt command can be simplified.

For details on the rcxvmdisk command and the rcxvmdiskagt command, refer to "5.24 rcxvmdisk" and "5.25 rcxvmdiskagt" in the "Reference Guide (Command/XML) CE".

3. Register Network Resources

- a. In the ROR console orchestration tree, right-click the target network pool, and select [Create Resource] from the popup menu.

The [Create a network resource] dialog is displayed.

- b. Enter the items necessary for network resources.

For details, refer to "14.3 Network Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.8.4 Relating to an L-Server

In OVM for SPARC, the configured virtual server can be managed as an L-Server and imported to an L-Platform by relating the configured virtual server and the L-Server.

For details, refer to "7.2.3 Importing to L-Platform" in the "Operation Guide CE".

C.8.5 Advisory Notes for OVM for SPARC Usage

OS Startup Configuration while Starting Domains

When starting an OS while starting up an L-Server, specify "true" for the auto-boot? variable of the guest domain.

Display of CPU Performance and the Number of CPUs for L-Servers

The number of CPUs for L-Servers are calculated using the number of CPU threads configured for the domain, and is displayed per core. The CPU performance of CPUs for L-Servers is calculated using the CPU performance and the number of CPU threads configured for the VM host.

The calculation formula is as below.

- Number of CPUs = number of threads / number of threads per core (round-up any decimal values)
- CPU performance = (number of threads * physical CPU performance) / (number of threads per core * number of CPUs)



Example

When creating an L-Server to which 2 cores (16 threads) are allocated on a VM host with a 2.8 GHz CPU, 1 core, and 8 threads

$$\text{Number of CPUs} = 16 / 8 = 2$$

$$\text{CPU performance} = (16 * 2.8) / (8 * 2) = 2.8 \text{ (GHz)}$$

When creating an L-Server to which 12 threads are allocated on a VM host with a 2.8 GHz CPU, 1 core, and 8 threads

$$\text{Number of CPUs} = 12 / 8 = 1.5 \div 2$$

$$\text{CPU performance} = (12 * 2.8) / (8 * 2) = 2.1 \text{ (GHz)}$$

CPU Capacity and Memory Capacity when Settings are Configured for Conversion Using Reservation Values

When the settings are configured to calculate using the reservation values, the same CPU capacity and memory capacity as used by a virtual machine are configured as the values for conversion using a maximum value.

Max. Number of Possible L-Servers View

For an OVM for SPARC VM host, the number for conversion is 0.

Display of Disk Information

The identifier information (ID number) is displayed for the device path.

L-Server Power Operations

When functions are not supported by OVM for SPARC, stopping and rebooting of L-Servers cannot be performed. Depending on the statuses of virtual machines, either operate virtual machines directly, or perform a forced stop or a forced reboot.

When executing power control of VM guest in this product, binding / unbinding of resources is also executed.

- When Starting VM guest
Binding of resources is executed
- When stopping VM guest
Unbinding of resources is executed
- When restarting VM guest
Binding/unbinding of resources is not executed

Overcommit

Do not register the VM host for OVM for SPARC in the VM pool used for overcommit.

When linking a virtual machine on the OVM for SPARC VM host with an L-Server in the VM pool used for overcommit, the overcommit attributes of the VM pool which the VM host is registered in are configured on the L-Server.

I/O Domain

In Resource Orchestrator, I/O domains are detected as VM guests.

An I/O domain may affect other guest domains when performing power operations.

It is recommended to perform management without linking an I/O domain with an L-Server.

This is to avoid performing incorrect operations due to confusion of the I/O domain with another guest domain, as a result of the I/O domain being managed as an L-Server or an L-Platform.

Number of VM Host CPUs

The number of cores that are recognized by the control domain is displayed for the number of CPUs of the VM host.

Adding disk to L-Server

When adding disk to L-Server, disk name of guest domain is named by following rule.

vdisk <i>N</i>

N is disk number(0-63) which is specified when adding disk.

Migration Operations

The disk resource needs to be allocated to all the disks of L-Server when performing migration of L-Server. Moreover, the following conditions are fulfilled for the candidate of a movement place.

- VM host that is sharing disk resource allocated in L-Server.
- VM host with the same setup of the spare server to VM host.

When it moves to VM host that specified L-Server by one of the following methods, disks of L-Server after the movement is not in the disk resource with the relation, or disk information may not be updated.

- Moving an L-Server between servers from the server tree on a ROR console.
- Moving an L-Server between servers by the command which specified VM host.

For product specification of OVM for SPARC, It is not checked whether Disk allocated to guest domain is shared between source host and target host.

Therefore, please check following items to check sharing settings of disk.

- All of disk allocated to guest domain is shared with target control domain
- Disk services and volume name is same between source control domain and target control domain

When executing migration of guest domain with unshared disk, migration may be successful. But operation is not secured after migration.

After migration, it is necessary that executing command of "ldm add-spconfig" for saving of vm guest(s) configuration. Thereby, VM guest configuration is continuation even after a reboot.

In this product, VM guest(s) configuration is saved when detecting vm guest that is migrated. When repealing saving of vm guest(s) configuration in this product, please repealing definition of definition file indicated in "[C.8.1 Creating Definition Files](#)".

When VM host is down in migration, VM guest may carry out double starting. In order to prevent this phenomenon, we recommend to migrating with the state of preventing automatic boot after saving configuration with auto-boot setting to false.

In addition, for product specification of OVM for SPARC, operation for other guest domain under executing migration. So, when executing operation for other VM guest / L-Server under executing migration, operation may be failed.

CPU Performance for L-Servers

With this product, the CPU value in performance of virtual L-Server is calculated based on VM host's CPU value in performance. Therefore, even when the number of CPUs of a virtual L-Server is the same, virtual L-Server's CPU value in performance may change with a VM Host's CPU value in performance.

Relation of guest domain to virtual L-Server

When Solaris zones are constructed on the guest domain and the guest domain is registered as a VM host, virtual L-Server linked with the guest domain cannot be taken into L-Platform.

Moreover, the administrator (supervisor or dual-role administrators) who manages the whole system needs to manage virtual L-Server which constructed the Solaris zone on the guest domain.

Since non global zone constructed on the Solaris zone is also influenced when the following operations are performed to virtual L-Server which constructed the Solaris zone on a guest domain, please operate it after checking the extent of the impact.

- Power control of L-Server
- Migration of a VM guest to a different VM host
- Modifying L-Server specifications
- Detaching a Disk

Virtual L-Server which constructs the Solaris zone on the guest domain recommends not containing in the scope of batch power operation of L-Servers.

When batch power operation of L-Servers is used on a guest domain in the environment which constructed the Solaris zone, please set up the priority of virtual L-Server which constructed the Solaris zone on the guest domain to become higher than the priority of virtual L-Server constructed on the Solaris zone. In addition, since it is carrying out using the function of virtual products, when power supply operation failed, please carry out power supply operation of the electric power control again to each L-Server.

Please assign many resources to a guest domain by specification change of virtual L-Server rather than the resources of all the non global zone constructed on the Solaris zone.

When resources fewer than the resources of all the non global zone constructed on the Solaris zone are assigned, the following phenomena may occur.

- It becomes impossible to start non global zone
- The performance of non global zone deteriorates

Saving of VM guest(s) configuration

From this product, when the following operations are performed to VM guest / L-Server, it is necessary to save configuration at a service processor.

- Power Control(ON/OFF/OFF(Forced)/Reboot/Reboot(Forced))

When using function of auto saving of vm guest configuration, VM guest configuration is maintain after reboot/force reboot is executed.

The reason used as the above-mentioned operation is that saving of vm guest(s) configuration is executed by change of a VM guest / L-Server's state.

- Migration
- Modification of CPU num an memory size
- Adding / removing disk

When the following operations for guest domain are performed from control domain.

- Creation / removing of guest domain
- Binding / unbinding resources
- Starting / stopping of guest domain
- Modification of VCPU's num and memory size of guest domain
- Adding / removing virtual disk to guest domain
- Migration of guest domain

In this product, VM guest(s) configuration is saved after above-mentioned operation.

When saving vm guest(s) configuration manually, please set definition value to false in definition file indicated in "[C.8.1 Creating Definition Files](#)" and execute command of "ldm add-spconfig" in control domain.

When using function of auto saving of VM guest(s) configuration, be careful of the following points.

- Since autosave of configuration is performed when change is detected in the renewal of a commuter's ticket of a server, after operation is completed before composition information is saved, a time lag produces it.

Moreover, also when change operation of a state and configuration to a guest domain is directly performed on VM host, in order for the renewal of a commuter's ticket of a server to detect change, autosave of the configuration is carried out.

However, since there will be a time lag by the time configuration is saved, when operating a guest domain directly on VM host, we repeat autosave of configuration and recommend you to save composition information manually.

- When VM guest / L-Server which carried out migration are detected, configuration saving is performed by the moved material and VM host of a movement place.

In the autosave of configuration, this product overwrites the newest configuration at the configuration on a [current] state.

- When factory-default is chosen as configuration for updating, this product do not save configuration (when factory-default is in [current] or the [next poweron] state).
- With this product, since the newest configuration is saved temporarily, this product create the composition information on the name of config_tmp.

Therefore, please do not create the configuration named config_tmp.

- Although configuration can be saved a maximum of eight pieces including factory-default in FUJITSU M10, in order to create the configuration of config_tmp temporarily, please create the configuration only to seven pieces including factory-default with this product.
- A single quote (') cannot be used for a configuration name. This product do not save configuration, when a single quote (') is contained in the name of the composition information used as the candidate for updating.
- For specification of OVM for SPARC, this product cannot save configuration during execution of migration. Therefore, when migration is performed continuously, configuration is not saved until the migration performed at the end is completed.
- If operation to preservation and VM host of configuration is performed simultaneously, preservation of configuration may go wrong. In that case, since the message of the message number 41127 is outputted to an event log, please resave configuration.

For detail on how to restore configuration, refer to "3.1.1 411XX Series" in the "Messages".

CPU Dynamic Resource Management

When modifying CPU value of virtual L-Sever in this product, CPUs is allocated per core.

So, the function of CPU Dynamic Resource Management becomes impossible to use (*).

When using CPU Dynamic Resource Management, it is necessary to set up CPU per thread in control domain.

If the calculation of usage charges is enabled, the usage charge for CPUs will be calculated based on the number of CPUs changed dynamically by CPU Dynamic Resource Management.

*Note: The function of CPU Dynamic Resource Management makes the number of CPUs change dynamically per thread. When CPUs is allocated per core, it is impossible to change number of CPUs per thread. So, the function of CPU Dynamic Resource Management becomes impossible to use. For details, refer to manual of OVM for SPARC.

Sharing disks

The domain and virtual L-Server after the 2nd set that is sharing the disk cannot be linked at the following compositions.

- Disks other than the system disk shared between two or more domains are registered to the virtual disk service.

C.9 Citrix XenServer

This section explains how to configure Citrix XenServer as server virtualization software.

C.9.1 Creating Definition Files

This section explains how to create definition files.

For definition files common to virtual L-Servers, refer to "[Chapter 8 Creating Definition Files](#)".

This section explains the definition files specific to Citrix-Xen.

For manager and guest OS that support the customization function, refer to "[C.9.12 Customization function of guest OS](#)".

Guest OS Customization Definition File

When the customization function of guest OS is used, the following definition files are set.

Location of the Definition File

[Windows Manager]
Installation_folder\SVROR\Manager\etc\customize_data

Definition File Name

os_customize_citrixxen.rcxprop

Definition File Format

The definition file describes the item defined every one line. Each line is described in the form of the following.

Key = Value

When the same key is described to two or more lines, the definition of the line described at the end becomes effective.

Definition File Items

Key	Value	Description
Internet Protocol address of management LAN of resource pool name or mastering pool of Citrix XenServer	Storage repository name to store VCD	Describe the storage repository name to store VCD. Please specify, when you use customization of guest OS.

Note

- XenServer of the pool mastering on CitrixXen is described by one line.
- When the key corresponding to Internet Protocol address of the resource pool or the pool master of Citrix XenServer of the object does not exist in the definition file, it becomes an error.
- Use the UTF-8 character code for files.
- When the descriptions start with a "#", the string is regarded as a comment line.
- When two lines of Internet Protocol address of the pool master who belongs to the resource pool name and the resource pool in the definition file are defined, the line in which the resource pool name is defined becomes effective.
- The definition of the line described in the end becomes effective when there are two or more lines of Internet Protocol address of the same resource pool name or same pool master.
- Equal sign ("="), underscore ("_"), and single quotation (') cannot be used for the resource pool name and the storage repository name.

Customizable OS type definition file

When using the customization function of guest OS, define a customizable OS type in the following definition files.

Location of the Definition File

[Windows Manager]
Installation_folder\SVROR\Manager\etc\customize_data

Definition File Name

customizable_os_type_citrixxen.rcxprop

Definition File Format

A customizable OS type definition file is described every one line by the following formats.

OS Type

- OS type describes OS type of the VM guest of XenServer.
- When the descriptions start with a "#", the string is regarded as a comment line.
- disregard the nul line.
- Use the UTF-8 character code for files.
- OS type treats everything from the head to the line feed code as one name every one line.
- The specification of all lines becomes effective when there are two or more lines of the same OS type.

Point

OS type describes OS type of the template of XenServer.

OS type can be acquired in the following commands. Please refer to the product manual to which the website of the Citrix Co. corresponds for details.

```
>xe vm-param-get uuid=Template_UUID param-name=os-version param-key=name <RETURN>
```

Website of Citrix Co.

```
http://support.citrix.com/product/xens/
```

Conversion definition file of OS type

In Resource Orchestrator, it judges based on information that OS type (Windows/Linux) of L-Server is acquired from the VM product.

It is when OS information cannot be correctly acquired in a part of VM product, and might not be processed ROR correctly.

In detailed information on L-Server that uses Windows OS or Linux OS, when the character string of "Windows" or "Linux" is not included in OS type, it is possible to process it as a specified OS type by defining a part of OS information displayed in this definition file and a correct OS type name.

Client OS and server OS are judged from OS type information for Windows OS in ROR. Please define a correct OS type including the character string "Server" when server OS of Windows is used and OS information is not displayed correctly.

Location of the Definition File

```
[Windows Manager]
Installation_folder\SVROR\Manager\etc\customize_data
```

Definition File Name

```
convert_os_type.rcxprop
```

Definition File Format

The conversion definition file of OS type is described every one line by the following formats.

```
"OS type of detailed information on L-Server"="Correct OS type"
```

- OS type describes OS type of detailed information on L-Server.
- When the descriptions start with a "#", the string is regarded as a comment line.
- disregard the nul line.
- Use the UTF-8 character code for files.
- Only the line defined first becomes effective when there are two or more lines of same "OS type of detailed information on L-Server".
- "Correct OS type" specifies the alphanumeric character.
- Neither the capital letter nor the small letter described in "OS type of detailed information on L-Server" are distinguished.

- Moreover, it judges by a partial agreement with the character string described in "OS type of detailed information on L-Server".

Example

The example of the definition file is described as follows.

It is an example as follows when OS type "Microsoft" displayed in detailed information on L-Server is converted into OS type correct "Microsoft Windows Server 2008 Standard Edition".

```
"Microsoft"="Microsoft Windows Server 2008 Standard Edition"
```

C.9.2 Registering Resources with Resource Orchestrator

This section explains how to register resources with Resource Orchestrator.

When Using Blade Servers

1. Register VM Hosts as Storage Management Software

Register one of the VM hosts belonging to the pools on Citrix XenServer. It is not necessary to register all VM hosts which belong to the pools.

When registering VM hosts as storage management software, the storage repositories that were created in advance during storage pre-configuration are automatically registered with Resource Orchestrator as virtual storage resources.

Execute the rxcadm storagemgr command to register storage management software.

For details on the rxcadm storagemgr command, refer to "5.17 rxcadm storagemgr" in the "Reference Guide (Command/XML) CE".

2. Register Chassis

Refer to "5.4.1 Registering Chassis" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Register Managed Servers (within Chassis)

When registering managed servers, the storage repositories that were created in advance during pre-setup preparations are automatically registered in Resource Orchestrator as virtual storage resources. When the registered managed server is a Pool Master, the templates created in advance are automatically registered as virtual cloning images by Resource Orchestrator.

For details on how to register managed servers, refer to "5.4.2 Registering Blade Servers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

4. Register LAN Switch Blades

Refer to "5.4.3 Registering LAN Switch Blades" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

To register a network resource, specify a network pool when creating the network resource.

For details, refer to "Chapter 14 Registering Resources in Resource Pools" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

When Using a Server other than a Blade Server

1. Register VM Hosts as Storage Management Software

Register one of the VM hosts belonging to the pools on Citrix XenServer. It is not necessary to register all VM hosts which belong to the pools.

When registering VM hosts as storage management software, the storage repositories that were created in advance during storage pre-configuration are automatically registered with Resource Orchestrator as virtual storage resources.

Execute the rxcadm storagemgr command to register storage management software.

For details on the rcxadm storagemgr command, refer to "5.17 rcxadm storagemgr" in the "Reference Guide (Command/XML) CE".

2. Register Managed Servers

When registering managed servers, the storage repositories that were created in advance during pre-setup preparations are automatically registered in Resource Orchestrator as virtual storage resources. When the registered managed server is a Pool Master, the templates created in advance are automatically registered as virtual cloning images by Resource Orchestrator.

For details on how to register managed servers, refer to "5.5.1 Registering Rack Mount or Tower Servers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Register LAN Switches

Refer to "5.13 Registering LAN Switches" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

To register a network resource, specify a network pool when creating the network resource.

For details, refer to "Chapter 14 Registering Resources in Resource Pools" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.9.3 Registering Resources in Resource Pools

This chapter explains the registration of resources to resource pools.

For details on the resources that require registration, refer to "[Chapter 12 Registering Resources to the Global Pool](#)".

Use the following procedure to register a resource to a resource pool:

1. Register VM Host Resources

- a. In the ROR console orchestration tree, right-click the target VM pool, and select [Register Resources] from the popup menu.

The [Register Resources] dialog is displayed.

- b. Select the VM host to register.

- c. Click <OK>.

For details, refer to "14.1 VM Host Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".



Register all VM hosts in the resource pool on Citrix XenServer as managed servers on Resource Orchestrator. Register such VM hosts in all VM pools.

2. Register Storage Resources

Register the virtual storage resources used when creating virtual L-Servers in the resource pool.

For details, refer to "14.5 Storage Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

When using Thin Provisioning, configure the settings as follows:

When registering an NFS storage repository as a virtual storage resource registered in a storage pool with Thin Provisioning attributes set, the amount of space of virtual storage is calculated as Thin Provisioning.

For how to set Thin Provisioning attributes for a storage pool, refer to "20.2 Creating" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

For details on the display of available free space of storage pools and the calculation method for free space, refer to "20.6 Viewing" in the "User's Guide for Infrastructure Administrators (Resource Management) CE". Replace "VMware datastore" with "Citrix XenServer storage repository".

Note

When registering a NFS storage repository as a virtual storage resource in a storage pool without Thin Provisioning attributes set, as calculation is performed assuming that the necessary amount of space has been allocated, the amount of available space is less than the actual free space.

When registering a storage repository other than NFS as a virtual storage resource registered in a storage pool with Thin Provisioning attributes set, secure the necessary space, and allocate the disk resources to an L-Server.

3. Register Network Resources
4. Register Network Device Resources
5. Register Address Set Resources

When using Citrix XenServer, it is necessary to register MAC addresses in the address pool. As the management for availability of VM guest MAC addresses is limited (only the uniqueness in resource pools of Citrix XenServer is managed), it is necessary to manage MAC addresses using Resource Orchestrator.

6. Create templates as virtual cloning images for use in Resource Orchestrator

Create a template with an OS installed. Perform the following procedure:

- a. Create a new VM guest
- b. Install an OS on the VM guest created in step a.
- c. Install XenServerTools
- d. Create a template from the created VM guest

7. Register Virtual Image Resources

Register the virtual image resources used when creating virtual L-Servers in the resource pool.

For details, refer to "14.7.1 Virtual Image Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Point

The information for virtual image resources is obtained from Citrix XenServer Pool Masters registered with Resource Orchestrator. If Pool Masters have not been registered, register the Pool Masters as VM hosts. Wait a couple of minutes and then perform the registration operation again.

When the customization function of the VM guest is used, the following procedures in addition to the above-mentioned procedure are necessary.

1. Making of storage repository of Citrix XenServer

The Windows shared folder registered in the storage repository and the storage repository of Citrix XenServer that becomes the storage location of the VCD medium is made.

Please refer to "[Storage Repository of XenServer](#)" of "[C.9.12 Customization function of guest OS](#)" for details.

2. To use making customization function of the definition file to use the customization function, the following definition files are made.

- Guest OS customization definition file
- Customizable OS type definition file

Please refer to "[C.9.1 Creating Definition Files](#)" for details.

3. Creating of L-Server

L-Server is made by L-Server making about the relation or the image specification for L-Server.

4. Installation of customization tool

The customization tool is installed on guest OS of made L-Server.

Please refer to "[Introduction and deletion of customization tool](#)" of "[C.9.12 Customization function of guest OS](#)" for details of the installation procedure.

5. The cloning image is gathered for the collection customization

specification of the cloning image for customization.

At this time, the kind of the system of guest OS who specifies it is confirmed according to the following procedures.

- a. Guest OS is logged in.
- b. The kind of the system is confirmed.

C.9.4 Manual Network Configuration

ROR provides the function for connection with virtual NICs, for the network created on XenServer.

Manually perform network settings on XenServer. Use a different VLAN ID for each network on XenServer to connect the network created on XenServer with virtual NICs. Additionally, the following settings must be performed in advance.

1. Create a XenServer Network

The network must be created on the VM host, in order to connect the L-Server to the network.

Create a network with the same name (the name is case-sensitive) for all VM hosts comprising the cluster. This enables migration of VM guests between VM hosts.

When configuring the XenServer network, if using a server virtualization software other than Citrix XenServer with the same manager, set a different name from the name used for a virtual switch, a virtual network, or a virtual bridge on the other server virtualization software.

For details on how to create a network on XenServer, refer to the Citrix XenServer manual.

2. Configure Network Communication on XenServer

Right-click the LAN switch in the server resource tree, and select [Modify]-[Network Settings] from the popup menu.

Configure LAN switches to enable communication using the tagged VLAN between networks created on XenServer using the same name.

The ROR console can be used for VLAN configuration of LAN switch blade external ports.

For details, refer to "5.4.4 Configuring VLANs on LAN Switch Blades" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Define the Supported Network Created on XenServer and the VLAN ID

Define the supported network created on XenServer and VLAN IDs in the virtual network definition file for Resource Orchestrator.

For details on definition file format, refer to "[File Format for Virtual Network Definitions](#)".

4. Create Network Resources

- From the GUI:

Create network resources using the VLAN IDs specified in steps 2 to 3. In the [Create a network resource] dialog, check the [Use configured virtual switches.] checkbox.

- From the Command-line:

- a. Create the XML file that defines network resources. Define the VLAN ID specified in steps 2 and 3 in the XML file. In this case, specify auto="false" in the Network element.

- b. To create the network resource, execute the rxcadm network create command specifying the XML file created in step a.

For details on the rxcadm network command, refer to "3.9 rxcadm network" in the "Reference Guide (Command/XML) CE".

For details on the Network element, refer to "15.5 Network Resources" in the "Reference Guide (Command/XML) CE".

File Format for Virtual Network Definitions

Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvnr/customize_data

Definition File Name

vnetwork_citrixxen.rcxprop

Definition File Format

Describe the virtual network definition file in one line as below:

```
"Network Name Created on XenServer"=VLAN ID
```

For the *VLAN ID*, a value from 1 to 4094 can be specified.



Example

```
"MyVMNetwork"=10
```

- Blank spaces before and after equal signs ("=") are ignored.
- Describe the network correctly, as the entry is case-sensitive.
- Save files using the UTF-8 character code.
- When there are multiple lines with the same network name, all specified lines are valid.
- When the same VLAN ID is included in a line with a different network name, the first occurrence in the file is used and the lines after it are ignored.
- An error occurs during L-Server creation if the definition of the VLAN ID of the specified network resource cannot be found.

C.9.5 Creating L-Server Templates

This chapter explains how to create an L-Server template.

L-Server templates can be created using the following methods.

- Using the Wizard GUI

L-Server templates can be created using a GUI in the wizard format.

For details on the GUI in the wizard format, refer to "15.1 Operations Using the Wizard GUI" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- Manually

Use the following procedure to create an L-Server template:

1. Export an L-Server Template

The sample L-Server templates provided with Resource Orchestrator can be exported.

Refer to "15.2.1 Export" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Edit an L-Server Template

The L-Server template output in step 1 can be edited with an editor, etc.

For details on L-Server templates for virtual L-Servers, refer to "Virtual L-Server Templates".

3. Import an L-Server Template

Refer to "15.2.3 Import" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.9.6 Creating an L-Server

This section explains the creation of L-Servers.

Use the following procedure to create L-Servers:

- Create an L-Server Using an L-Server Template

Create an L-Server, referring to "16.1 Creation Using an L-Server Template" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- Create an L-Server Specifying Individual Specifications

Refer to "16.3 Creation of Virtual L-Servers Using Parameters" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".



The following operations for L-Server creation are not supported:

- Creation of a virtual L-Server without a cloning image specified
- Creation of a virtual L-Server with cloning images including data disks specified

Manual OS Installation

Install the operating system after creating an L-Server.

C.9.7 Collecting and Registering Cloning Images

Use the following procedure to collect cloning images:

After installing an OS, stop the target L-Server.

1. On the ROR console, right-click the target L-Server in the orchestration tree, and select [Cloning]-[Collect] from the popup menu.
2. Click <OK>.

A given cloning image (identified by its name attribute) can be managed by image version.

If a cloning image is created using VM management software, it can be used as is.

Refer to "17.5.1 Collecting and Registering" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".



In Resource Orchestrator, use Citrix XenServer templates as virtual image resources. However, templates without disks cannot be used as virtual image resources, which is the same as the templates provided by default.

Install OSs and XenServerTools on templates.

C.9.8 [OS] Tab Configuration

Enter the parameters to set for the OS when creating the L-Server. This setting is valid only if an image is specified in the [General] tab.

The setting process is performed the first time the L-Server is started. If an image name is not specified, it is not necessary to enter all these items.

Table C.25 List of Settings

Item	Windows		Description
	Necessity of Entry	Values When Omitted	
Host name/ Computer name	Possible	L-Server Name	Enter the host name or computer name. Enter a character string beginning with an alphanumeric character and containing up to 15 alphanumeric characters and hyphens ("-"). The string cannot be composed solely of numbers. If underscores ("_") or periods (".") are used in an L-Server name, they will be replaced with hyphens ("-"), because these characters cannot be used for host names or computer names. If the basic information is not specified, the L-Server name is converted and set as indicated above.
Domain name	Possible	WORKGROUP (*)	Enter the workgroup name. Settings for participation in a domain cannot be made. Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters, hyphens ("-"), and periods (".").
DNS search path	Not Required	-	Even if the DNS search path is specified, it is not configured in the guest OS.
Full name	Not Required	-	Even if the full name is specified, it is not configured in the guest OS.
Organization name	Not Required	-	Even if the organization name is specified, it is not configured in the guest OS.
Product key	Essential	-(*)	Omission not possible. Ensure that you specify a valid product key
License mode	Not Required	-	Even if the license mode is specified, it is not configured in the guest OS.
Maximum number of connections	Not Required	-	Even if the maximum number of connections is specified, it is not configured in the guest OS.
Administrator password	Possible	-(*)	Enter the same password as that specified for the local administrator account during L-Server creation. When specifying a new password, the local administrator account will be overwritten. Enter the password using between 1 and 128 alphanumeric characters or symbols.
Hardware clock configuration	Not Required	-	Even if the hardware clock configuration is specified, it is not configured in the guest OS.
Time zone	Possible	The same time zone as the OS of the manager	Specify the time zone of the OS.

* Note: When the value is specified in the OS property definition file, its values are configured.

Information

OS Property Definition File

By setting the default values in an OS property definition file in advance, the default values of the information on the [OS] tab, etc. are generated when creating an L-Server.

For details, refer to "C.1.8 OS Property Definition File".

Information

VM Guest Administrator Account Settings Necessary When Creating an L-Server with an Image Specified

When creating an L-Server with an image specified, it is necessary to enter the "administrator password" as a parameter.

The entered "administrator password" is the one set for the Administrator of the built-in administrator account, but on some localized editions of Windows the account name may differ. In addition, when the client OS is Windows 7 or Windows Vista, on standard installations the built-in administrator account is disabled, and the user account created during installation becomes the administrator account.

When an L-Server is created with a cloning image that was collected from a localized edition of Windows or a client OS specified, it is necessary to either configure an administrator account for the administrator and set a password, or change the name of the administrator account with the "Administrator password" so that it fits the description given in the definition file below.

Note that when using a definition file, it is not possible to define different administrator ID settings for different versions of images.

Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

Definition File Name

The definition file name can be used by dividing into definitions that are available for each user group and definitions that are common to the system. Search the definition file of each user group, from the start, for the administrator name corresponding to the image. When there is no corresponding definition, search in the system's common definition file.

Modification of the definition file is soon reflected, and it becomes valid for the creation of L-Servers from that point.

- For User Groups

image_admin_citrixxen_user_group_name.rcxprop

- Common on System

image_admin_citrixxen.rcxprop

Definition File Format

In the definition file, describe the image name and account name for which the administrator password has been configured on a single line.

```
Image_name = "Administrator_account_name"
```

The Administrator_account_name is displayed enclosed in double quotes (").

Blank spaces and tabs other than those in the Administrator_account_name are ignored.

It is possible to use an asterisk ("*") as a wildcard in image names. By specifying an asterisk ("*") it is possible to create substitute strings for strings of indefinite length.

When creating an L-Server from an image, the corresponding image name is searched for from the start of the definition file, and the specified "Administrator password" will be set for the specified administrator account name.

It is necessary to create the definition files using the following line break code and character codes:

- Line Break Code

CR+LF(0x0d0a)

- Character Code

Shift-JIS in a Japanese environment, UTF-8 in other environments

Example

An example definition file is indicated below.

- Image names and administrator account names are set in pairs.

```
FR_WIN2003_001 = "Administrator"  
EN_WIN7_001 = "root"  
EN_WIN7_002 = "admin"
```

- For image names that start with "FR_WIN", use "Administrator" as the name of the administrator account.

```
FR_WIN* = "Administrator"
```

- Use "Administrator" as the name of the administrator account for all images. When an image name is specified using only a wildcard, the definition after that line will be ignored.

```
* = "Administrator"
```

C.9.9 Relating to an L-Server

For details on how to link to an L-Server, refer to "Chapter 18 Linking L-Servers with Configured Physical Servers or Virtual Machines" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.9.10 Advisory Notes for Citrix XenServer Usage

Resource Pools on Citrix XenServer

Register all VM hosts in the resource pool on Citrix XenServer as managed servers on Resource Orchestrator. Register such VM hosts in all VM pools.

Templates Used as Virtual Image Resources

In Resource Orchestrator, use Citrix XenServer templates as virtual image resources. However, templates without disks cannot be used as virtual image resources, which is the same as the templates provided by default.

Install OSs and XenServerTools on templates.

Device 2 and 3 of a VM Guest

Devices 2 and 3 of VM guests are not used for disks as they are used for CD/DVD drives. When operating Citrix XenServer directly and connecting to device 2 or 3, they will be detected as unmanaged disks.

When importing the VM guest to a virtual L-Server, disk operations (addition or deletion) cannot be performed for the virtual L-Server.

Moreover, please do not use device 2 of the specified cloning image when creating virtual L-Server by using the customizing function of guest OS.

When creating the image (template) with the VM management product

Do not use single quotation (') for the image name.

Corresponding Terms Related to Memory in Resource Orchestrator and Citrix XenServer

The relationship of the terms related to memory in Resource Orchestrator and Citrix XenServer is as follows:

Virtual L-Server Parameters for Resource Orchestrator	VM Guest Parameters for Citrix XenServer
Maximum memory size	Maximum static memory size (memory-static-max)
Memory size	Maximum dynamic memory size (memory-dynamic-max)
Memory Reservation Capacity	Minimum dynamic memory size (memory-dynamic-min)
None	Minimum static memory size (memory-static-min)

Memory Size when Creating an L-Server

When creating an L-Server in Resource Orchestrator, configure the same value as the Citrix XenServer VM guest for the maximum dynamic memory size. Configure 0 for the minimum static memory size. When changing the maximum dynamic memory size, or the minimum static memory size, operate Citrix XenServer directly, and modify the settings.

Maximum Number of CPUs when Creating an L-Server

In Resource Orchestrator, when creating an L-Server, configure the same values for the maximum number of CPUs as the already specified number of CPUs. When changing the maximum number of CPUs, operate Citrix XenServer directly, and modify the settings.

VM Guest Home Server Configurations

When using Citrix XenServer, while VM guests are powered off, they are not managed by a specific VM host. Therefore, in Resource Orchestrator the VM host used to manage powered off VM guests is determined based on the Home Server settings. When Home Server settings are not configured, if a VM guest is powered off, it will not be managed by Resource Orchestrator.

Then, the status of virtual L-Servers related to a VM guest will become unknown, and operations other than deletion cannot be performed. Power on the VM guest using Citrix XenServer, check that the virtual L-Server status returns to normal, and then perform the operation again.

High Availability Functions of Citrix XenServer

When using a resource pool, high-availability should be enabled for that resource pool.

If high-availability is not enabled, and the pool master become unreachable, Resource Orchestrator will not be able to control or get information from the VM hosts and VM guests placed in that resource pool. If VM guest statuses become out-of-date, or operations on VM hosts or VM guests fail, check the status of the pool master. If the pool master is not reachable, resolve any communication problem that may prevent the manager from communicating with it (if necessary, change the pool master to another VM host).

For details, refer to the manual of server virtualization software.

VM Maintenance Mode

With Citrix XenServer, a VM host assigned as a pool master cannot be put into maintenance mode.

To put such a VM host into maintenance mode, the pool master role should first be assigned to a different VM host (within the same resource pool).

The Windows shared folder used by the customizing function of guest OS

Resource Orchestrator operates by the System account. Therefore, when create the Windows shared folder for servers other than the server that installs Resource Orchestrator. Can access the shared folder by the System account.

C.9.11 Overcommit

This section explains the overcommit function for L-Servers.

Overcommit

The Citrix-Xen overcommit function for the CPU and memory is available on Resource Orchestrator.

The Citrix-Xen overcommit function for the CPU and memory virtually allows a guest OS to use more resources than that of the actual CPU and memory of a server.

Resource Orchestrator provides the following functions to utilize the Citrix-Xen overcommit function when creating L-Servers.

- Setting an overcommit attribute for a resource pool

Overcommit attributes can be set for resource pools. If an L-Server template with the overcommit attribute configured is used, an L-Server with the overcommit attribute configured can be created by selecting the resource from the resource pool with overcommit configured.

- Deployment of L-Servers with more resources than those of the server

Creation of an L-Server with more resources than that of the actual CPU or memory installed on a server is possible.

Whether the resulting L-Server can be started depends on the resources available on the VM host.

Installation Procedure

1. Create a VM Pool for Overcommit

For details on how to create a VM pool, refer to "Chapter 20 Resource Pool Operations" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".



Point

Refer to the "Point" described in "1. Create a VM Pool for Overcommit" in "Installation Procedure" in "C.2.11 Overcommit".



Note

Refer to the "Note" described in "1. Create a VM Pool for Overcommit" in "Installation Procedure" in "C.2.11 Overcommit".

2. Create a VM Specific Information Definition File

Create a VM specific information definition file. Create a VM specific information definition file when configuring different settings for individual user groups without configuring overcommit settings on the L-Server template.

For VM specific information definition files, refer to "C.1 Definition Files Commonly Shared when Creating Virtual L-Servers".

For details on how to edit the L-Server template, or create and check an L-Server, perform the operations of step 3 and later described in "C.2.11 Overcommit". Since the values that can be configured in the L-Server template or the VM specific information definition files as described in the reference differ depending on the VM types, replace the values with ones for Citrix-Xen.

C.9.12 Customization function of guest OS

Here, it explains the customization function of guest OS of Citrix Xen.

In Citrix Xen, guest OS customizes, uses the function of original ROR because it does not function, and guest OS is customized. The customization function of guest OS controls Sysprep with the customization tool installed on VM guest OS and is achieved.

The following ROR managers and guest OS can use this function.

When the customization function is executed by ROR manager and guest OS outside the support, it becomes an error.

Target	Support Scope
Manager	Refer to "Table 2.10 [Windows Manager]" in "2.4.2.1 Required Basic Software" in the "Design Guide CE".

Target	Support Scope
Guest OS	Microsoft(R) Windows Vista(R) Microsoft(R) Windows(R) 7 Microsoft(R) Windows(R) 8 Microsoft(R) Windows Server(R) 2008 Microsoft(R) Windows Server(R) 2008 R2 Microsoft(R) Windows Server(R) 2012

 **Note**

When Microsoft Windows Server 2008 of an English version is used for guest OS, OS name might not be able to be acquired correctly. It comes to be able to be set that it becomes a correct OS type because the conversion definition file of OS type is used.

Principle of operation of customization function

The customization function is achieved by using the customization tool. The customization tool is Windows service that operates by guest OS, and Sysprep of Windows OS and the mini setup are controlled according to the instruction of virtual CD image file (VCD medium) connected by the VM guest. This VCD medium is made by ROR.

The customization tool is controlled as follows.

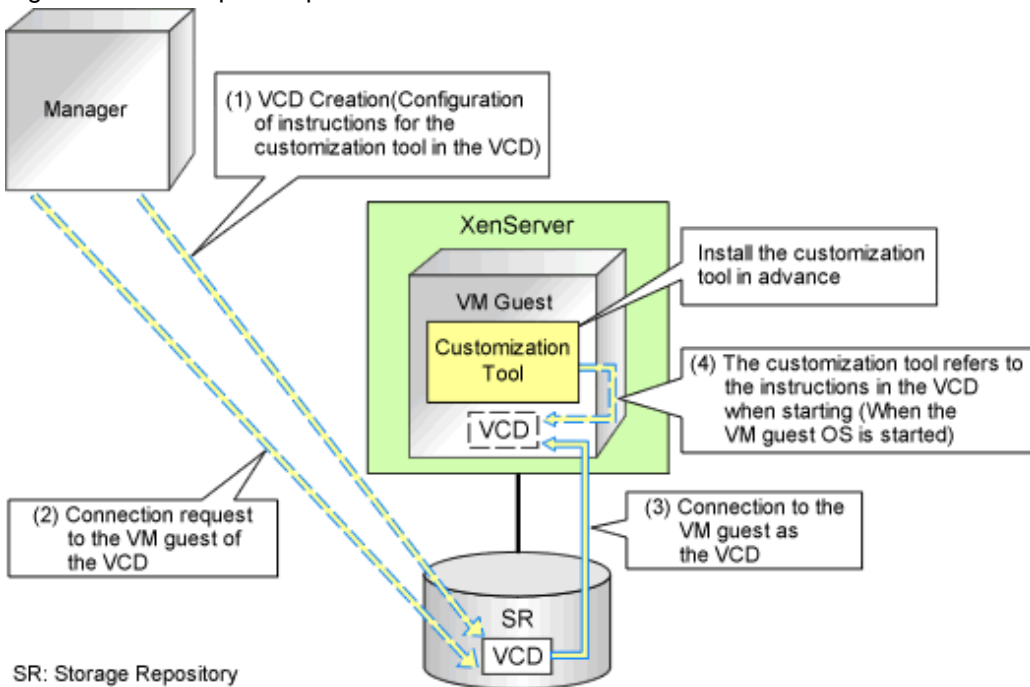
- Control of Sysprep of Windows OS

When the cloning image is gathered, Sysprep is controlled by the VCD medium.

- Control of mini setup of Windows OS

Processing related to the mini setup of Windows OS is controlled as customization information is passed through the VCD medium when L-Server of the image specification is made.

Figure C.11 Principle of operation of customization function



VCD medium

The VCD medium is automatically made for the storage repository of XenServer by ROR, and connected by the VM guest. Therefore, it is necessary to create the storage repository and the definition file of XenServer beforehand.

For details on the definition file, refer to "[C.9.1 Creating Definition Files](#)".

Storage Repository of XenServer

It is a storage place of the VCD medium. When the customization function is used, it is necessary to create it beforehand.

Please create the storage repository noting the following points.

- The storage repository is made for the resource pool or one pool mastering on Citrix XenServer.
- Specify the Windows shared folder for the storage location by the ISO form about the kind of the storage repository.
- Create one shared folder of each storage repository.
- Create the shared folder for the environment that the server that installs the ROR manager can access.
- Create the access authority of the shared folder reading/writing (Read/Write) authority of the management account of Resource Orchestrator.
- Please refer to the product manual to which the website of the Citrix Co. corresponds for details of the making method.

Website of Citrix Co.

<http://support.citrix.com/product/xens/>

Service name of customization tool

When the customization tool is installed, service is registered by guest OS by the following names.

Resource Orchestrator windows guest customize tool

Introduction and deletion of customization tool

It explains the procedure of the installation and the uninstallation of the customization tool.

- Installation of customization tool
 - Copy the customization tool onto a suitable folder on the guest.

Copy *Tool_Storage_Folder* of the ROR manager onto *Folder_Name_At_Copy_Destination* on the guest of each folder. The *Tool_Storage_Folder* is the following.

[Windows Manager]

Installation_folder\SVROR\Manager\opt\FJSVrcxmr\sys\winguestcustomizetool

The folder name becomes c:\temp\winguestcustomizetool when the copy destination is assumed to be C:\temp at the copy destination.

- Start the command prompt by the manager authority of the local.
- Change Current to the installation folder.

```
>cd Folder_Name_At_Copy_Destination <RETURN>
```

1. Installation of customization tool

```
>winguesttool.exe -install <RETURN>
```

2. After the installation completion is done, delete *Folder_Name_At_Copy_Destination*.


```
>rmdir /s Folder_Name_At_Copy_Destination <RETURN>
```

- Uninstallation of customization tool

1. Start the command prompt by the manager authority of the local.
2. Change Current to the installation folder.

```
>cd "%ProgramFiles%\Fujitsu\Resource Orchestrator\WinGuestCustomizeTool" <RETURN>
```

3. Uninstallation of customization tool

```
>cd winguesttool.exe -remove <RETURN>
```

4. Delete installation folder of customization tool

When uninstallation ends normally, delete the following folders.

```
>rmdir /s "%ProgramFiles%\Fujitsu\Resource Orchestrator\WinGuestCustomizeTool" <RETURN>
```

Besides, if neither service nor the tool are installed, delete the following folders.

```
>rmdir /s "%ProgramFiles%\Fujitsu\Resource Orchestrator" <RETURN>  
>rmdir /s "%ProgramFiles%\Fujitsu" <RETURN>
```

C.10 OVM for x86 3.2

This section explains how to configure OVM for x86 3.2 as server virtualization software.

C.10.1 Creating Definition Files

This section explains how to create definition files.

For definition files common to virtual L-Servers, refer to "[Chapter 8 Creating Definition Files](#)".

The definition files specific to OVM for x86 3.2 are as follow:

SSL Port Specification Methods for VM Management Software

The SSL port of Oracle VM Manager is set in the following definition file. When the VM management software is started from the management console, this is used.

This is indispensable in Oracle VM Manager V3.2.1.

Use the UTF-8 character code for definition files.

Location of the Definition File

```
[Windows]  
Installation_folder\Manager\etc\customize_data
```

```
[Linux]  
/etc/opt/FJSVrcvmm/customize_data
```

Definition File Name

```
ovmm.rcxprop
```

Definition File Format

The definition file is entered in the following format.

```
Key = Value
```

Definition File Items

Specify the following items in a definition file. Other key specifications will be ignored.

List of Items

Item	Key	Value	Remarks
Enable/Disable SSL	SSL	" <i>vmm_ip[:port][,vmm_ip[:port]]...</i> " <i>vmm_ip</i> : IP address of VM management software <i>port</i> : Port number of VM management software	If the port number is omitted, the default port number (7002) is set.

Example Definition File

An example definition file is indicated below.

```
# Oracle VM Manager
ssl = 192.168.2.2:7002,192.168.2.3:7002
```

C.10.2 Registering Resources with Resource Orchestrator

This section explains how to register resources with Resource Orchestrator.

When Using Blade Servers

1. Register VM Management Software

When registering VM management software, the storage repositories that were created in advance during pre-setup preparations, are automatically detected by Resource Orchestrator as virtual storage resources. The templates created in advance are automatically detected as virtual cloning images by Resource Orchestrator.

For details on how to register VM management software, refer to "5.2 Registering VM Management Software" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Register Chassis

Refer to "5.4.1 Registering Chassis" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Register Managed Servers (within Chassis)

For details on how to register managed servers, refer to "5.4.2 Registering Blade Servers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

4. Register LAN Switch Blades

Refer to "5.4.3 Registering LAN Switch Blades" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

To register a network resource, specify a network pool when creating the network resource.

For details, refer to "Chapter 14 Registering Resources in Resource Pools" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

When Using a Server other than a Blade Server

1. Register VM Management Software

When registering VM management software, the storage repositories that were created in advance during pre-setup preparations, are automatically detected by Resource Orchestrator as virtual storage resources. The templates created in advance are automatically detected as virtual cloning images by Resource Orchestrator.

For details on how to register VM management software, refer to "5.2 Registering VM Management Software" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Register Managed Servers

For details on how to register managed servers, refer to "5.5.1 Registering Rack Mount or Tower Servers" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Register LAN Switches

Refer to "5.13 Registering LAN Switches" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

To register a network resource, specify a network pool when creating the network resource.

For details, refer to "Chapter 14 Registering Resources in Resource Pools" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.10.3 Registering Resources in Resource Pools

This chapter explains the registration of resources to resource pools.

For details on the resources that require registration, refer to "[Chapter 12 Registering Resources to the Global Pool](#)".

Use the following procedure to register a resource to a resource pool:

1. Register VM Host Resources

- a. In the ROR console orchestration tree, right-click the target VM pool, and select [Register Resources] from the popup menu.

The [Register Resources] dialog is displayed.

- b. Select the VM host to register.
- c. Click <OK>.

For details, refer to "14.1 VM Host Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Register Storage Resources

Register the virtual storage resources used when creating virtual L-Servers in the resource pool.

For details, refer to "14.5 Storage Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Point

- Register storage repositories in which the image resources used for L-Server creation are stored as virtual storage resources.
- When registering multiple storage repositories accessible from VM hosts in server pools of Oracle VM Manager, it is recommended to register them in the same storage pool. It is recommended to register storage repositories shared with multiple server pools in Oracle VM Manager in the global pool.
- Perform configuration so that the virtual storage registered in the storage pool can be accessed from all VM hosts registered in the tenant.

The provisioning attributes of disk resources which are allocated during L-Server creation are as follows. However, the provisioning attributes are not displayed on the window.

- When automatically creating disk resources from virtual storage resources registered in a storage pool with Thin Provisioning attributes set, set the thin format and allocate the disk resources to a virtual L-Server.
- When automatically creating disk resources from virtual storage resources registered in a storage pool without Thin Provisioning attributes set, set the thick format and allocate the disk resources to a virtual L-Server.

For how to set Thin Provisioning attributes for a storage pool, refer to "20.2 Creating" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Register Network Resources

4. Register Network Device Resources

5. Create templates as virtual cloning images for use in Resource Orchestrator

Create a template with an OS installed. Perform the following procedure:

- a. Create a new VM guest
- b. Install an OS on the VM guest created in step a.
- c. When there is a Paravirtual (PV) Driver, install it
- d. Create a template from the created VM guest

6. Register Virtual Image Resources

Register the virtual image resources used when creating virtual L-Servers in the resource pool.

For details, refer to "14.7.1 Virtual Image Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.10.4 Manual Network Configuration

ROR provides the function for connection with the virtual NICs, for the virtual machine network created in advance.

Manually perform virtual machine network settings in advance. Use a different VLAN ID for each virtual machine network to connect the virtual machine network with virtual NICs. Additionally, the following settings must be performed in advance.

1. Create a Virtual Machine Network

The network must be created on the VM host, in order to connect the L-Server to the network.

The characters which can be used for the virtual machine network name are "alphanumeric characters (upper and lower case), numbers, and underscores ("_")".

Create a network with the same name (the name is case-sensitive) for all VM hosts comprising the cluster. This enables migration of VM guests between VM hosts.

When configuring the virtual machine network, if using a server virtualization software other than OVM for x86 3.2 with the same manager, set a different name from the name used for a virtual switch, a virtual network, or a virtual bridge on the other server virtualization software.

For details on how to create a virtual machine network on XenServer, refer to the OVM for x86 3.2 manual.

2. Configure the Virtual Machine Network Communication

Right-click the LAN switch in the server resource tree, and select [Modify]-[Network Settings] from the popup menu.

Configure LAN switches to enable communication using the tagged VLAN between virtual machine networks using the same name.

The ROR console can be used for VLAN configuration of LAN switch blade external ports.

For details, refer to "5.4.4 Configuring VLANs on LAN Switch Blades" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Define the Supported Virtual Machine Network and VLAN ID

Define the supported virtual machine network and VLAN IDs in the virtual network definition file for Resource Orchestrator.

For details on definition file format, refer to "[File Format for Virtual Network Definitions](#)".

4. Create Network Resources

- From the GUI:

Create network resources using the VLAN IDs specified in steps 2 to 3. In the [Create a network resource] dialog, check the [Use configured virtual switches.] checkbox.

- From the Command-line:

- a. Create the XML file that defines network resources. Define the VLAN ID specified in steps 2 and 3 in the XML file. In this case, specify auto="false" in the Network element.
- b. To create the network resource, execute the rcxadm network create command specifying the XML file created in step a.

For details on the rcxadm network command, refer to "3.9 rcxadm network" in the "Reference Guide (Command/XML) CE".

For details on the Network element, refer to "15.5 Network Resources" in the "Reference Guide (Command/XML) CE".

File Format for Virtual Network Definitions

Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvnr/customize_data

Definition File Name

vnetwork_ovmforx86.rcxprop

Definition File Format

Describe the virtual network definition file in one line as below:

```
"Virtual Machine Network Name Created on XenServer"=VLAN ID
```

For the *VLAN ID*, a value from 1 to 4094 can be specified.



Example

```
"MyVMNetwork"=10
```

- Blank spaces before and after equal signs ("=") are ignored.
- Describe the virtual machine network name correctly, as the entry is case-sensitive.
- Save files using the UTF-8 character code.
- When there are multiple lines with the same virtual machine network name, all specified lines are valid.
- When the same VLAN ID is included in a line with a different virtual machine network name, the first occurrence in the file is used and the lines after it are ignored.
- An error occurs during L-Server creation if the definition of the VLAN ID of the specified network resource cannot be found.

C.10.5 Creating L-Server Templates

This chapter explains how to create an L-Server template.

L-Server templates can be created using the following methods.

- Using the Wizard GUI

L-Server templates can be created using a GUI in the wizard format.

For details on the GUI in the wizard format, refer to "15.1 Operations Using the Wizard GUI" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- Manually

Use the following procedure to create an L-Server template:

1. Export an L-Server Template

The sample L-Server templates provided with Resource Orchestrator can be exported.

Refer to "15.2.1 Export" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Edit an L-Server Template

The L-Server template output in step 1 can be edited with an editor, etc.

For details on L-Server templates for virtual L-Servers, refer to "Virtual L-Server Templates".

3. Import an L-Server Template

Refer to "15.2.3 Import" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.10.6 Creating an L-Server

This section explains the creation of L-Servers.

Use the following procedure to create L-Servers:

- Create an L-Server Using an L-Server Template

Create an L-Server, referring to "16.1 Creation Using an L-Server Template" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

- Create an L-Server Specifying Individual Specifications

Refer to "16.3 Creation of Virtual L-Servers Using Parameters" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".



The following operations for L-Server creation are not supported:

- Creation of a virtual L-Server without a cloning image specified
- Creation of a virtual L-Server with cloning images including data disks specified
- Creation of a virtual L-Server with personalization specified and cloning images specified

Manual OS Installation

Install the operating system after creating an L-Server.

C.10.7 Collecting and Registering Cloning Images

Use the following procedure to collect cloning images:

After installing an OS, stop the target L-Server.

1. On the ROR console, right-click the target L-Server in the orchestration tree, and select [Cloning]-[Collect] from the popup menu.
2. Click <OK>.

A given cloning image (identified by its name attribute) can be managed by image version.

If a cloning image is created using VM management software, it can be used as is.

Refer to "17.5.1 Collecting and Registering" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.10.8 [OS] Tab

The [OS] tab cannot be configured in OVM for x86 3.2.

C.10.9 Relating to an L-Server

For details on how to link to an L-Server, refer to "Chapter 18 Linking L-Servers with Configured Physical Servers or Virtual Machines" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

C.10.10 Advisory Notes for OVM for x86 3.2 Usage

Allocation of Physical CPU (pin)

Physical CPUs are not allocated (pin) from Resource Orchestrator. When necessary, operate Oracle VM directly, and configure the settings. When a VM host which starts when powering on an L-Server is changed, it is recommended to configure "Fixed" for the L-Server boot location, as the physical CPU allocation settings will be cancelled.

Destination Storage Repository when Creating an L-Server

In Resource Orchestrator, when creating an L-Server using a virtual cloning image, the L-Server is created in the storage repository in which the virtual cloning image is stored.

Destination Storage Repository when Collecting Virtual Cloning Images

In Resource Orchestrator, when collecting virtual cloning images from an L-Server, the virtual cloning images are stored in the same storage repository as the L-Server.

Upgrading of Oracle VMs

In Resource Orchestrator, when managing Oracle VM V2.2 environments, if an Oracle VM server is upgraded to version V3.2.1, it cannot be managed as the same server. After registering the upgraded server as a new server, import and manage the existing VM guest as an L-Server.

Maximum Number of CPUs when Creating an L-Server

In Resource Orchestrator, when creating an L-Server, configure the same values for the maximum number of CPUs as the already specified number of CPUs. When changing the maximum number of CPUs, operate Oracle VM directly, and modify the settings.

Maximum Memory Size when Creating an L-Server

In Resource Orchestrator, when creating an L-Server, configure the same values for the maximum memory size as the already specified memory size. When changing the maximum memory size, operate Oracle VM directly, and modify the settings.

Specification of CPU Performance Values

When the value of less than 10% of CPU performance of a physical server is specified, it is rounded up to the value of 10%. Therefore, the value of 1GHz or more is recommended to be set.

Device 1 of a VM Guest

In Resource Orchestrator, device 1 of a VM guest is used as a CD-ROM drive. Configure device 2 or devices with later numbers as the data disks.

Name and Number of Detected Virtual Storage Resources

All virtual storage resources connected to VM hosts are detected.

The names of displayed virtual storage resources are the names of storage repositories displayed on Oracle VM Manager.

C.10.11 Overcommit

This section explains the overcommit function for L-Servers.

Overcommit

The OVM for x86 3.2 overcommit function for the CPU and memory is available on Resource Orchestrator.

The OVM for x86 3.2 overcommit function for the CPU and memory virtually allows a guest OS to use more resources than that of the actual CPU and memory of a server.

Resource Orchestrator provides the following functions to utilize the OVM for x86 3.2 overcommit function when creating L-Servers.

- Setting an overcommit attribute for a resource pool

Overcommit attributes can be set for resource pools. If an L-Server template with the overcommit attribute configured is used, an L-Server with the overcommit attribute configured can be created by selecting the resource from the resource pool with overcommit configured.

- Deployment of L-Servers with more resources than those of the server

Creation of an L-Server with more resources than that of the actual CPU or memory installed on a server is possible.

Whether the resulting L-Server can be started depends on the resources available on the VM host.

Installation Procedure

1. Create a VM Pool for Overcommit

For details on how to create a VM pool, refer to "Chapter 20 Resource Pool Operations" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".



Point

Refer to the "Point" described in "1. Create a VM Pool for Overcommit" in "Installation Procedure" in "C.2.11 Overcommit".



Note

Refer to the "Note" described in "1. Create a VM Pool for Overcommit" in "Installation Procedure" in "C.2.11 Overcommit".

For details on how to edit the L-Server template, or create and check an L-Server, perform the operations of step 3 and later described in "C.2.11 Overcommit". The values that can be configured in the L-Server template or the VM specific information definition files as described in the reference differ depending on the VM types. In OVM for x86 3.2, the values can only be specified when configuring overcommit in the L-Server template.

C.11 Ethernet Fabrics

This section explains how to configure Ethernet Fabrics as network devices.

C.11.1 Performing Preconfiguration

Perform preconfiguration for Ethernet Fabric switches, referring to "9.2.3 Settings for Managed Network Devices" in the "Design Guide CE".

C.11.2 Creating the Network Configuration Information

Create the network configuration information (XML definition), referring to "9.4.8.1 Creation of Network Configuration Information (XML definition)" in the "Design Guide CE".

C.11.3 Registering Network Devices

Use the `rcxadm netdevice` command to execute network device registration.

For details on the `rcxadm netdevice` command, refer to "3.8 rcxadm netdevice" in the "Reference Guide (Command/XML) CE".

C.11.4 Automatic Network Configuration

When using Ethernet Fabrics, the port profile migration function (hereinafter AMPP) can be used on virtual L-Servers. Resource Orchestrator supports VLAN as a parameter of AMPP. AMPP works with virtual L-Server migration and automatically migrates the port settings of the Ethernet fabric switch to the physical port of the Ethernet fabric switch adjacent to the migration target server.

When creating a network resource, a VLAN port profile is created for the Ethernet fabric with port profile configuration enabled.

The VLAN port profiles are created for the specified virtual fabrics (VFAB), if the VFAB are linked with the tenants when registering network devices. When linking is not performed, the profile is created for the default VFAB.

When creating a virtual L-Server, the NIC of the virtual L-Server is linked with the VLAN port profile. This configures a VLAN for the server connection port of the Ethernet fabric when the virtual L-Server on the migration target server performs communications.

C.11.5 Creating Definition Files for the Port Profile Configuration Function

When using the port profile manually configured on the relevant devices for the port profile configuration function used in Resource Orchestrator, refer to "9.4.8.4 Port Profile Configuration Function Definition Files" in the "Design Guide CE".Resource Orchestrator, refer to "9.4.8.4 Port Profile Configuration Function Definition Files" in the "Design Guide CE".

C.11.6 Registering Network Resources

When using an Ethernet Fabric, it is necessary to configure an external connection port for network devices. Configure the CIR port of the Ethernet Fabric as the external connection port.

Create network resources, referring to "14.3 Network Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Appendix D Installing VM Hosts on Physical L-Servers

This appendix explains how to install a VM host on a physical L-Server.

Installation of VM Hosts on physical L-Servers offers the following benefits:

- Simplified configuration of servers, storage, and networks

When installing a physical L-Server on a VM host, the following configurations can be simplified further than when installing a VM host on a physical server.

- Server configuration such as I/O virtualization
 - Storage configuration such as LUN masking
 - Network configuration such as LAN switch blades
- DR

In order to be able to perform DR of virtual L-Servers, it is necessary to install a VM host on a physical L-Server.



This function cannot be used in RHEL-KVM environments.

D.1 Installation

This section explains how to install a VM host on a physical L-Server.

1. Preparations for Physical L-Server Creation

For physical L-Server creation, configure the necessary settings.

For details, refer to the following:

- "D.2 Preparations for Servers" in the "Design Guide CE"
- "D.3 Storage Preparations" in the "Design Guide CE"
- "D.4 Network Preparations" in the "Design Guide CE"
- ["Appendix B Configuration when Creating Physical L-Servers"](#)

2. Create Resource Folders

Create a resource folder to locate physical L-Servers to install VM hosts on.

For details on how to create a resource folder, refer to "21.2 Creating" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".



In Basic mode, to prevent accidental deletion, create a resource folder for the physical L-Server on which the VM host will be installed, and configure it so that tenant administrators cannot access it.

For details, refer to "5.1 Restricting Access Using Roles" in the "Design Guide CE".

3. Create Physical L-Servers

Create a physical L-Server to install a VM host in the created resource folder.

For details on how to create a physical L-Server, refer to ["B.5 Creating an L-Server"](#).

Note

- Cloning images for a physical L-Server on which a VM host has been installed cannot be collected or deployed.
- Use the NIC for the public LAN of an L-Server with the status "not connected" without connecting network resources.

Point

If using Auto Deploy to create a VM host, perform the following procedures:

- Specify "Do not deploy" for "Image deployment".
- Specify "Network boot (PXE)" for "Boot mode".

4. Install a VM Host

Install a VM host on the created physical L-Server.

When using Auto Deploy to create a VM host, reserve the MAC address of the admin NIC and admin IP address for the physical L-Server on the DHCP server used with Auto Deploy and start the L-Server.

Specify the virtual MAC address configured on VIOM for the MAC address of the admin NIC.

For details, refer to the individual manuals of server virtualization software.

5. Install Agents

Install a Resource Orchestrator agent and ServerView Agents on a VM host.

If using Auto Deploy to create a VM host, this procedure is not necessary.

For details on installing agents, refer to "[2.2 Agent Installation](#)".

Point

When using VMware ESX, install Resource Orchestrator agents and ServerView for VMware agents.

When using VMware ESXi, install ServerView ESXi CIM Provider.

6. Configure a Network for VM Hosts

When performing auto-configuration for virtual switches during virtual L-Server creation, confirm that Resource Orchestrator is configured to support auto-configuration of networks beforehand.

For details, refer to "[C.2.4 Automatic Network Configuration](#)".

7. Register a VM Host

Registers a VM host with VM management software.

For details, refer to the individual manuals of server virtualization software.

8. Register VM Management Software

Register VM management software in Resource Orchestrator.

For details, refer to "5.2 Registering VM Management Software" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

9. Register Agents

Register an agent on the physical L-Servers the VM host will be installed on. Execute the following procedure to register agents.

- a. Right-click the target L-Server in the orchestration tree, and select [Register]-[Agent] from the popup menu.
- b. In the displayed "Register Agent" dialog, click <OK>.

10. Register Resources to a VM Pool

Register a VM host in a VM pool.

For details, refer to "14.1 VM Host Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

D.2 Changing Configuration

Configuration of VM hosts can be changed the same way as physical L-Servers.

Refer to "17.2 Modifying" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

D.3 Deletion

Execute the following procedure to delete a VM host.

1. Unregister the VM Host

Unregister the VM host from VM pools.

Refer to "19.4 Unregistration" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

2. Stop the VM Host

Stop the VM host.

Refer to "17.1.2 Stopping an L-Server" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

3. Delete Physical L-Servers

Delete the physical L-Server used for installation of the VM host.

Refer to "17.4 Deleting an L-Server" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

D.4 Advisory Notes for Installation of VM Hosts on Physical L-Servers

This section explains advisory notes when installing a VM host on a physical L-Server.

Collecting and Deploying Cloning Images

Cloning images cannot be collected or deployed.

When Using Auto Deploy to Create a VM Host

Backup and restore functions cannot be used for the created VM host.

When a VM Host is VMware vSphere 4 or Later

When installing a VMware vSphere 4 or later VM host on a physical L-Server, take note of the following points:

- Backup and restore functions cannot be used.
- When using L-Server redundancy, it is not possible to specify the same pool as that of a spare server between L-Servers on which Windows is operating.
- When performing physical server usage change, the same physical servers cannot be switched over between L-Servers on which Windows is operating.
- When switching over operating and standby storage as disks used for datastores, mount the VMFS datastores using the currently used signature on VMware vCenter Server.

When a VM Host is VMware ESXi

Alive Monitoring is not supported.

Appendix E To Customize Dashboard

The dashboard provides an alert function for sending notifications via email if the global pool use rate exceeds the threshold value.

The following settings can be customized by changing the alert information:

- Email send settings
- Threshold value
- Monitored pools

A dashboard development environment is required in order to customize alert information. This appendix explains how to build a dashboard development environment and how to change the alert information.

Point

Alert information can be changed by copying and editing the sample alert information provided by this product. In the sample information, "90%" is set as the threshold value, and "All global pools" is set as the monitored pools.

E.1 Building the Dashboard Development Environment

The dashboard development environment is required to customize the cloud operation management dashboard. This section explains how to build the dashboard development environment.

The installation flow is shown as follows:

1. Installing the Dashboard Development Environment
2. Setting up the Dashboard Development Environment

Note

The dashboard development environment can be built in the Windows environment only. If a Linux version is used, a separate Windows machine must be arranged for to build the dashboard development environment.

E.1.1 Installing the Dashboard Development Environment

This section explains the steps required to install the dashboard development environment.

Note

- Use Interstage Business Process Manager Studio and Interstage Business Process Manager Analytics Studio bundled with this product when installing them. Studio bundled with Interstage Business Process Manager or Interstage Business Process Manager Analytics supplied as a standalone product cannot be used.
- If a Linux version is used, a Windows client machine that has been arranged for the dashboard development environment must be used to perform the tasks.

Firstly, insert the following DVD-ROM (Disk 3) into the DVD-ROM drive of the computer.

Follow the steps below to install.

Install JRE 5.0

Install JRE 5.0 in advance when installing the dashboard development environment to a machine other than the admin Server.

1. Execute the following file:

[Windows Manager]

DVD-ROM drive:\DISK3\Studio\Windows\RCXCTMG\Disc1\en\autorun.exe

[Linux Manager]

DVD-ROM drive:\DISK3\Studio\Windows\RCXCTMG\Disc1\en\autorun.exe

2. Click **Install**.
3. Select **Custom**, and click **Next**.
4. To select an installation folder other than the default folder, select **Destination Folder** displayed and select the installation folder. Click **Next**.
5. To select installation functions, select the **JRE-JBK Plugin** and >> **5.0** checkboxes only. Clear all other checkboxes. Click **Next**.
6. Check the installation details and click **Install**.
7. Click **Finish** when installation is completed.

Install Interstage Business Process Manager Studio

Install BPM Studio.

1. Execute the following file:

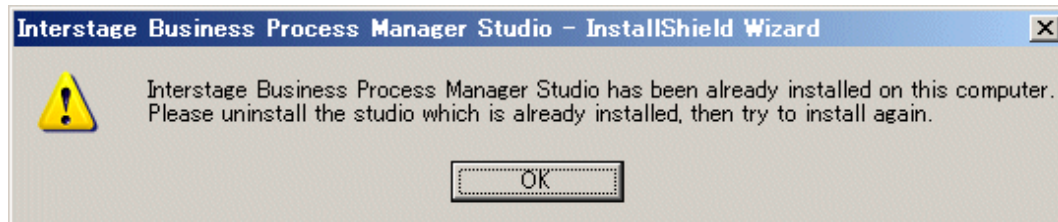
[Windows Manager]

DVD-ROM drive:\DISK3\Studio\Windows\RCXCTMG\Disc2\setup.exe

[Linux Manager]

DVD-ROM drive:\DISK3\Studio\Windows\RCXCTMG\Disc2\setup.exe

The following dialog box will be displayed if exclusive software such as Systemwalker Runbook Automation Studio and Interstage BPM Studio for Systemwalker, or a standalone product such as Interstage BPM Studio has been installed.



If exclusive software is installed, build the dashboard development environment after uninstalling the exclusive software or build the dashboard development environment on a separate Windows machine.

2. Click **Next**.
3. To change the installation folder, click **Change** and select the folder. Click **Next**.
4. Check if the JDK or JRE folder is set correctly. If it is not set properly, set either one of the following and click **Next**:
 - *Installation folder*\IAPS\JDK5 (*)
 - *Installation folder specified when JRE5.0 was installed*\JBKDI\jre5

*note: The following will be used if the dashboard development environment is deployed to the same machine as the admin server.
Installation folder\IAPS\JDK6
5. Do not enter anything in **UDDI Search URL** and click **Next**.
6. Click **Next**.
7. Click **Finish** when installation is completed.

Install Interstage BPM Analytics Studio

Install Analytics Studio.

1. Execute the following file:

[Windows Manager]

```
DVD-ROM drive:\DISK3\Manager_Extended\Windows\Install\RCXCTMG\Disc3\IBPMM\setup.exe
```

[Linux Manager]

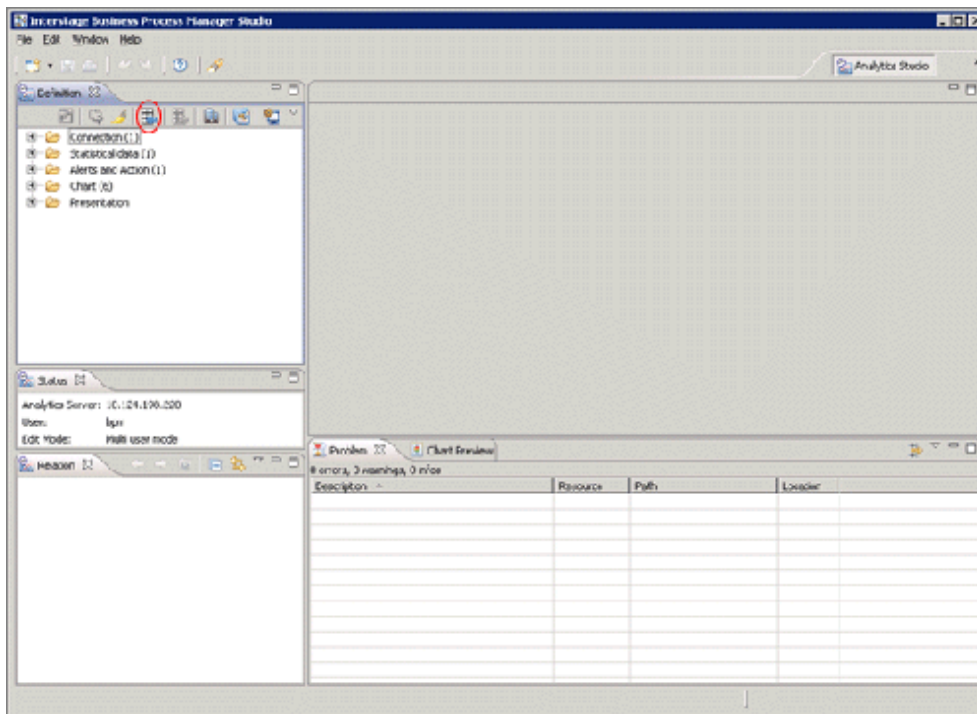
```
DVD-ROM drive:\unified\Disc5\ibpma\Client\IBPMM\setup.exe
```

2. **[Windows Manager]**Specify **Client**, and install the Interstage Business Process Manager Analytics client.
Select the client when in the same environment as the admin server, then click **Next**.
Do not remove the selection in **Server**.
3. Confirm that **[Install Location of Analytics Studio Plug-in]** is *<Interstage Business Process Manager Studio Installation_folder>\bin* in the **Check Installation settings** window, and with **Do not make any change** selected click **Next**. Installation will start.
When the **[Install Location of Analytics Studio Plug-in]** is other than *BPM Studio installation folder\bin*, select **Change** and then click **Next**, and then select the correct installation folder.
The **Check Installation settings** window described above will not be displayed when in the same environment as the admin server. The window will be displayed when using the wizard, click **Next**. Installation will start.
4. Click **Finish** when installation is completed.

E.1.2 Setting up the Dashboard Development Environment

1. Perform the connection setting to the admin Server.
 - a. Select Windows **start** menu >> **Interstage Business Process Manager Studio** and then **Studio**.
 - b. The confirmation window for the work space folder will be displayed. Change the folder as required, and click the **OK** button.
 - c. Select **Open Perspective** on the **Window** menu, and click **Analytics Studio**.
 - d. Enter the IP address and the port number of the admin Server in **Analytics Server**, and click the **OK** button. (If the admin Server is installed on the same machine, "localhost" may also be specified.)

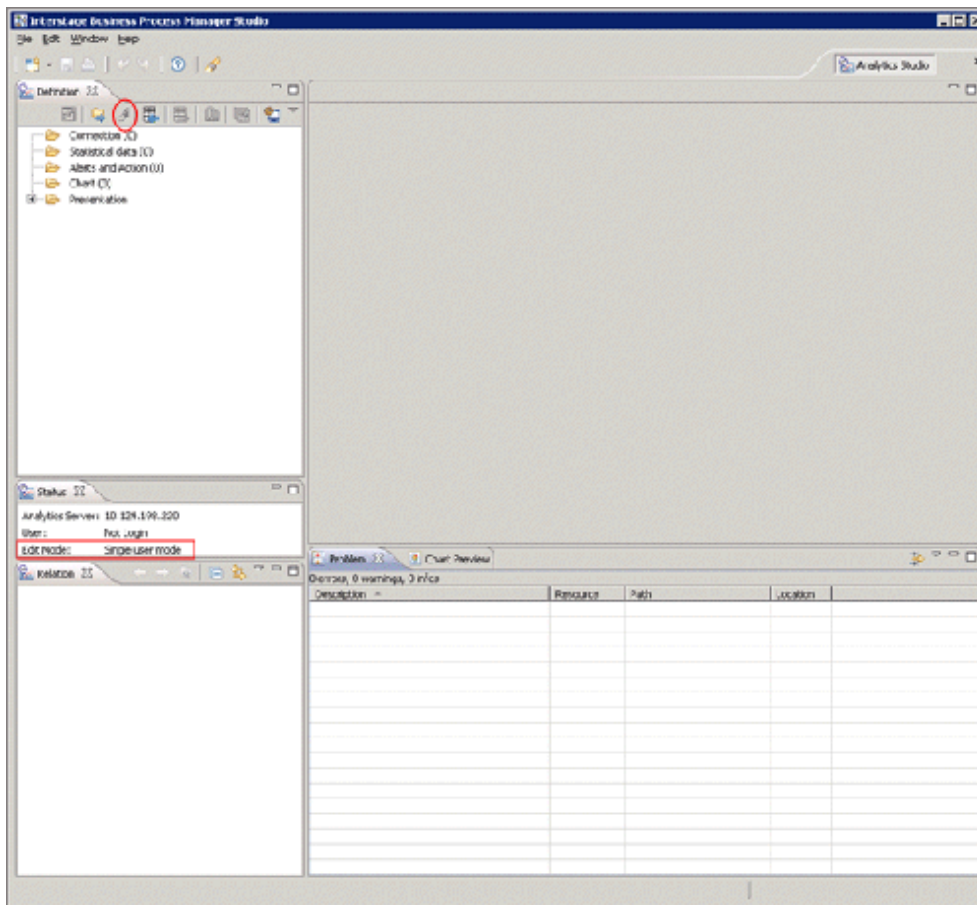
2. Click the **Reload from Server** button, and obtain the definition from the server (initial account and initial password: bpm)



The initial password must be changed. Login to the operation management console of Interstage Business Process Manager Analytics to change the initial password.

Refer to "[E.6.3 Creating and Changing Analytics Studio Users](#)" for details.

3. If **Single user mode** is not specified in **Edit Mode**, click the **Edit Mode** icon located on the top left hand side of the window.



The processing starts by clicking the **Yes** button.

E.2 To Customize Dashboard

The following items can be customized:

- Email send settings

The send destination email address, the email subject, and the text can be set.

- Threshold values

The resource pool use rate threshold value can be set.

- Monitored pools

The resource pools to be monitored can be specified using any of the following specifications as conditions:

- Global pool for a specific resource pool

Specify any of the VM pool (CPU), the VM pool (memory), the storage pool, the network pool, the server pool, or the address pool.

- Global pool having a specific pool name

Specify any pool name.

Note

The items above are the only customizations possible. Customization of charts or other dashboard definitions is not supported, and new definitions cannot be created.

Do not delete or modify the "@global" condition from the "Condition" of the editor view in ["E.2.3 Customizing Monitored Pools"](#).

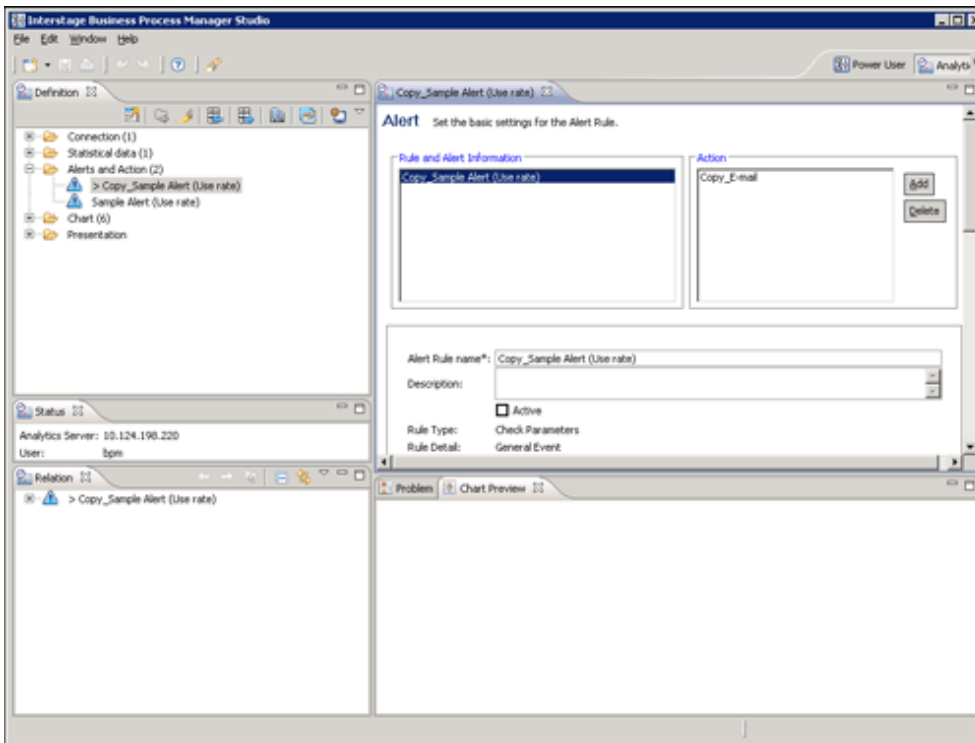
E.2.1 Customizing Email Send Settings

This section explains the procedure for customizing email send settings. It is necessary to customize email send settings. Customize threshold values and monitored pools as required.

Information

Immediately after dashboard installation, the settings specify that email is not sent. Customize email send settings to send notifications via email. Email send settings must be set in order to send alert information via email. Refer to ["18.1.7 Settings for Email Sent from the Dashboard"](#) for information on email setting for mail server.

1. Open "Alerts and Action" in the "Definition" view definition tree in the dashboard development environment.



2. From the displayed list of alert definitions, right-click "Sample Alert (Use rate)", and then select "Copy".
3. Double-click the copied "Copy_Sample Alert (Use rate)" to open the definition.
4. Change the alert rule name from "Copy_Sample Alert (Use rate)" to a suitable name.
5. Set the "Active" checkbox below the alert rule name to ON.
6. Customize threshold values as required. Refer to ["E.2.2 Customizing Threshold Values"](#) for information on changing threshold values.
7. Customize monitored Pools as required. Refer to ["E.2.3 Customizing Monitored Pools"](#) for information on changing monitored Pools.
8. Select "Copy Email" in Action at the upper-right of the editor view.

9. At **Email address**, specify the email address of the alert email send destination. Delete the email address "admin@localhost" specified as the default.

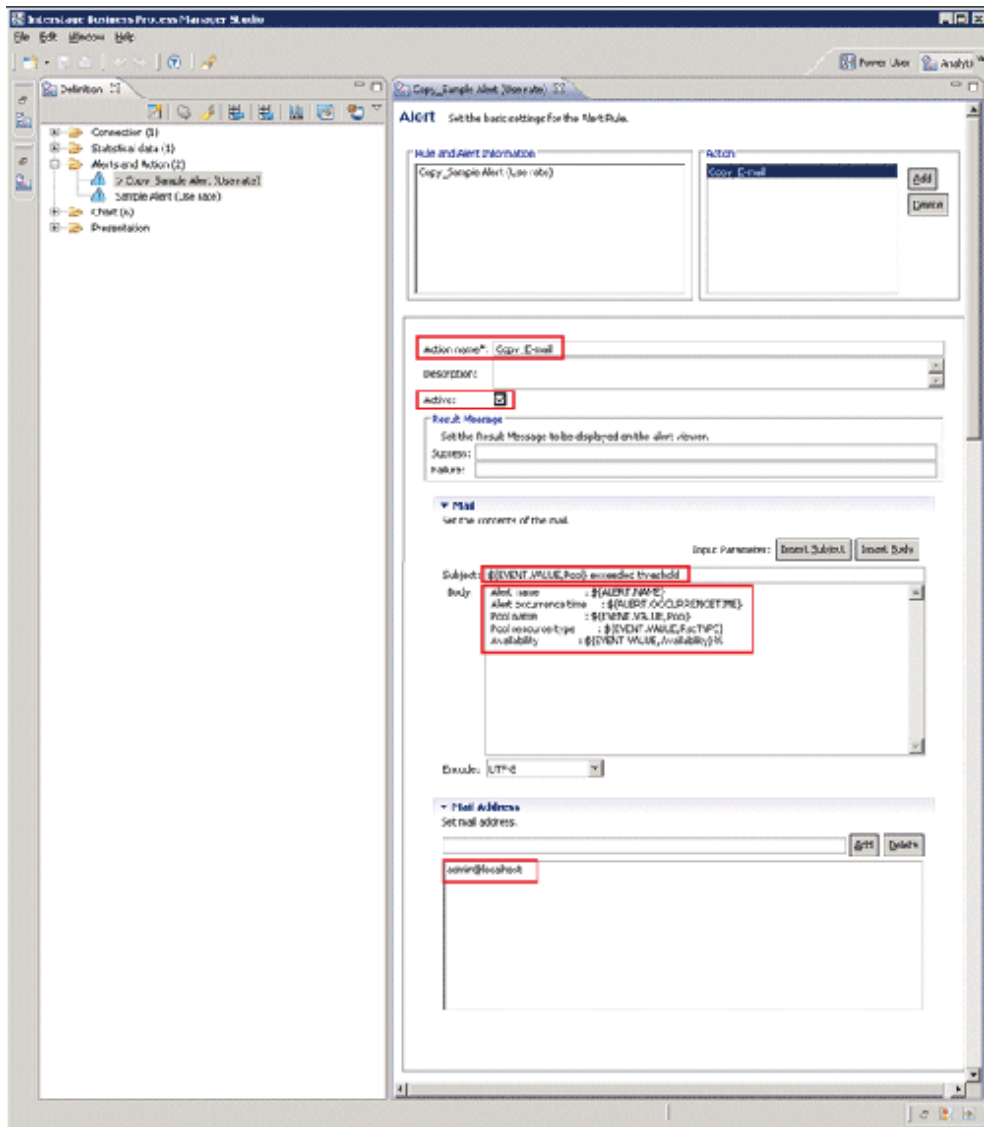
An alert email is sent as Bcc (Blind Carbon Copy), so the addresses of other addressees will not be seen by the recipient. Depending on the settings of the mail server, the "to address" (the recipient) may also be shown as "undisclosed-recipients;".

Modify the following items, as required:

- Action: Change from "Copy_Email" to a suitable name.
- Subject: "\${EVENT.VALUE,Pool} exceeded threshold" as default.
example: /VMHostPool exceeded threshold
- Body: the following items can be as default:
 - Alert name: \${ALERT.NAME}
 - Alert occurrence time: \${ALERT.OCCURRENCETIME}
 - Pool name: \${EVENT.VALUE,Pool}
 - Pool resource type: \${EVENT.VALUE,RscTYPE}
 - Availability: \${EVENT.VALUE,Availability}%

The alert parameter to be used in Subject and Body is as follows:

Variable	Description	Example
\${ALERT.NAME}	Alert Rule name	Alert (Use rate) CPU
\${ALERT.OCCURRENCETIME}	time when alerts occurred	October 14, 2011 13:05:45
\${EVENT.VALUE,Pool}	global pool name	/VMHostPool
\${EVENT.VALUE,RscTYPE}	resource type	CPU
\${EVENT.VALUE,Availability}	global pool use rate	35.5%

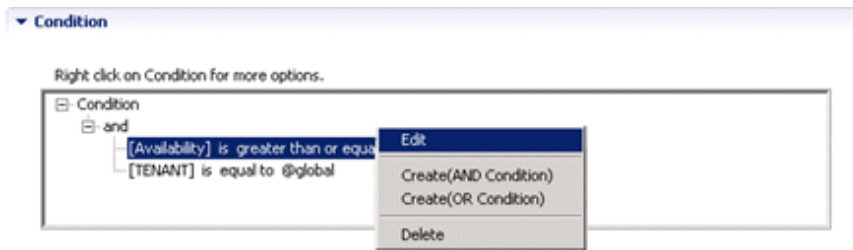


10. Click the **Save** icon.
11. Click the **Upload to Server** icon from the tool bar on the **Definition** view.
12. Do not select the **After uploading the Analytics Definition, replicate result in the system** checkbox but click the **OK** button.
13. Click **OK**.
14. Restart the Analytics server. Refer to "[E.6.4 Restarting the Analytics Server](#)" for details.
 - The initial password must be changed. Use the operation management console of Interstage Business Process Manager Analytics to change the initial password. Refer to "[E.6.2 Changing the Password of the Administrator](#)" for details.
 - Do not perform any operations from the operation management console other than setting passwords and the procedure described above for restarting the Interstage Business Process Manager Analytics server.

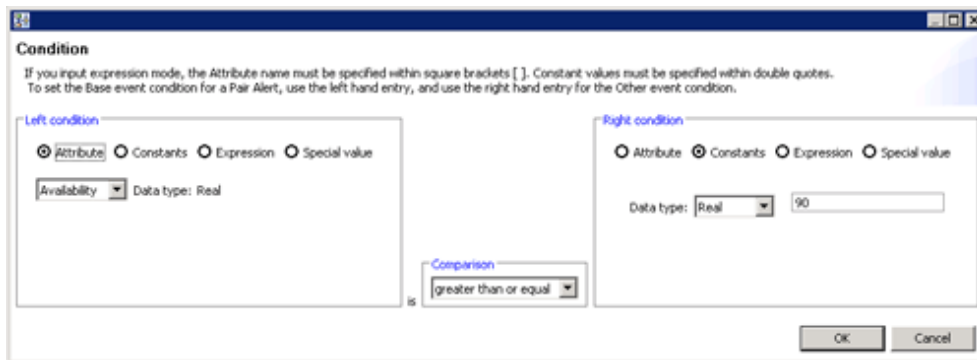
E.2.2 Customizing Threshold Values

This section explains the procedure for customizing threshold values.

1. At "Condition" in the editor view, right-click a condition in the condition tree, and then select **Edit**. In the example below, "[Availability] is greater than or equal 90" is selected. The availability is the use rate.



2. Use the "Right condition" radio buttons to select Constants. In the input field, enter the value to be used as the threshold value. The "Left condition" cannot be changed. In the Comparison drop-down list, select either "greater than or equal" or "greater than".



 **Note**

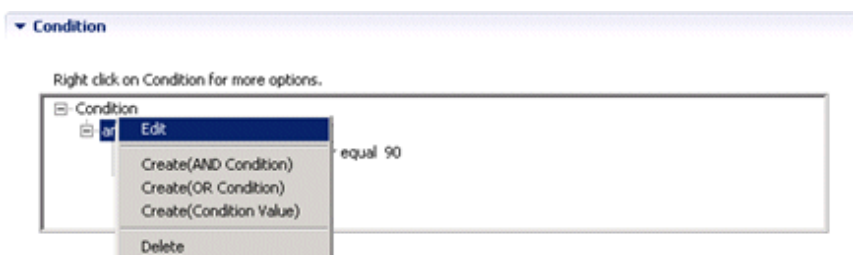
The threshold value will be set to the daily average of the global pool use rate. Therefore, even if the use rate at a certain time exceeds the threshold value, there may be cases when the alert information is not sent immediately.

3. Click the **OK** button.

E.2.3 Customizing Monitored Pools

This section explains the procedure for customizing the pools targeted for monitoring.

1. At "Condition" in the editor view right-click "and" in the condition tree, and then select "Create (Condition Value)".



2. Right-click the added "is equal to", and then select **Edit**.
3. Set the following in the conditions settings window:
 - If the "Pool for a specific resource pool" alert is set:
Set the conditions below. Threshold values can be monitored for any of the VM pool (CPU), the VM pool (memory), the storage pool, the network pool, the server pool, and the address pool.
(Left-side conditions)

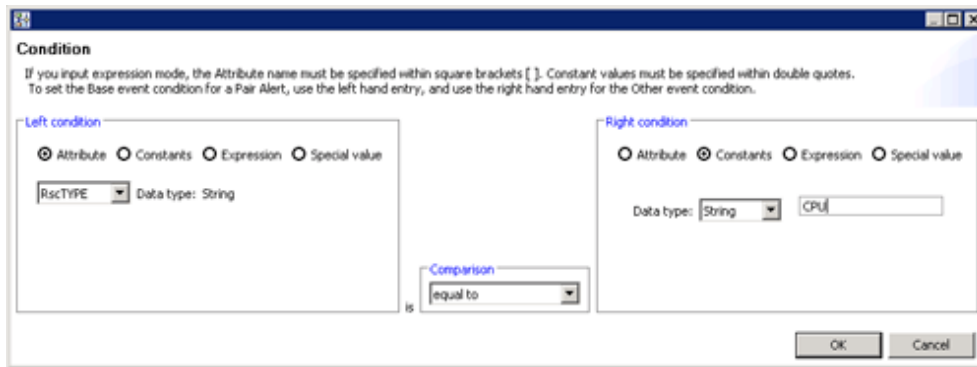
- Select the **Attribute** radio button.
- Select "RscTYPE" in the drop-down list.

(Right-side conditions)

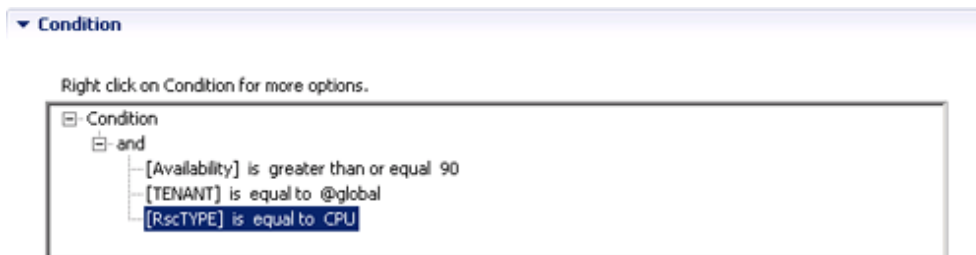
- Select the "Constants" radio button.
- For the data type, select "String".
- Enter any of the following as resource types for which an alert is being set:
 For VM pool (CPU) : CPU
 For VM pool (memory) : MEMORY
 For storage pool: STORAGE
 For network pool: NETWORK
 For server pool: SERVERPOOL
 For address pool: ADDRESS

(Operator)

- In the drop-down list, select "equal to".



Set the above conditions, and then click the **OK** button. The conditions below are set.



- If the "Pool having a specific pool name" alert is set:

Set the conditions below. The pool names for which threshold values can be monitored can be specified.

(Left-side conditions)

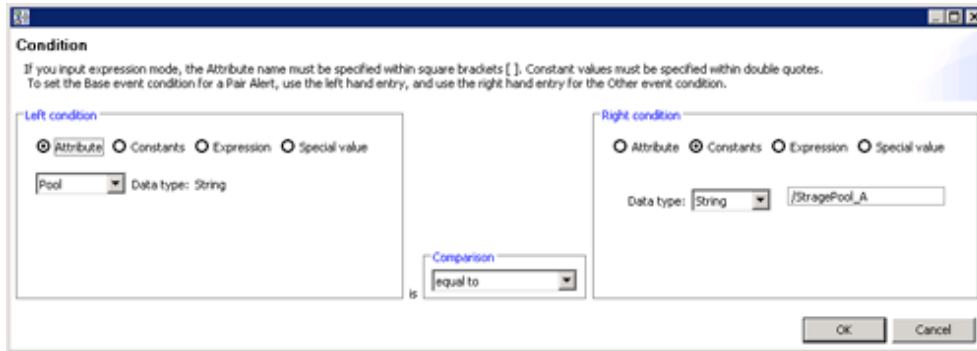
- Select the **Attribute** radio button.
- Select "Pool" in the drop-down list.

(Right-side conditions)

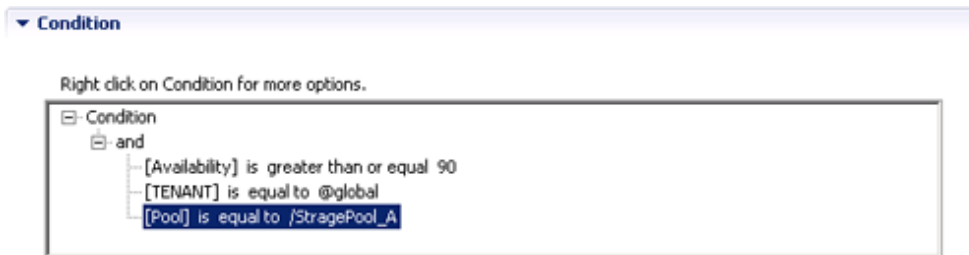
- Select the "Constants" radio button.
- For the data type, select "String".
- Specify (enter) the name of the pool for which the alert is being set.

(Operator)

- In the drop-down list, select "equal to".



Set the above conditions, and then click the **OK** button. The conditions below are set.



4. Click the **OK** button.

E.3 Backup and Restore the Dashboard Development Environment

Backup and restore of the dashboard development environment refers to the backup and restore of the definition information being edited in the dashboard development environment.

This section explains the procedure required to backup and restore the definition information.

E.3.1 Backup the Definition Information

Follow the steps below to backup the definition information:

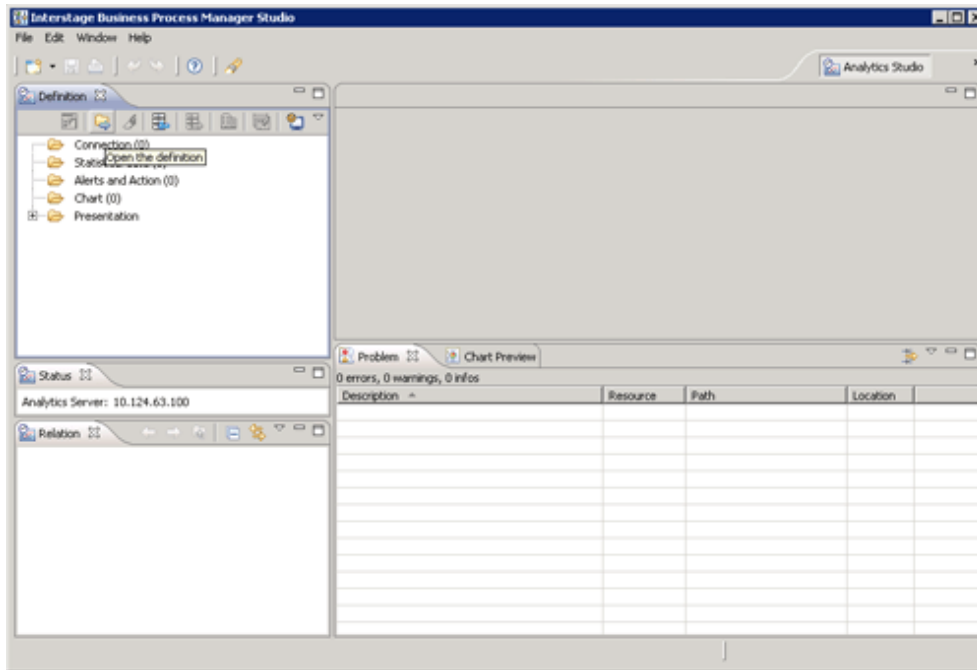
1. Close the dashboard development environment if it had been started.
2. Copy the workspace folder used in the dashboard development environment to another location without modifying it. The workspace folder that was copied becomes the backup.

E.3.2 Restore the Definition Information

Follow the steps below to restore the definition information:

1. Close the dashboard development environment if it had been started.
2. Delete the workspace folder used in the dashboard development environment if it exists.
3. Copy the backed-up workspace folder to the workspace folder used in the dashboard development environment.
4. Start the dashboard development environment.

5. Click the **Open the definition** icon.



E.4 Uninstalling the Dashboard Development Environment

Delete the dashboard development environment by uninstalling it. The uninstallation flow is shown as follows:

1. Uninstall the Interstage Business Process Manager Analytics Client
2. Uninstall Interstage Business Process Manager Studio
3. Uninstall JRE 5.0

E.4.1 Uninstall the Interstage Business Process Manager Analytics Client

[Windows Manager]

If the dashboard development environment and the admin Server are installed on the same machine, follow the steps below to uninstall the dashboard development environment:

1. Select **Interstage Business Process Manager Analytics** from the list displayed on **Control Panel >> Uninstall or change a program**, and click the **Uninstall** button.
2. Deselect the **Client** checkbox on the **Select function** dialog box, and click **Next**.
3. A dialog box confirming the deletion of the **Client** function will be displayed. Click **Yes** and execute uninstallation.
4. After uninstallation is completed, delete the work area for the dashboard development environment. Delete the following folder:

```
<Workspace selected when BPM Studio was started>\Interstage BPM Analytics
```

When the dashboard development environment is installed on a different machine from where the admin Server is installed, uninstall the dashboard development environment by following the same procedure as that for [Linux].

[Linux]

1. Select **Interstage Business Process Manager Analytics** from the list displayed on **Control Panel >> Add or Remove Programs**, and click the **Remove** button.
2. Uninstall by following the confirmation dialog boxes.
3. After uninstallation is completed, delete the work area for the dashboard development environment. Delete the following directory:

```
<Workspace selected when BPM Studio was started>\Interstage BPM Analytics
```



When both the admin Server and the dashboard development environment are built on the same machine and both of these are to be uninstalled, the clients of Interstage Business Process Manager Analytics are also uninstalled when the admin Server is uninstalled. Tasks discussed in this section are therefore not required.

E.4.2 Uninstall Interstage Business Process Manager Studio

1. Select **Interstage Business Process Manager Studio** from the list displayed on **Control Panel >> Uninstall or change a program**, and click the **Uninstall** button.
2. Uninstall by following the confirmation dialog boxes.

E.4.3 Uninstall JRE 5.0

This operation is not necessary if the dashboard development environment is deployed to the same machine as the admin server.

1. Select **Interstage Application Server V9.3.0 Client Package** from the list displayed on **Control panel >> Uninstall or change a program**, and click the **Uninstall/Change** button.
2. Uninstall by following the confirmation dialog boxes.

E.5 Changing the Schedule for Deleting Event Data

Data displayed in the dashboard (event data) is collated at specific times. This collated data is then deleted at certain times.

If the service is unable to delete the data, because the server is stopped every time it is meant to delete the data, then the data cannot be deleted and unnecessary data will accumulate.

If this situation occurs, perform the following procedure to change the time to a more appropriate one.

E.5.1 Settings

1. Connect to the operation management console and log in. Refer to "[E.6.1 Access](#)" for details.
2. Select the Archive Rules CTDSB002 to CTDSB004 in the operation management console, display the **Execution Schedule**, then select the time to be changed and click **Modify**. Refer to "[E.6.5 Changing the Schedule for Data Deletion](#)" for details.

Initial frequency and times

	Time	
CTDSB001 : Everyday	03:51	(reservation not used)
CTDSB002 : Everyday	02:51	
CTDSB003 : Everyday	01:51	
CTDSB004 : Everymonth 1st	00:51	

3. Select the time to be changed and click **Modify**.



Note

Do not change this unless there is a particular need.
The most appropriate times have been selected for the default settings.

E.6 The Interstage Business Process Manager Analytics Management Console

To log into the Interstage Business Process Manager Analytics management console, connect to the operation management console and log in (the default password is "bpm").

In the operation management console, perform only those operations described in this section and in "[18.1.7 Settings for Email Sent from the Dashboard](#)".

E.6.1 Access

Access the following URL in a browser to start the Interstage Business Process Manager Analytics management console:

```
http://<FQDN of the admin server>/ibpmm/BPMAdminTool.do
```

E.6.2 Changing the Password of the Administrator

This is the password for logging into the Interstage Business Process Manager Analytics management console.

Manage passwords based on security policy.

The password at installation is "bpm".

Change the password of the administrator using the following procedure:

1. After logging into the operation management console, click **BPM Analytics** in the pane on the left.
2. Click **Set Password** in the pane on the right, enter the three fields (**Current Password**, **New Password**, and **Confirm Password**), then click **Modify**.

E.6.3 Creating and Changing Analytics Studio Users

For uploading operation settings to the Analytics Server using the Analytics Studio, user authentication is required.

The default Analytics Studio user has the user ID "bpm" and the password "bpm".

Create or change the Analytics Studio user with the following procedure:

1. After logging into the operation management console, click **BPM Analytics >> System >> Analytics Studio Authentication** in the pane on the left.
2. Click on the **User List** in the pane on the right, then either edit an existing user or click on the **Create a New User** tab and create a new user.

E.6.4 Restarting the Analytics Server

Restart the Analytics server using the following procedure:

1. After logging into the operation management console, click **BPM Analytics >> Server Management >> BPM Analytics Server** in the pane on the left.
2. Click **Stop** in the pane on the right.
3. Confirm that **Status** has changed to **Stopped**, and then click **Start**.
4. Confirm that **Status** has changed to **Running**.

E.6.5 Changing the Schedule for Data Deletion

Change the time for regularly deleting dashboard data using the following procedure:

1. After logging into the operation management console, click **BPM Analytics >> System >> Data Migration** in the pane on the left.
2. Click **Archive Rules** in the pane on the right, then click the name of the definition to be edited in **Rule Name**.
3. Click **Execution Schedule [Open/Close]**.
4. Change the time and click **Change**.

Appendix F Upgrading from Earlier Versions

This appendix explains the upgrade procedures for the following environments.

- How to upgrade environments configured using ServerView Resource Coordinator VE (hereinafter RCVE) to this version of ServerView Resource Orchestrator Cloud Edition (hereinafter ROR CE) environments
- How to upgrade environments configured using an earlier version of ServerView Resource Orchestrator (hereinafter ROR) to this version of ROR CE environments
- How to upgrade environments configured using an earlier version of ServerView Resource Orchestrator Virtual Edition (hereinafter earlier version of ROR VE) to this version of ROR CE environments
- How to upgrade environments configured using earlier version of ROR CE to this version of ROR CE environments
- How to upgrade environments configured using this version of ROR VE to this version of ROR CE environments

F.1 Overview

This section explains an overview of the following upgrades.

Support Scope

The combinations of managers and agents, and the HBA address rename setup service supported by Resource Orchestrator are as shown below.

Manager	Agent		HBA address rename Setup Service	
	V2.1.0 or later	V3.1	V2.1.0 or later	V3.1
V3.1	Yes (*1)	Yes	No	Yes

Yes: Supported

No: Unsupported

*1: When using this version of manager and an earlier version of agents in combination, the scope of available functions is limited to the one provided by the earlier version of agents.

Whether upgrading from an earlier version is possible is shown below:

[Windows Manager]

Old Software	Resource Orchestrator	Upgradability	Reference
ROR V2.3	ROR CE V3.1.1	Yes	Refer to " Upgrade using Upgrade Installation ".
ROR VE V3.0	ROR CE V3.1.1	Yes	Refer to " Upgrade using Upgrade Installation ".
ROR VE V3.1.0	ROR CE V3.1.1	Yes	Refer to " Upgrade using Upgrade Installation ".
ROR VE V3.1.1	ROR CE V3.1.1	Yes	Refer to " Upgrade from this version of ROR VE to ROR CE ".
ROR CE V3.0	ROR CE V3.1.1	Yes	Refer to " Upgrade using Upgrade Installation ".
ROR CE V3.1.0	ROR CE V3.1.1	Yes	Refer to " Upgrade using Upgrade Installation ".

[Linux Manager]

Old Software	Resource Orchestrator	Upgradability	Reference
RCVE V2.2.2	ROR CE V3.1.1	Yes	Refer to " Upgrade using Upgrade Installation ".
ROR V2.2.2	ROR CE V3.1.1	Yes	Refer to " Upgrade using Upgrade Installation ".

Old Software	Resource Orchestrator	Upgradability	Reference
ROR VE V3.0	ROR CE V3.1.1	Yes	Refer to " Upgrade using Upgrade Installation ".
ROR VE V3.1.0	ROR CE V3.1.1	Yes	Refer to " Upgrade using Upgrade Installation ".
ROR VE V3.1.1	ROR CE V3.1.1	Yes	Refer to " Upgrade from this version of ROR VE to ROR CE ".

Yes: Supported
 -: Not supported

Note

After upgrading RCVE V2.2.2 to ROR VE V3.1.1, it is not possible to upgrade from ROR VE V3.1.1 to ROR CE V3.1.1.

Upgrade using Upgrade Installation

Using the installer of Resource Orchestrator, it is possible to automatically upgrade from an earlier version to this version.

When performing upgrade installation from an earlier version to this version, perform the upgrade in the order of manager, agents, and then the HBA address rename setup service.

Upgrade from this version of ROR VE to ROR CE

The upgrade from ROR VE of this version to ROR CE can be automatically done with the installer of this product.

The manager, agent, 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 "[Chapter 5 License Setup and Confirmation](#)".

F.2 Manager

This section explains the upgrading of managers.

When operating managers in clusters, transfer using upgrade installation cannot be performed. Perform "[Transfer of the Manager Using Re-installation or the Pre-configuration Function](#)".

Point

- When maintaining compatibility with earlier versions, refer to "[G.1 Maintaining Compatibility with Earlier Versions](#)", and change each setting.

[Windows Manager]

- When upgrading an environment configured using an earlier version of ServerView Resource Coordinator to this version of ServerView Resource Coordinator Cloud Edition, replace the "*Installation_folder*\SVROR\Manager" used in Resource Orchestrator manuals with "*Installation_folder*\Manager".

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, except for system images and cloning images, is created and stored in the following folder.

For system images and cloning images, the installation folder of the earlier version is used.

Ensure that the folder is not deleted until after the upgrade is complete.

[Windows Manager]

32-bit (x86) OS

Drive_name\Program Files\RCVE-upgradedata

64-bit (x64) OS

Drive_name\Program Files (x86)\RCVE-upgradedata

System_drive\swrbawork

installation_folder\RCXCFMG-upgradedata

installation_folder\RCXCTMG-upgradedata

[Linux Manager]

/var/opt/RCVE-upgradedata

/var/opt/backupscwdir



Note

The total disk space of the following folders plus 100 MB is required under *System_drive*\swrbawork and /var/tmp/swrbawork.

[Windows Manager]

- *System_drive*\SWRBADB
- *installation_folder*\SWRBAM
- *installation_folder*\IAPS
- *installation_folder*\SWOMGR

[Linux Manager]

- /var/opt/FJSVJCMCN
- /var/opt/FJSVJOBSC
- /var/opt/FJSVMJS
- /var/opt/FJSVcmdba
- /var/opt/FJSVcmdbi
- /var/opt/FJSVcmdbm
- /var/opt/FJSVejb
- /var/opt/FJSVena
- /var/opt/FJSVes
- /var/opt/FJSVextp
- /var/opt/FJSVftlo
- /var/opt/FJSVfwseo

- /var/opt/FJSVfwtco
- /var/opt/FJSVihs
- /var/opt/FJSVirep
- /var/opt/FJSVirepc
- /var/opt/FJSVisas
- /var/opt/FJSVisgui
- /var/opt/FJSVisjmx
- /var/opt/FJSVisscs
- /var/opt/FJSVj2ee
- /var/opt/FJSVjmcsl
- /var/opt/FJSVjms
- /var/opt/FJSVjmweb
- /var/opt/FJSVjs2su
- /var/opt/FJSVjs5
- /var/opt/FJSVlnkbs
- /var/opt/FJSVod
- /var/opt/FJSVots
- /var/opt/FJSVporb
- /var/opt/FJSVshnsk
- /var/opt/FJSVshs
- /var/opt/FJSVsoac
- /var/opt/FJSVsoaz
- /var/opt/FJSVssocm
- /var/opt/FJSVssofs
- /var/opt/FJSVssosv
- /var/opt/FJSVstem
- /var/opt/FJSVsvmon
- /var/opt/FJSVswaic
- /var/opt/FJSVswnc
- /var/opt/FJSVswrbac
- /var/opt/FJSVswrbam
- /var/opt/FJSVtd
- /etc/opt/FJSVMJS
- /etc/opt/FJSVcmdba
- /etc/opt/FJSVcmdbm
- /etc/opt/FJSVejb
- /etc/opt/FJSVes
- /etc/opt/FJSVextp

- /etc/opt/FJSVftlo
 - /etc/opt/FJSVihs
 - /etc/opt/FJSVirep
 - /etc/opt/FJSVisas
 - /etc/opt/FJSVisgui
 - /etc/opt/FJSVisjmx
 - /etc/opt/FJSVisscs
 - /etc/opt/FJSVj2ee
 - /etc/opt/FJSVjms
 - /etc/opt/FJSVjs2su
 - /etc/opt/FJSVjs5
 - /etc/opt/FJSVlnkbs
 - /etc/opt/FJSVod
 - /etc/opt/FJSVots
 - /etc/opt/FJSVporb
 - /etc/opt/FJSVsclr
 - /etc/opt/FJSVshnsk
 - /etc/opt/FJSVshs
 - /etc/opt/FJSVsoac
 - /etc/opt/FJSVsoaz
 - /etc/opt/FJSVssofs
 - /etc/opt/FJSVssosv
 - /etc/opt/FJSVsvmon
 - /etc/opt/FJSVswaic
 - /etc/opt/FJSVswnc
 - /etc/opt/FJSVswrbac
 - /etc/opt/FJSVswrbam
 - /etc/opt/FJSVtd
-

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 the operational environment, refer to "2.4 Software Environment" and "2.5 Hardware Environment" in the "Design Guide CE".
Take particular care regarding the memory capacity.
- To enable recovery in case there is unexpected trouble during the upgrade process, please back up the system.
- 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 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".
- If ETERNUS SF Storage Cruiser Manager or ETERNUS SF AdvancedCopy Manager is installed, stop the service or daemon for each of them (the service starts even if a license has not been registered). Refer to the manuals for information on how to stop the services and daemons.
- Check that the following ports are not used: If they are being used, please contact Fujitsu technical staff.
 - 7676
 - 8015
 - 8686
 - 12001
 - 23600
 - 23601
 - 23602
 - 23700
 - 28080
- Stop the BMC BladeLogic Server Automation service if it is in use.

[Windows Manager]

Refer to "[Required Software Preparation and Checks](#)" in "[2.1.1.2 Software Preparation and Checks](#)" for information on how to stop the service.

[Linux Manager]

Refer to "[Required Software Preparation and Checks](#)" in "[2.1.2.2 Software Preparation and Checks](#)" for information on how to stop the service.

Upgrade using Upgrade Installation

When upgrading to this version, 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 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 restore the system that was backed up during the preparations and then perform upgrade installation again.
If the problem cannot be resolved and upgrade installation fails again, please contact Fujitsu technical staff.
- To revert to the status before an upgrade was performed, restore the system that was backed up in the preparation stage.
- Upgrade installation will delete patches that were applied to the earlier version.

[Linux Manager]

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 transfer using re-installation or the pre-configuration function.
- If used ports exist when performing an upgrade installation, the message "The specified port number *Port Number* selected for ServerView Resource Orchestrator is already used." will be displayed, and installation will fail. If this happens, please contact Fujitsu technical staff.

[Windows Manager]

The specified port number *Port Number* selected for ServerView Resource Orchestrator is already used.

[Linux Manager]

The specified port number *Port Number* selected for ServerView Resource Orchestrator is already used.

- When the path of the installation folder before the upgrade is 46 characters or longer, transfer using upgrade installation is not possible. Perform transfer using re-installation or the pre-configuration function.

1. Upgrade Installation

[Windows Manager]

Refer to steps 1 to 5 and Point in the installation section in "[2.1.1.6 Installation](#)", 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 Manager]

Refer to steps 1 to 11 and Point in the installation section in "[2.1.2.6 Installation](#)", 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.

2. Restarting after Upgrade Installation is Finished

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

3. Transfer of Configuration Methods for Overcommit Functions

For ROR V3.1.0 and later, the configuration method for overcommit functions differ from those of earlier versions of Resource Orchestrator. Therefore, the configuration method must be transferred from the earlier version.

When performing upgrade installation of an admin server that is ROR V2.3.0 or V3.0.0, execute the following command to transfer the configuration information.

[Windows Manager]

```
Installation_folder\SVROR\Manager\bin\rxmigrate_oc
```

[Linux Manager]

```
/opt/FJSVrcvmr/bin/rxmigrate_oc
```

For details on the rxmigrate_oc command, refer to "5.2 rxmigrate_oc" in the "Reference Guide (Command/XML) CE".



Note

If this step is omitted, overcommit cannot be set for VM pools in "Chapter 20 Resource Pool Operations" in the "User's Guide for Infrastructure Administrators (Resource Management) CE". In that case, edit overcommit definition files as in the case of the earlier versions.

For details, refer to "[G.1.1 Overcommit Definition Files](#)".

4. Configure a Single Sign-On Environment

When performing upgrade installation from the following products to Cloud Edition, configuration of a "Single Sign-On environment" is necessary.

- Earlier version of ROR

- Earlier version of ROR VE
- This version of ROR VE

After this step, refer to "F.6 Configuring a Single Sign-On Environment" in the "Setup Guide CE", and configure a Single Sign-On environment.

When upgrading from ROR V3.0.0 to Cloud Edition this procedure is not necessary.

5. Transfer of L-Server templates of ROR V2.3.0

When performing upgrade installation of an admin server that is ROR V2.3.0, execute the following command to transfer the physical L-Server templates.

- Check the physical L-Server templates which need to be transferred.

Templates that have Physical for TYPE and '-' for NICS are the targets of transfer. For details on the rcxadm template command, refer to "8.1 rcxadm template" in the "Reference Guide (Command/XML) CE".

[Windows Manager]

```
Installation_folder\SVROR\Manager\bin\rcxadm template list
```

[Linux Manager]

```
/opt/FJSVrcvmr/bin/rcxadm template list
```

NAME	TYPE	SPEC/MODEL	DISKS
NICS			
----	----	-----	-----

sample_large	Virtual	2.0GHz, 2, 4.0GB	40.0GB,
40.0GB	2		
sample_medium	Virtual	2.0GHz, 1, 2.0GB	
40.0GB	1		
sample_physical	Physical	"PRIMERGY BX922 S2"	
40.0GB	-		
sample_small	Virtual	1.0GHz, 1, 1.0GB	
20.0GB	1		

- Export the physical L-Server templates which need to be transferred.

The following is an example using the template name sample_physical.

You can use an arbitrary file name for *samplefile.xml*.

[Windows Manager]

```
Installation_folder\SVROR\Manager\bin\rcxadm template export -name sample_physical -file samplefile.xml
```

[Linux Manager]

```
/opt/FJSVrcvmr/bin/rcxadm template export -name sample_physical -file samplefile.xml
```

- Edit the file exported in b. Set a value larger than 1 for NumOfNIC (the following example uses 2). If the NICs tag is not displayed, add the NICs tag.

If a NIC tag and a NICIndex tag are displayed, no corrective action is necessary.

```
<LServerTemplate name='sample_physical' label='sample of
physical template' id='xxxxxx'>
  <ServerType>Physical</ServerType>
  <Model>PRIMERGY BX922 S2</Model>
  <Disks>
    <Disk type='FC'>
      <DiskIndex>0</DiskIndex>
      <DiskSize>40.0</DiskSize>
    </Disk>
  </Disks>
  <NICs>
    <NumOfNIC>2</NumOfNIC>
  </NICs>
```

```
<Policy>
  <Redundancy>None</Redundancy>
</Policy>
</LServerTemplate>
```

Note

If you edit and save a UTF-8 text file using Windows Notepad, the Byte Order Mark (BOM) is stored in the first three bytes of the file, and the information specified on the first line of the file will not be analyzed correctly. When using Notepad, specify the information from the second line.

- d. Overwrite the template by importing the edited file.

[Windows Manager]

```
Installation_folder\SVROR\Manager\bin\rxadm import -file samplefile.xml -force
```

[Linux Manager]

```
/opt/FJSVrcvnr/bin/rxadm import -file samplefile.xml -force
```

- e. Check that a value larger than 1 is displayed for NICS in the transferred physical L-Server template.

[Windows Manager]

```
Installation_folder\SVROR\Manager\bin\rxadm template list
```

[Linux Manager]

```
/opt/FJSVrcvnr/bin/rxadm template list
```

NAME	TYPE	SPEC/MODEL	DISKS	NICS
----	----	-----	-----	----
sample_large	Virtual	2.0GHz, 2, 4.0GB	40.0GB, 40.0GB	2
sample_medium	Virtual	2.0GHz, 1, 2.0GB	40.0GB	1
sample_physical	Physical	"PRIMERGY BX922 S2"	40.0GB	-
sample_small	Virtual	1.0GHz, 1, 1.0GB	20.0GB	1

6. Backup

When using the backup and restoration function of the admin server, save the resources after completion of the upgrade installation by performing an offline backup. If you choose to backup online, use a base backup.

For details, refer to "10.1 Backup and Restoration of Admin Servers" in the "Operation Guide 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 "Chapter 12 Installing and Defining Single Sign-On" in the "Design Guide CE".
- Perform the following tasks to configure if linking with "Service Quality Coordinator".
"1.14 Linking to ServerView Resource Orchestrator" in the "Systemwalker Service Quality Coordinator User's Guide"

Transfer of the Manager Using Re-installation or the Pre-configuration Function

In the following cases, import system configuration files (import) and export system configuration files (export) using pre-configuration.

- Transfer from RCVE manager to this version of ROR CE
- Transfer of a cluster operated using RCVE manager to this version of ROR CE manager
- Transfer of a cluster operated using ROR VE manager to this version of ROR CE manager

- When the path of the installation folder before transfer is 46 characters or longer

Use the following procedure to perform "Transfer of the Manager Using Re-installation or the Pre-configuration Function".



See

For pre-configuration, refer to the following manuals:

[RCVE]

- "Chapter 7 Pre-configuration" in the "ServerView Resource Coordinator VE Setup Guide"
- "Appendix D Format of CSV System Configuration Files" in the "ServerView Resource Coordinator VE Setup Guide"

[ROR VE V3.0.0]

- "Chapter 6 Pre-configuration" in the "ServerView Resource Orchestrator Virtual Edition V3.0.0 User's Guide"
- "Appendix A Format of CSV System Configuration Files" in the "ServerView Resource Orchestrator Virtual Edition V3.0.0 User's Guide"

Also, when transferring the manager using the pre-configuration function, perform the following preparations and checks.

- To confirm that transfer using the pre-configuration function is complete, if there are registered VM hosts on which there are VM guests, check from the ROR console that all of the VM guests are displayed, and record their information.
- When server switchover settings have been performed, it is not possible to transfer using the pre-configuration function when spare servers have been switched to. Perform restoration before starting transfer using the pre-configuration function.

For the restoration method, refer to the following manuals:

[RCVE]

- "Chapter 10 Server Switchover" in the "ServerView Resource Coordinator VE Operation Guide"

[ROR VE V3.0.0]

- "Chapter 10 Server Switchover" in the "ServerView Resource Orchestrator Virtual Edition V3.0.0 Operation Guide"
- The following information will not be transferred. Reconfiguration is necessary when performing transfer using the pre-configuration function.

Record the following configuration information from the RC console or the ROR Console.

- User account information
- Registration status of the agent of each managed server, and maintenance mode settings
- Spare server settings
- Agent registered information of OVM for SPARC guest domain
- Power consumption data

When monitoring of power consumption is being performed, collected power consumption data will not be transferred.

When the power consumption data is necessary, export it in CSV format.

For the export method, refer to the following manuals:

[RCVE]

- "13.2 Exporting Power Consumption Data" in the "ServerView Resource Coordinator VE Operation Guide"

[ROR VE V3.0.0]

- "13.2 Exporting Power Consumption Data" in the "ServerView Resource Orchestrator Virtual Edition V3.0.0 Operation Guide"



Note

Do not change the settings of the manager, agents, or any other hardware devices, or their configuration, until transfer using the pre-configuration function is complete.

1. Set Maintenance Mode

From the RC console of the RCVE manager, or the ROR console of ROR VE, place all managed servers into maintenance mode.

2. System Configuration File Export

Use the pre-configuration function to export a 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 following manuals:

[RCVE]

- "Chapter 7 Pre-configuration" in the "ServerView Resource Coordinator VE Setup Guide"

[ROR VE V3.0.0]

- "Chapter 6 Pre-configuration" in the "ServerView Resource Orchestrator Virtual Edition V3.0.0 User's Guide"

3. Back up (copy) Assets to Transfer

a. Back up (copy) certificates.

Back up (copy) the following folders and directories:

- RCVE Windows Manager

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

- ROR VE Windows Manager

Installation_folder\SVROR\Manager\etc\opt\FJSVssmgr\current\certificate

Installation_folder\SVROR\Manager\etc\opt\FJSVrcxdm\certificate

Installation_folder\SVROR\Manager\sys\apache\conf\ssl.crt

Installation_folder\SVROR\Manager\sys\apache\conf\ssl.key

- RCVE and ROR VE Linux Manager

/etc/opt/FJSVrcvnr/opt/FJSVssmgr/current/certificate

/etc/opt/FJSVrcvnr/sys/apache/conf/ssl.crt

/etc/opt/FJSVrcvnr/sys/apache/conf/ssl.key

b. Back up (copy) the folder containing the collected system images and cloning images 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:

- RCVE Windows Manager

Installation_folder\ScwPro\depot\Cloneimg

- ROR VE Windows Manager

Installation_folder\SVROR\ScwPro\depot\Cloneimg

- RCVE and ROR VE Linux Manager

/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.

c. Back up (copy) the following file.

- Port Number Settings

[Windows Manager]

System_drive\WINDOWS\system32\drivers\etc\services

[Linux Manager]

/etc/services

- Batch Files and Script Files for Event-related Functions

RCVE Windows Manager

Installation_folder\Manager\etc\trapop.bat

ROR VE Windows Manager

Installation_folder\SVROR\Manager\etc\trapop.bat

Linux Manager

/etc/opt/FJSVrcvnr/trapop.sh

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" or "SVROR" which are created during setup of the manager cluster service.
- When operating managers in clusters, the backup (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 following manuals:

[RCVE]

- "1.1.2.5 Dynamic Disk Space" in the "ServerView Resource Coordinator VE Installation Guide"

[ROR VE V3.0.0]

- "1.4.2.5 Dynamic Disk Space" in the "ServerView Resource Orchestrator Virtual Edition V3.0.0 Setup Guide"

When there is no storage folder for system images and cloning images, this step is not necessary.

4. Uninstall Earlier Products or Managers of Earlier Versions

Refer to the "ServerView Resource Coordinator VE Installation Guide" or the "ServerView Resource Orchestrator Virtual Edition V3.0.0 Installation Guide", and uninstall the manager.

When operating managers in clusters, refer to the following manuals, delete the cluster service and uninstall the manager.

[RCVE]

- "Appendix B Manager Cluster Operation Settings and Deletion" in the "ServerView Resource Coordinator VE Installation Guide"

[ROR VE V3.0.0]

- "Appendix B Manager Cluster Operation Settings and Deletion" in the "ServerView Resource Orchestrator Virtual Edition V3.0.0 Installation Guide"

Note

- Do not perform "Delete servers" as given in the Preparations in the "ServerView Resource Coordinator VE Installation Guide" or the "ServerView Resource Orchestrator Virtual Edition V3.0.0 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 6 and perform reconfiguration from the ROR console.

5. Installation of Managers of This Version

Install managers of this version.

For installation, refer to "2.1 Manager Installation".

Note

When installing managers, specify the same admin LAN as used for the RCVE manager 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 3.

a. Stop the manager.

For the method for stopping managers, refer to "2.1 Starting and Stopping Managers" in the "Operation Guide CE".

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 Manager]

Installation_folder\ScwPro\depot\Cloneimg

[Linux Manager]

/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 Manager]

Installation_folder\SVROR\Manager\etc\opt\FJSVssmgr\current\certificate

Installation_folder\SVROR\Manager\etc\opt\FJSVrcxdm\certificate

Installation_folder\SVROR\Manager\sys\apache\conf\ssl.crt

Installation_folder\SVROR\Manager\sys\apache\conf\ssl.key

[Linux Manager]

/etc/opt/FJSVrcvnr/opt/FJSVssmgr/current/certificate

/etc/opt/FJSVrcvnr/sys/apache/conf/ssl.crt

/etc/opt/FJSVrcvnr/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 on how to change port numbers, refer to "6.2 Changing Port Numbers" in the "User's Guide for Infrastructure Administrators (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/FJSVrcvnr/trapop.sh

- e. Start the manager.

For the methods for starting and stopping managers, refer to "2.1 Starting and Stopping Managers" in the "Operation Guide CE".

6. User Account Settings

Using the information recorded during preparations, perform setting of user accounts using the ROR console.

For details on how to configure user accounts, refer to "Chapter 3 Configuring Users for Infrastructure Administrators" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

7. Edit System Configuration Files

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

For how to edit system configuration files (CSV format), refer to "Appendix B Format of CSV System Configuration Files" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".



Note

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

- 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 "10.2 Importing the System Configuration File" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

b. Register the Agent

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 details on registering agents, refer to "[Chapter 11 Installing Software and Registering Agents on VM Hosts](#)".

After completing agent registration, use the ROR console to check that all 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 "18.2 Settings for Server Switchover" in 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 7 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 (CSV format), refer to "Appendix B Format of CSV System Configuration Files" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Import the edited system configuration file.

For the import method, refer to "10.2 Importing the System Configuration File" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

9. Set Maintenance Mode

Using the information recorded during preparation, place the managed serves placed into maintenance mode before the transfer using the pre-configuration function into maintenance mode again.

For maintenance mode settings, refer to "Appendix C Maintenance Mode" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

10. Manager Setup

It is necessary to confirm whether Single Sign-On has been configured before performing setup of the manager.

For setting Single Sign-On, refer to "Chapter 12 Installing and Defining Single Sign-On" in the "Design Guide CE".

For the manager's setup, refer to "2.1.3 Setup".

After completing transfer of a manager of this version of ROR CE using the pre-configuration function, setup of the manager is necessary.

11. Registration of license

Access the ROR console, and register the license of Cloud Edition.

For the registration of the license, refer to the setting of the license of "Chapter 5 License Setup and Confirmation".

Use SSL communications when accessing the ROR console from a browser.

When changing the certificate used for SSL communication from the test certificate set up by default to another certificate, refer to "Chapter 3 SSL Communication Environment Settings for the ROR Console".



Note

- When using backup system images or collecting cloning images without upgrading agents, either reboot managed servers after reinstallation of the manager or transfer using the pre-configuration function is completed, or restart the related services.

For restarting the Related Services, refer to "2.2 Starting and Stopping Agents" in the "Operation Guide CE".

- Set the following manuals when you set cooperation with "Service Quality Coordinator".
"1.14 Linking to ServerView Resource Orchestrator" in the "Systemwalker Service Quality Coordinator User's Guide"

F.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

[Solaris]

There is no resource to transfer.

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]

32-bit (x86) OS

Drive_name\Program Files\RCVE-upgradedata

64-bit (x64) OS

Drive_name\Program Files (x86)\RCVE-upgradedata

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

[Solaris]
/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 the operational environment, refer to "2.4 Software Environment" and "2.5 Hardware Environment" in the "Design Guide CE".
- 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.

On the managed server on which the agent (Dashboard Function) is installed, the agent (Dashboard Function) is also upgraded when performing upgrade installation of the agent.



- 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] [OVM for x86 2.2]", 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/FJSVnrmpl/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 3. When 3 was not performed, this step is not necessary.

a. Stop agents.

For the method for stopping agents, refer to "2.2 Starting and Stopping Agents" in the "Operation Guide CE".

b. Restore the definition file.

Restore the folders and files backed up (copied) in 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/FJSVnrmpl/lan/ipaddr.conf file

/etc/FJSVrcx.conf file

c. Start agents.

For the method for starting agents, refer to "2.2 Starting and Stopping Agents" in the "Operation Guide CE".

5. Setup agents (Dashboard Function)

Execute the command below.

[Windows] [Hyper-V]

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

[Linux]

```
# /opt/FJSVssqc/setup/dsbsetup.sh 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.

[Solaris]

The command does not have to be executed.

6. Release Maintenance Mode

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

Transfer of Agents Using Re-installation or the Pre-configuration Function

Use the following procedure to perform transfer from agents of earlier versions to agents on this version on all managed servers for which transfer using the pre-configuration function will be performed.



Note

- Do not perform any other operations with Resource Orchestrator until the transfer using the pre-configuration function is completed.
- Perform transfer of agents after transfer of the manager using the pre-configuration function 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 Earlier 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 2. When 2 was not performed, this step is not necessary.

a. Stop agents.

For the method for stopping agents, refer to "2.2 Starting and Stopping Agents" in the "Operation Guide CE".

b. Restore the definition file.

Restore the folders and files backed up (copied) in 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 "2.2 Starting and Stopping Agents" in the "Operation Guide CE".

6. Setup agents (Dashboard Function)

Execute the command below.

[Windows] [Hyper-V]

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

[Linux]

```
# /opt/FJSVssqc/setup/dsbsetup.sh 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.

[Solaris]

The command does not have to be executed.

7. Release Maintenance Mode

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



Note

- After transferring 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 transferred.

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 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.
- OSs 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.
-

F.4 Client

This section explains the necessary operations for clients after upgrading of managers.

Web browsers are used as clients of this version.

When upgrading managers, it is necessary to clear the Web browser's cache (temporary internet files), before accessing the ROR console.

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.

F.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 the operational environment, refer to "2.4 Software Environment" and "2.5 Hardware Environment" in the "Design Guide CE".

Upgrade using Upgrade Installation

When upgrading to this version from RCVE V2.2.2, upgrade can be performed using upgrade installation. Perform the upgrade using the following procedure:



- 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 2, refer to "[Chapter 10 Settings for the HBA address rename Setup Service](#)", and start the HBA address rename setup service.

[Linux]

Refer to "[Chapter 10 Settings for the HBA address rename Setup Service](#)", and start the HBA address rename setup service.

F.6 Configuring a Single Sign-On Environment

This section explains the procedure to configure Single Sign-On environments, when upgrading from earlier versions to this version.

The procedure for configuration differs according to the authentication method used for the earlier version. Refer to the following list:

Authentication methods for earlier versions

- a. Internal authentication in ServerView Resource Coordinator VE (hereinafter RCVE)
(Authentication is not executed using Single Sign-On)
- b. Authentication using Single Sign-On in RCVE
- c. Internal authentication in ROR
- d. Authentication using directory service in ROR
- e. Authentication using Single Sign-On in ROR
- f. Internal authentication in ROR VE
- g. Authentication using Single Sign-On in ROR VE

Table F.1 Procedure to Configure Single Sign-On Environments from Earlier Versions

Number	Configuration Procedure	A	B	C	D	E	F	G
1	Installing Resource Orchestrator	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	Registering Administrators (Privileged Users)	Yes	-	Yes	-	-	Yes	-
3	Registering Directory Service Connection Information in Resource Orchestrator	Yes	-	Yes	-	-	Yes	-
4	Changing Already Registered Directory Service Connection Information	-	Yes	-	Yes	Yes	-	Yes
5	Registering CA Certificates of ServerView Operations Manager	Yes	-	Yes	Yes (*)	-	Yes	-
6	Setup	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	Login on the ROR Console	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	License Setup	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9	Moving Information in the Directory Service Used in Earlier Versions	-	Yes	-	Yes	Yes	-	-
10	Registering Users in the Directory Service	Yes	-	Yes	-	-	Yes	-
11	Transferring Tenants and Tenant Administrators	-	-	Yes	Yes	Yes	Yes	-
12	Configuration after Installation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
13	Import a Certificate to a Browser	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Yes: Required, - : Not Required

* Note: This procedure is necessary when using OpenDS or an Active Directory that was configured individually.

1. Installing Resource Orchestrator
Refer to "[Appendix F Upgrading from Earlier Versions](#)".
2. Registering Administrators (Privileged Users)
Refer to "12.3 Registering Administrators" in the "Design Guide CE".
3. Registering Directory Service Connection Information in Resource Orchestrator
Refer to "[F.6.1 Registering Directory Service Connection Information in Resource Orchestrator](#)".
4. Changing Already Registered Directory Service Connection Information
Refer to "[F.6.2 Changing Already Registered Directory Service Connection Information](#)".
5. Registering CA Certificates of ServerView Operations Manager
Refer to "[F.6.3 Registering CA Certificates of ServerView Operations Manager](#)".
6. Setup
Set up the manager. Refer to "[2.1.3 Setup](#)".
7. Login on the ROR Console
Refer to "[Chapter 4 Login to the ROR Console](#)".
8. License Setup
Refer to "[Chapter 5 License Setup and Confirmation](#)".
9. Moving Information in the Directory Service Used in Earlier Versions
Refer to "[F.6.4 Moving Information in the Directory Service Used in Earlier Versions](#)".
10. Registering Users in the Directory Service
Refer to "[F.6.5 Registering Users in the Directory Service](#)".
11. Transferring Tenants and Tenant Administrators
For details, refer to "[F.6.6 Transferring Tenants and Tenant Administrators](#)".
12. Configuration after Installation
Set up the SSL communication environment of the ROR console. Set up e-mail and the application process.
Refer to "[Chapter 3 SSL Communication Environment Settings for the ROR Console](#)" and "[Chapter 18 Post-Installation Procedures](#)".
13. Import a Certificate to a Browser
Refer to "[Chapter 6 Importing a Certificate to a Browser](#)".

F.6.1 Registering Directory Service Connection Information in Resource Orchestrator

Register the directory service connection information for performing Single Sign-On in Resource Orchestrator.

Use the following procedure to register the directory service connection information in Resource Orchestrator.

1. Stop the manager.
Execute the `rcxadm mgrctl stop` command and stop the manager.
For details on the `rcxadm mgrctl stop` command, refer to "5.14 `rcxadm mgrctl`" of the "Reference Guide (Command/XML) CE".

2. Register the directory service connection information for performing Single Sign-On.

Execute the `rcxadm authctl sync` command and register the directory service connection information.

For details on the `rcxadm authctl sync` command, refer to "5.4 `rcxadm authctl`" in the "Reference Guide (Command/XML) CE".

3. Start the manager.

Execute the `rcxadm mgrctl start` command and start the manager.

For details on the `rcxadm mgrctl start` command, refer to "5.14 `rcxadm mgrctl`" of the "Reference Guide (Command/XML) CE".

F.6.2 Changing Already Registered Directory Service Connection Information

Change the already registered directory service connection information from authentication by the directory service to Single Sign-On operations.

Change the directory service connection information used in earlier versions.

1. Stop the manager.

Execute the `rcxadm mgrctl stop` command and stop the manager.

For details on the `rcxadm mgrctl stop` command, refer to "5.14 `rcxadm mgrctl`" of the "Reference Guide (Command/XML) CE".

2. Change the directory service connection information.

Execute the `rcxadm authctl sync` command and change the directory service connection information.

For details on the `rcxadm authctl sync` command, refer to "5.4 `rcxadm authctl`" in the "Reference Guide (Command/XML) CE".

```
>rcxadm authctl sync
```

3. When using OpenDS provided with ServerView Operations Manager V5.3, it is necessary to change the information of the directory server administrator that was changed in 2.

Execute the `rcxadm authctl modify` command and change the directory service connection information.

Example

```
>rcxadm authctl modify -bind "cn=Directory Manager" -passwd admin
```

Specify the password for directory server administrator as a `passwd` option. The OpenDS Directory Manager's predefined password is "admin".

4. Start the manager.

Execute the `rcxadm mgrctl start` command and start the manager.

For details on the `rcxadm mgrctl start` command, refer to "5.14 `rcxadm mgrctl`" of the "Reference Guide (Command/XML) CE".

F.6.3 Registering CA Certificates of ServerView Operations Manager

Use the following procedure to register CA certificates to Resource Orchestrator.

1. Stop the manager.

Execute the `rcxadm mgrctl stop` command and stop the manager.

For details on the `rcxadm mgrctl stop` command, refer to "5.14 `rcxadm mgrctl`" of the "Reference Guide (Command/XML) CE".

2. Check the content of the CA certificate for updating.

```
rcxadm authctl diffcert<RETURN>
```

The difference of the CA certificate (keystore) of ServerView Operations Manager and the registered CA certificate (keystore) of Resource Orchestrator is displayed.

Example

[Windows Manager]

```
>C:\Fujitsu\ROR\SVROR\Manager\bin\rcxadm authctl diffcert
svs_cms
ldaphost.fujitsu.com
```

[Linux Manager]

```
# /opt/FJSVrcvmr/bin/rcxadm authctl diffcert
svs_cms
ldaphost.fujitsu.com
```

3. Update the CA certificate.

Execute the following command.

```
rcxadm authctl refreshcert -alias alias <RETURN>
```

Specify the alias of the certificate displayed by executing "Confirming Certificates" as *alias*.

When importing two or more certificates to Resource Orchestrator, repeat this procedure for each certificate.

Example

[Windows Manager]

```
>C:\Fujitsu\ROR\SVROR\Manager\bin\rcxadm authctl refreshcert -alias sv_s_cms <RETURN>
```

[Linux Manager]

```
# /opt/FJSVrcvmr/bin/rcxadm authctl refreshcert -alias sv_s_cms <RETURN>
```

4. Check the difference of the CA certificate.

Perform step 2 again, and check that the updated certificate is not displayed.

5. Start the manager.

Execute the `rcxadm mgrctl start` command and start the manager.

For details on the `rcxadm mgrctl start` command, refer to "5.14 `rcxadm mgrctl`" of the "Reference Guide (Command/XML) CE".

F.6.4 Moving Information in the Directory Service Used in Earlier Versions

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. Single Sign-On is used for authentication to log in to Resource Orchestrator. Manage the user passwords using the directory service used for Single Sign-On.

- Role definitions
- Access range and roles

Execute the `rcxadm authctl export` command to move the information. Move the information as an OS administrator. For details on the `rcxadm authctl export` command, refer to "5.4 `rcxadm authctl`" in the "Reference Guide (Command/XML) CE".

F.6.5 Registering Users in the Directory Service

Register a user to the directory service.

When Using Active Directory

1. Export the user information which is registered in Resource Orchestrator as files in the LDIF format.

Example

```
>rcxadm user list -format ldif > myusers.ldif <RETURN>
```

2. Modify the user information exported as the ldif file in step 1 for the actual environment.

Modify the base names of entries based on the base name of the Active Directory.

3. Execute the `ldifde` command to register the ldif file modified in step 2 with Active Directory.

Example

```
>ldifde -i -e -k -t 636 -f myusers.ldif <RETURN>
```

For details on the `ldifde` command, refer to the Active Directory documentation.

Registered user passwords are reset as follows.

```
rcxuser@123
```

4. Change the user passwords registered in step 3 to appropriate values. Use the Active Directory functions, and change the password.
5. When performing Single Sign-On operations with ServerView Operations Manager, user definitions are necessary for ServerView Operations Manager. For details on how to add user definitions for ServerView Operations Manager, perform settings for Single Sign-On referring to the following manual:
 - "Integrating ServerView User Management into Microsoft Active Directory" in the "ServerView Suite User Management in ServerView"

When Using OpenDS

1. Export the user and user group information which are registered in Resource Orchestrator as files in the LDIF format.

Example

```
>rcxadm user list -format ldif > myusers.ldif <RETURN>
```

The ldif file for the Active Directory is output.

2. Modify the user information exported as the ldif file in step 1 for OpenDS.
 - a. Modify the base names of entries based on the base name of the directory service.
 - b. Delete the following attributes.
 - samAccountName
 - userAccountControl
 - unicodePwd
 - c. Add the following attributes to user entries.
 - sn
 - uid (same value as the cn attribute)
 - userPassword
 - d. Modify the values of the objectclass attribute.
 - Change "user" to "inetOrgPerson".
 - e. Change "cn=Users" in the "cn=*User_name*,cn=Users,dc=fujitsu,dc=com" to "ou=Users".



Example

- Before editing (ldif file for Active Directory)

```
# User
dn: cn=user01,cn=Users,dc=example,dc=local          # Change cn=Users to
ou=Users.
changetype: add
objectclass: user                                  # Change to objectclass:
inetOrgPerson.
cn: user01
samAccountName: user01                            # Delete this line.
userAccountControl: 512                           # Delete this line.
unicodePwd:: IgByAGMAeAB1AHMAZQByAEAAMQAYADMAIga= # Delete this line.
                                                    # Add sn,uid, and
userPassword attributes.
```

- After editing (ldif file for OpenDS)

```
# User
dn: cn=user01,ou=Users,dc=fujitsu,dc=com
changetype: add
objectclass: inetOrgPerson
cn: user01
sn: user01
uid: user01
userPassword: mypassword
```

3. Use the directory service client function to register the ldif file modified in step 3 with the directory service.
Set the Java SE 6 path for the environment variable JAVA_HOME, before executing the ldapmodify command of OpenDS.
For details on the command, refer to each directory service manual.

[Windows]

```
>"OpenDS_installation_folder\bat\ldapmodify.bat" -p Port_number -f Idif_file -D Administrator_user_DN  
-w Password <RETURN>
```

[Linux]

```
# "OpenDS_installation_folder/bin/ldapmodify" -p Port_number -f Idif_file -D Administrator_user_DN -w  
Password <RETURN>
```

SSL communications are not required when registering a user in OpenDS. The default value of the port number when not using SSL communications is "1473" in the OpenDS provided with ServerView Operations Manager.

For details on how to configure connection settings of the OpenDS provided with ServerView Operations Manager, refer to README and the manuals of "ServerView Suite User Management in ServerView".

Example

```
>"C:\Program Files\Fujitsu\ServerView Suite\opends\bat\ldapmodify.bat" -p 1473 -f myusers.ldif -D  
"cn=Directory Manager" -w admin -c <RETURN>
```

4. When performing Single Sign-On operations with ServerView Operations Manager, specify users who are defined in ServerView Operations Manager as the user information of Resource Orchestrator.

For details on how to register users, refer to "Chapter 3 Configuring Users for Infrastructure Administrators" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

5. When users of Resource Orchestrator log in to ServerView Operations Manager, user definitions are necessary for ServerView Operations Manager. For details, refer to "12.2.3 Single Sign-On When Using the ServerView Operations Manager Console" in the "Design Guide CE".

F.6.6 Transferring Tenants and Tenant Administrators

Upgrading from V3.0

Tenants, tenant administrators, and tenant users of the previous version are transferred as is. The transfer operation is unnecessary.

Upgrading from V2.3

The tenant management role cannot operate tenants and L-Servers in tenants that were operated on V2.3.

To make the tenant management role operate tenants that were operated with V2.3, transfer the tenant according to the position in which the tenant was made according to either following procedures.

Use the multiple roles and operate tenants when the transfer is unnecessary. When one user operates two or more tenants, it is necessary to use the multiple roles.

- When the tenant is made right under the orchestration tree

1. Create user groups.

The user groups should be the same names as the tenant name, the tenant name be set in the access scope, and tenant_admin (tenant administrator) be set to the role.

Create user group according to the following procedures.

```
> rxcadm usergroup create -name tenant_name -role tenant_name=tenant_admin <RETURN>
```

Modify user groups according to the following procedures when user groups of the same name as the tenant name already exist.


```
>rcxadm usergroup modify -name tenant_name -role tenant_name=tenant_admin <RETURN>
```

For details on the rcxadm usergroup command, refer to "7.2 rcxadm usergroup" in the "Reference Guide (Command/XML) CE".

2. Modify tenants.

The tenant which is operating it with V2.3 is displayed in the [Tenant] tab of the ROR console.

Set the following information by using the [Modify Tenant] window.

- Tenant display name
- E-mail address

For details on the [Modify Tenant] window, refer to "11.4 Modifying a Tenant" in the "User's Guide for Infrastructure Administrators CE".

3. Do the "Common Procedures".

- When the tenant is made besides right under the orchestration tree

You need to transfer the tenant to the newly created tenant.

Transferred Data of Tenants

- Users (users who operate the tenant as tenant administrators, tenant operators, and tenant monitors)
- Resources in local pools of tenants
- L-Server

Use the following procedure to transfer tenants and tenant administrators.

1. Create tenants.

In the [Tenant] tab of the ROR console, create a Tenant.

2. Move resources.

In the [Resource] tab of ROR console, move the following resources in the old tenant to the new tenant. If the L-Server has been started, move the resources after stopping it.

- Resources in the local pool
Move them to a local pool or a global pool of the newly created tenant.
- L-Server
Move it to the newly created tenant.

3. Do the "Common Procedures".

4. Delete the old tenant.

Delete the old tenant using the rcxadm tenant delete command.

```
>rcxadm tenant delete -name /OldTenant <RETURN>
```

Common Procedures

1. Modify tenant users.

Allocate appropriate roles to the users operating as tenant administrators, tenant operators, or tenant monitors among users who operated the earlier versions.

Use the following procedure to allocate roles to users.

- a. Output the user information in files in XML format.

```
>rcxadm user list -format xml > myusers.xml
```

For details on the rcxadm user command, refer to "7.1 rcxadm user" in the "Reference Guide (Command/XML) CE".

b. Edit the XML files.

Delete the information of other users from the XML file, so that only the users operating as tenant administrators, tenant operators, and tenant monitors remain.

Define the tenant administrator roles to allocate.

Add the following information:

- Email address
- First name
- Family name

For details on the XML definition of tenant administrators, refer to "15.8.1 Tenant Management Roles and Tenant User Role" in the "Reference Guide (Command/XML) CE".

 **Example**

Example of the XML definition in which the tenant administrator role of "NewTenant" is allocated to the user "john"

```
<?xml version="1.0" encoding="utf-8"?>
<Users>
  <User name="john">
    <Roles>
      <Role name="tenant_admin">
        <Scopes>
          <Scope>NewTenant</Scope>
        </Scopes>
      </Role>
    </Roles>
    <MailAddress>john@mail.example.com</MailAddress>
    <ActualName>
      <FirstName>john</FirstName>
      <LastName>fujitsu</LastName>
    </ActualName>
  </User>
</Users>
```

c. Allocate the tenant administrator roles to the user by specifying the XML file edited in the rcxadm user command.

```
>rcxadm user modify -file my_tenantadmins.xml
```

2. Import L-Servers to the L-Platform.

Import L-Servers to the L-Platform using the cfmg_importlserver command.

```
>cfmg_importlserver -user john -org NewTenant -lserver /NewTenant/lserverA
```

For details, refer to "7.2.3.2 Importing L-Servers" in the "Operation Guide CE".

Appendix G Compatibility with Earlier Versions

This appendix explains compatibility with earlier versions of Resource Orchestrator.

Maintaining Compatibility with Earlier Versions

This section explains how to maintain compatibility with earlier versions of Resource Orchestrator.

Information about Incompatibility with Earlier Versions

This section explains information about incompatibilities between this version and earlier versions.

This Version

This chapter specifies this version as described below.

- The state in which patch T007664LP-05 [Linux Manager] has been applied to the V3.1.1 manager
- The state in which patch T007664LP-05 [Linux Manager] has been applied to the V3.1.1A manager
- The state in which patch T007676WP-07 [Windows Manager] has been applied to the V3.1.1 manager
- The state in which patch T007676WP-07 [Windows Manager] has been applied to the V3.1.1A manager

V3.1.0A

V3.1.0A includes V3.1.0 with the following patches applied:

- Manager patch T007218LP-02 [Linux Manager]
- Manager patch T007141WP-01 [Windows Manager]

Reference

For details on information about incompatibility with earlier versions, refer to the following:

- Information about incompatibility between this version and V3.1.1/V3.1.1A
Refer to "[G.2 Information about Incompatibility between This Version and V3.1.1/V3.1.1A](#)".
- Information about incompatibility between V3.1.0A and V3.1.1/V3.1.1A
Refer to "[G.3 Information about Incompatibility between V3.1.0A and V3.1.1/V3.1.1A](#)".
- Information about Incompatibility between V3.1.0 and V3.1.0A
Refer to "[G.4 Information about Incompatibility between V3.1.0 and V3.1.0A](#)".
- Information about incompatibility between V3.0 and V3.1.0
Refer to "[G.5 Information about Incompatibility between V3.0 and V3.1.0](#)".

G.1 Maintaining Compatibility with Earlier Versions

This section explains how to maintain compatibility with earlier versions of Resource Orchestrator.

- [G.1.1 Overcommit Definition Files](#)
- [G.1.2 Definition Files for Display Control of VM Pool Attribute Information](#)
- [G.1.3 Sorting the Resource List in the Tree](#)
- [G.1.4 Configuring Display of Errors that Occur on Related Products](#)
- [G.1.5 Usage Charge Calculation Feature Settings](#)

G.1.1 Overcommit Definition Files

This section explains overcommit definition files.

The following settings are configured in overcommit definition files:

- VM pools used for overcommit
- Calculation methods for the available space for VM pools used for overcommit
- Configurations for Thin Provisioning attributes on storage pools

Point

Overcommit definition files are provided to remain compatible between V2.3 and V3.1, and V3.0 and V3.1 of Resource Orchestrator. Do not use overcommit definition files for anything other than the intended use.

Overcommit definition files may not be provided in future versions of Resource Orchestrator. Use the following procedure to transfer the configuration information and start to use the specification method in V3.1 at an early stage.

- Transfer of Configurations for Overcommit Attributes

1. Execute the `rcxmigrate_oc` command.

For details on the `rcxmigrate_oc` command, refer to "5.2 `rcxmigrate_oc`" in the "Reference Guide (Command/XML) CE".

2. Delete the following key and value from the definition file.

- `over_commit`
- `over_commit_calculate_by_reserve_value`

- Transfer of Configurations for Thin Provisioning Attributes

1. Delete the following key and value from the definition file.

- `thin_provisioning`
-

Storage Location of the Definition File

[Windows Manager]

`Installation_folder\SVROR\Manager\etc\customize_data`

[Linux Manager]

`/etc/opt/FJSVrcvnr/customize_data`

Definition File Name

`pool.rcxprop`

Definition File Format

```
over_commit=pool1,pool2,...
over_commit_calculate_by_reserve_value=true|false
thin_provisioning=pool1,pool2,...
```

`over_commit`

Specify the VM pools used for overcommit.

Multiple VM pool names can be specified. When specifying multiple resource pools, separate them using commas (",").

If the VM pool is arranged in a hierarchy, specify the name using an absolute path.

For a VM pool directly under the orchestration tree, specify only its name.



Example

```
over_commit=VMPool,/folder1/VMPool
```

Point

When creating L-Servers that use overcommit and L-Servers that do not, both a VM pool that uses overcommit and a VM pool that does not must be created.

After editing overcommit definition files, open the [Resource] tab of the ROR console, and then confirm that the modification has been reflected on the resource pool attributes displayed in the resource details or the resource pool list.

over_commit_calculate_by_reserve_value

Specify the calculation method for available space for a VM pool used for overcommit.

One of the following values can be specified.

- When using a reservation value

Specify "true".

- When using a maximum value

Specify "false".

"false" is specified in the following cases:

- When specification of "over_commit_calculate_by_reserve_value" is omitted
- When an invalid value is specified

Example

```
over_commit_calculate_by_reserve_value=true
```

thin_provisioning

Specify names of storage pools that have Thin Provisioning attributes configured.

Multiple storage pool names can be specified. When specifying multiple resource pools, separate them using commas (",").

If a storage pool is arranged in a hierarchy, specify the name using an absolute path.

For a storage pool directly under the orchestration tree, specify only its name.

Example

```
thin_provisioning=StoragePool./folder/StoragePool
```

Note

Thin Provisioning attributes of a storage pool are configured when the storage pool is created.

If the thin_provisioning key is specified in a overcommit definition file (the file is configured when a storage pool is created and is loaded into Resource Orchestrator), a storage pool with Thin Provisioning attributes will be created.

If the thin_provisioning key is not specified in the definition file, a storage pool without Thin Provisioning attributes will be created.

For storage pools that have already been created, the setting for Thin Provisioning attributes cannot be changed even if the following operations are performed:

- Changing the value of the thin_provisioning key
- Changing storage pool names

When creating storage pools for which Thin Provisioning attributes are configured, specify the names of storage pools that are planned for the thin_provisioning key beforehand.

G.1.2 Definition Files for Display Control of VM Pool Attribute Information

This section explains the definition files for display control of VM pool attribute information.

Point

.....

The definition files for display control of VM pool attribute information provided to remain compatible between V3.0.0 and this version of Resource Orchestrator.

When performing upgrade from ROR V3.0.0, the definition files for display control of VM pool attribute information are created to provide compatibility between V3.0.0 and V3.1 for execution of the rcxadm pool list -extend attributes command.

To display the "ATTRIBUTES" item of a VM pool as a result of the command execution, delete this definition file.

.....

Storage Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvmr/customize_data

Definition File Name

cli_notlist_oc.rcxprop

- If the definition file exists

The "ATTRIBUTES" item of a VM pool will not be displayed when the rcxadm pool list -extend attributes command is executed.

- If the definition file does not exist

The "ATTRIBUTES" item of a VM pool will be displayed when the rcxadm pool list -extend attributes command is executed.

G.1.3 Sorting the Resource List in the Tree

This section describes the way to change the sorting order of the resource list in the tree.

In V3.1.0, the tree on the ROR console [Resource] tab displays the resources listed in ascending order of name, by resource type.

As with earlier versions of Resource Orchestrator, to display resources in order of registration or creation, edit the following definition file.

Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvmr/customize_data

Definition File Name

gui_config.rcxprop

Definition File Format

RESOURCE_TREE_SORT_ORDER=RESOURCE_TREE_ORDER

Definition File Items

RESOURCE_TREE_ORDER

Specify the display order using one of the following options:

name

Displays the resource list in alphabetical order of resource names.

registered

Displays the resource list in the order in which the resources were registered or created.

Note

- To enable the above mentioned setting, restart the manager after editing the definition file.
- The orders of some lists, such as for blade servers in the server tree, cannot be changed.

G.1.4 Configuring Display of Errors that Occur on Related Products

This section describes how to configure whether to display errors that occur on related products.

When an error occurs during operation of related products using commands, the related product name and an error message are displayed. As with earlier versions of Resource Orchestrator, to prevent display of these error messages, configure the following definition file.

Note

Use the UTF-8 character code for this file.

If you edit and save a UTF-8 text file using Windows Notepad, the Byte Order Mark (BOM) is stored in the first three bytes of the file, and the information specified on the first line of the file will not be analyzed correctly. When using Notepad, specify the information from the second line.

Location of the Definition File

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvmr/customize_data



Information

The sample definition file (product_report.rcxprop.sample) is stored in the location above.

When using the sample as the definition file, place the file after deleting the ".sample" included in the file name.

Definition File Name

product_report.rcxprop

Definition File Format

Describe each line of the definition file in the following format:

Item_Name= Values

Definition File Items

Table G.1 List of Items

Item Name	Description
product_report	When obtaining the operation results for each resource (including command executions), specify whether the information returned is to be backward compatible or not. <ul style="list-style-type: none">- true New format

Item Name	Description
	<ul style="list-style-type: none"> - false Conventional format <p>To configure the backward compatible mode, specify false.</p> <p>When omitted, true is configured and the information is returned in the new format.</p> <p>When an invalid value is specified, the information is returned in the new format.</p>
product_report_for_cli	<p>Specify whether to make command error output backward compatible.</p> <p>If false is specified for product_report, that setting will be given priority, and errors will be output in the conventional format regardless of the setting for this parameter.</p> <ul style="list-style-type: none"> - true New format - false Conventional format <p>To not include the information on related products in command error output, specify false.</p> <p>When omitted, true is configured and the error is output in the new format.</p> <p>When an invalid value is specified, the error is output in the new format.</p>

G.1.5 Usage Charge Calculation Feature Settings

This section describes the usage charge calculation feature settings.

When upgrading V3.1.0 or V3.1.0A to V3.1.1, pre-upgrade settings will be retained, so specify the following settings to enable the usage charge calculation feature after an upgrade.

Location of the Definition File

[Windows Manager]

Installation_folder\RCXCTMG\Charging\conf

[Linux Manager]

/etc/opt/FJSVctchg/conf/

Definition File Name

accounting.properties

Definition File Format

Describe each line of the definition file in the following format:

```
accounting.calculate.sys.disk=yes
gui.identifier.server=name
gui.identifier.disk=name
```

Definition File Items

Table G.2 List of Items

Item Name	Description
accounting.calculate.sys.disk	<p>In V3.1.1, the unit price can be set for system disks separately from L-Server images.</p> <p>When billing system disks separately from L-Server images, add the following row: accounting.calculate.sys.disk=yes</p> <p>When switching to settings for V3.1.1 in an operating environment where system disk unit prices are included in L-Server image products, modify the settings for product unit</p>

Item Name	Description
	prices while taking into account their applicable periods and tenant cut-off dates so that the system disks will not be charged doubly. Refer to Section "15.3.2 Modify Accounting Information" in the "Operation Guide CE" for information on reconfiguring product unit prices.
gui.identifier.server	In V3.1.1, the server name specified in the L-Platform Management, not the internal ID, can be displayed as the identification information for the virtual or physical server in the Usage Charge Detail window. To display the server name, add the following row: gui.identifier.server=name
gui.identifier.disk	In V3.1.1, the disk name specified in the L-Platform Management, not the internal ID, can be displayed as the identification information for the data disk capacity in the Usage Charge Detail window. To display the disk name, add the following row: gui.identifier.disk=name



Note

Restart the manager for the definition file settings to take effect. Refer to Section "2.1 Starting and Stopping Managers" in the "Operation Guide CE" for information on starting the manager.

G.2 Information about Incompatibility between This Version and V3.1.1/V3.1.1A

This section explains information about incompatibility between this version and V3.1.1/V3.1.1A.

G.2.1 Registration and Movement of Disk Resource to Storage Pool

Details of Modification

In the following cases, neither registration nor the movement of the disk resource to the storage pool were able to be done.

- Disk resources with Thin Provisioning attributes cannot be registered to storage pools for which Thin Provisioning attributes are not configured.
- Disk resources with Thick Provisioning attributes cannot be registered to storage pools for which Thin Provisioning attributes are configured.

In this version, the above-mentioned operation became possible.

Corrective Actions

When "rcxadm pool register" command or "rcxadm pool move" command is called from the program, program correction might become necessary.

G.2.2 Restoring of system image of physical L-Server and restoring of virtual L-Server a snapshot in the [Resource] tab of the ROR console.

Details of Modification

The warning message to the effect being lost for existing compositions and disk contents of this L-Server is displayed, when restoring a L-Server in ROR console.

Corrective Actions

In the dialog displayed when the operation of restoring about L-Server of the [Resource] tab in ROR console is executed, the alert message to the effect being lost for existing compositions and disk contents of this L-Server is displayed.

You should confirm the content of the displayed alert message, and put the check in the following check boxes.

- For physical L-Server: "Restoring a system image."
- For Virtual L-Server: "Restoring a snapshot."

G.2.3 Addition of Resource Type in Output Metering Logs Command (ctchg_getmeterlog)

Details of Modification

Snapshots of virtual L-Servers are added to the target resources for which metering logs are output.

Effect

The snapshot is added to the resource type of metering logs which are output by the Output Metering Logs command (ctchg_getmeterlog).

The "resource_type" entry of metering logs for snapshots is "snapshot".

Corrective Actions

When the command output results are analyzed by programs, it is necessary to skip reading of added information.

G.2.4 About display information on the disk resource corresponding to the device of thin provisioning attribute in EMC Symmetrix DMX storage or EMC Symmetrix VMAX storage

Details of Modification

The display concerning ATTRIBUTES of the disk resource corresponding to the device of thin provisioning attribute in EMC Symmetrix DMX storage or EMC Symmetrix VMAX storage was changed as follows.

- For V3.1.1
"Thick" is displayed in ATTRIBUTES of the disk resource.
- For this version
"Thin" is displayed in ATTRIBUTES of the disk resource.

Corrective Actions

When the output of "rcxadm disk list -verbose" command or "rcxadm disk show" command is analyzed by the program, you should correct the program.

G.2.5 When Auto-configuration of a Network Device Fails

Details of Modification

The behavior of a network device when network device auto-configuration fails is changed as indicated below.

- For V3.1.1/V3.1.1A

With network devices for which script execution failed during auto-configuration, auto-configuration (AutoConfiguration) in the network configuration information of the network device is changed to exclude (false).

The unit status and the maintenance mode of the corresponding network device are not changed.

- For this version

With network devices and corresponding network devices in redundant configurations for which script execution failed during auto-configuration, their unit statuses are changed to "error" and they are placed into maintenance mode.

Auto-configuration (AutoConfiguration) of the network configuration information in the network devices is not changed.

Corrective Action

Release the network device from maintenance mode after taking action when auto-configuration fails.

G.2.6 Releasing a Network Device from Maintenance Mode

Details of Modification

When the unit status of a network device is "unknown", it will not be released from maintenance mode.

- For V3.1.1/V3.1.1A

When release from maintenance mode is performed for a network device with the unit status "unknown", the device will be released from maintenance mode.

- For this version

When release from maintenance mode is performed for a network device with the unit status "unknown", the device will not be released from maintenance mode.

Corrective Action

When the unit status of the network device is "unknown", release it from maintenance mode after taking corrective action to make the unit status "normal".

G.2.7 Messages Output when Monitoring Network Devices

Details of Modification

Messages output when monitoring network devices have been changed.

- For V3.1.1/V3.1.1A

When the status changes of network devices are detected, the following messages are output:

22780 : unm-mon:Node status of *nodeid* is changed to *status*

42780 : unm-mon:Node status of *nodeid* is changed to *status*

62780 : unm-mon:Node status of *nodeid* is changed to *status (cause)*

- For this version

When the status changes of network devices are detected, the following messages are output:

22780 : Status of *nodeid* has changed to *status*

42780 : Status of *nodeid* has changed to *status (cause)*

62780 : Status of *nodeid* has changed to *status (cause)*

Corrective Action

When monitoring the corresponding messages output by Resource Orchestrator using other monitoring software, it is necessary to change the monitored messages.

When the messages before modification are described in the operation guide of a system created by a customer, it is necessary to revise the operation guide.

G.2.8 Message Output when Creating A Virtual L-Server

Details of Modification

When some disk resources allocated to L-Server were insufficient at the time of the following operations, output message and *detail* were changed.

- Applying for an L-Platform including a virtual L-Server of KVM
- Creation of a virtual L-Server of KVM, or starting of a virtual L-Server of KVM

- For V3.1.1/V3.1.1A

When the disk resources allocated to some disks of L-Server are insufficient, the following messages are output.

- FJSVrcx:ERROR:67154:*obj*:not found

- For this version

When the disk resources allocated to some disks of L-Server are insufficient, the following messages are output.

- FJSVrcx:ERROR:62514:Selectable VM host not found. (*detail*)
- FJSVrcx:ERROR:62517:Specified VM host is not available. (*detail*)

Moreover, the information outputted to *detail* is changed.

- For V3.1.1/V3.1.1A

no sharable datastore found

- For this version

no sharable datastore or disk found

Corrective Action

When monitoring the corresponding messages output by Resource Orchestrator using other monitoring software, it is necessary to change the monitored messages.

When the messages before modification are described in the operation guide of a system created by a customer, it is necessary to revise the operation guide.

G.2.9 Response of the L-Platform API "ListDisk"

Details of Modification

A tag name contained in the response of the L-Platform API "ListDisk" has been changed.

- For V3.1.1/V3.1.1A

The API returns the VDIsks tag.

- For this version

The API returns the disks tag.

Corrective Action

If you have created programs that analyze the response of the L-Platform API "ListDisk", check whether the change of the tag name affects them.

G.3 Information about Incompatibility between V3.1.0A and V3.1.1/ V3.1.1A

This section explains information about incompatibility between V3.1.0A and V3.1.1.

G.3.1 Hiding Resource Pools if their Resources are not Registered in the L-Platform Template

Details of Modification

When creating L-Platform templates, resource pools are displayed as options for the following items even if they have unregistered resources:

- VM or server pools (spare server pools) of the server
- Storage pool of the server system disk
- Storage pool of the server data disk

Resource pools are no longer displayed as options in V3.1.1 if their resources are not registered.

Corrective Actions

Create an L-Platform template after registering resources with the resource pool.

G.3.2 About Server Names when an L-Platform is Deployed using the L-Platform API CreateLPlatform

Details of Modification

In previous versions, if an L-Platform was deployed using CreateLPlatform, servers were deployed with the names as specified in the L-Platform template, even if the names conflicted in the template.

In addition, if server names conflicted in a deployed L-Platform, it caused the following problems:

- It was difficult to identify servers displayed in the event log.
- Server names needed to be changed when the L-Platform was reconfigured.

In this version, with the improved server name checking of CreateLPlatform, servers are deployed with names appended with sequential numbers if the names conflict in the L-Platform template.

Corrective Actions

To deploy servers with the names as specified in an L-Platform template, specify unique server names within the template.

G.3.3 The Number of NICs Attached to an Added Server when an L-Platform Template is Created, Copied, or Edited

Details of Modification

In previous versions, when an L-Platform was created, copied, or edited, added servers were placed with as many NICs as the maximum number of NICs of the image information.

In V3.1.1, an added server is placed with one NIC.

Corrective Actions

To attach as many NICs as the maximum number of NICs, click the server icon, and then click the [Add NIC] button to add NICs.

G.4 Information about Incompatibility between V3.1.0 and V3.1.0A

This section explains information about incompatibility between V3.1.0 and V3.1.0A.

G.4.1 When Using Linux Manager with Managed Servers Using Local Boot or SAN Data Environments

Details of Modification

When using Linux manager with managed servers using local boot or SAN data environments, modification of boot agents was not necessary up to V3.1.

It is necessary to change the boot agent before image operations when using this version in the following configurations:

- Local boot, SAN data environments where SAN data is configured using a physical WWN or VIOM

Effect

When upgrading from an earlier version, if the boot agent is not changed, for image operations that were correctly implemented before upgrade, processing may be performed for data disks. An error will occur during image operations.

Corrective Actions

Perform the image operations, after changing the boot agent to DR-DOS using the following command:

```
#/opt/FJSVrcvnr/bin/rcxadm server set -name physical server -attr bootagt=dos <RETURN>
```

G.4.2 Reducing the Number of Services of Agents

Details of Modification

When the OS of managed servers is XenServer6, the following service does not operate on agents.

- Deployment Agent

Effect

When agent processes are being monitored, the monitor will mistakenly report that Deployment Agent has stopped.

Corrective Actions

Delete Deployment Agent from the targets of process monitoring.

G.4.3 Regarding Modification of Messages

From V3.1.0, the messages displayed in the following cases have been changed:

- [When Operating L-Servers or Resource Pools](#)
- [When Monitoring Network Devices](#)

- [Import Operations for Network Devices](#)

When Operating L-Servers or Resource Pools

- Message output when there are errors in the values specified for an XML tag, when applying to use an L-Platform including a virtual L-Server, creating a virtual L-Server, or when modifying definition information, the basic information, or specifications, or when there are errors in the values specified for the XML tag
 - For V3.1.0
 - FJSVrcx:ERROR:65910:The value of *item*, *value*, is invalid.
 - For V3.1.0A
 - The content of *item* is changed.
 - Message output when unsupported XML tags are specified in the VM types for virtual L-Servers, when applying to use an L-Platform including a virtual L-Server, creating a virtual L-Server, or when modifying definition information, the basic information, or specifications
 - For V3.1.0
 - FJSVrcx:ERROR:67280:*obj.function* not supported. *detail*
 - For V3.1.0A
 - The content of *detail* is changed.
 - Message output when there are no specified resources in the resource pools, when applying to use an L-Platform including a virtual L-Server, creating a virtual L-Server, modifying definition information, or attaching and starting disks
 - For V3.1.0
 - FJSVrcx:ERROR:67154:*obj*:not found
 - For V3.1.0A
 - FJSVrcx:ERROR:62553:no *AddressType* found in *targets*
 - Message output when there are no available MAC address resources in the resource pools, when applying to use an L-Platform including a virtual L-Server, or creating a virtual L-Server
 - For V3.1.0
 - FJSVrcx:ERROR:67154:*obj*:not found
 - For V3.1.0A
 - FJSVrcx:ERROR:62553:no *AddressType* found in *targets*
- Or
- For V3.1.0A
 - FJSVrcx:ERROR:62554:*AddressType*:no more addresses available in *targets*
- Message output when disk deployment settings during image specification (disk=all) are configured, without specifying cloning images, when applying to use an L-Platform including a virtual L-Server, creating a virtual L-Server, or modifying definition information
 - For V3.1.0
 - FJSVrcx:ERROR:67280:*obj.function* not supported. *detail*
 - For V3.1.0A
 - FJSVrcx:ERROR:62537:*obj* cannot be specified because of *condition*. *detail*

- Message output if unsupported options of pool types are specified when creating a resource pool
 - For V3.1.0
 - FJSVrcx:ERROR:67280:*obj.function* not supported. *detail*
 - For V3.1.0A
 - FJSVrcx:ERROR:62538:*obj1* cannot be specified for *obj2*. *detail*
- Message output if already registered resources in resource pools are specified, when registering resources in resource pools
 - For V3.1.0
 - FJSVrcx:ERROR:67155:*type obj*:already exists
 - For V3.1.0A
 - The content of *obj* is changed.
- Message output if resources that cannot be registered are specified when registering resources in resource pools
 - For V3.1.0
 - FJSVrcx:ERROR:67154:*obj*:not found
 - For V3.1.0A
 - FJSVrcx:ERROR:62537:*obj* cannot be specified because of *condition*. *detail*
- Message output if the combination of resource type and pool type is not appropriate, when registering resources in resource pools
 - For V3.1.0
 - FJSVrcx:ERROR:67280:*obj.function* not supported. *detail*
 - For V3.1.0A
 - FJSVrcx:ERROR:62551:The specified *obj1* and *obj2* do not matched. *detail*

When Monitoring Network Devices

From V3.1.0, the messages output when monitoring network devices have been changed.

- Messages output when changes in port status are detected when monitoring network devices
 - For V3.1.0
 - FJSVrcx:WARNING:42781:*device*:Port *port_name* status change from *prev_status* to *cur_status* has been detected
 - For V3.1.0A
 - FJSVrcx:INFO:22784:*device*:Port *port_name* status change from *prev_status* to *cur_status* has been detected

Import Operations for Network Devices

The message displayed when all specified network devices have already been registered during the import of network devices has been changed.

- Messages output when all specified network devices have already been registered during the import of network devices
 - For V3.0
 - FJSVrcx:INFO:25901:Import has not been performed.
 - For V3.1.0A
 - FJSVrcx:INFO:22781:Import has not been performed because all specified network devices have already been registered.

Corrective Actions

- It is necessary to add the message for the target of monitoring, when monitoring the messages (numbers or message text) for Resource Orchestrator using other vendors' products.
- It is necessary to update the operation guide, when the messages before modification are described in an operation guide created by users.

G.5 Information about Incompatibility between V3.0 and V3.1.0

This section explains information about incompatibility between V3.0 and V3.1.0.

G.5.1 Regarding Modification of Messages

Details of Modification

From V3.0 the message displayed when operating an L-Server has been changed.

- Message output when a MacAddress cannot be obtained, when applying for an L-Platform including a physical L-Server, or creating a physical L-Server
 - For V3.0
 - FJSVrcx:ERROR:65910:The value of MacAddress, *value*, is invalid.
 - FJSVrcx:ERROR:67154:MacAddress:not found
 - For V3.1.0
 - FJSVrcx:ERROR:62552: *value* is outside range of *targets*
 - FJSVrcx:ERROR:62553:no *AddressType* found in *targets*
 - FJSVrcx:ERROR:62554:*AddressType*:no more addresses available
- Message output when the WWNAddress cannot be obtained, when applying for an L-Platform including a physical L-Server, or creating a physical L-Server
 - For V3.0
 - FJSVrcx:ERROR:67133:remained amount of WWN address:out of range
 - For V3.1.0
 - FJSVrcx:ERROR:62552: *value* is outside range of *targets*
 - FJSVrcx:ERROR:62553:no *AddressType* found in *targets*
 - FJSVrcx:ERROR:62554:*AddressType*:no more addresses available
- Message output when the specified system disk does not exist, when applying for an L-Platform including a physical L-Server, or creating a physical L-Server
 - For V3.0
 - FJSVrcx:ERROR:67154:System Disk:not found
 - For V3.1.0
 - FJSVrcx:ERROR:62549:*obj1* not specified for *obj2*. (*detail*)
- Message output when the resource has no access authority, when starting an L-Platform including a physical L-Server, or starting a physical L-Server
 - For V3.0
 - FJSVrcx:ERROR:67280:*obj*:start not supported. The resources used are permission denied.

- For V3.1.0
 - FJSVrcx:ERROR:62548:*obj1* access rights not possessed for *obj2*. (*detail*)
- Message output when there are no physical servers, when applying for an L-Platform including a physical L-Server, or creating or starting a physical L-Server
 - For V3.0
 - FJSVrcx:ERROR:65911:Specified resource PhysicalServer not found.
 - For V3.1.0
 - FJSVrcx:ERROR:62532:*resource* not found in *target*. (*detail*)
 - FJSVrcx:ERROR:62533:*resource* matching conditions not found in *target*. (*detail*)
- Message output when there is no access authority for the person creating a virtual L-Server to VM host associating the configured virtual machine and the virtual L-Server
 - For V3.0
 - FJSVrcx:ERROR:67154:TargetServer id=*id*:not found
 - For V3.1.0
 - FJSVrcx:ERROR:62547:*obj* access rights not possessed. (*detail*)
- Message output when the resource has no access authority, when starting an L-Platform including a virtual L-Server, or starting a virtual L-Server
 - For V3.0
 - FJSVrcx:ERROR:67280:*obj*:start not supported. The resources used are permission denied.
 - For V3.1.0
 - FJSVrcx:ERROR:62548:*obj1* access rights not possessed for *obj2*. (*detail*)

The message is output to command prompt and the terminal where the command was executed when operating it by the command.

Corrective Actions

- It is necessary to add the message for the target of monitoring, when monitoring the messages (numbers or message text) for Resource Orchestrator using other vendors' products.
- It is necessary to add or revise messages after modification, when the messages before modification are described in the operation guide created by users.

G.5.2 Modification of Results Output Using the Command (rcxadm lserver show)

Details of Modification

- The lines for VMHostPool and StoragePool[num] are added to the information output using the rcxadm lserver show command. Depending on the status of resource allocation, the information may not be displayed.
- The following tags are added to the information using the rcxadm lserver show -format xml command. Depending on the status of resource allocation, the information may not be displayed.
 - Pool elements in Current elements
 - Current elements in Disk elements, and Pool elements under Current elements
- When disk space is unclear and the VM type is Solaris Containers, DiskSize is shown as "-" in the information output using the rcxadm lserver show command.

Effect

When the command output results are analyzed by programs, the analysis may fail.

Corrective Actions

When the command output results are analyzed by programs, it is necessary to skip reading of added information.

When the output results are analyzed in the text format, it is necessary to extract the necessary items by lines, but this is only required for users analyzing the results in text format.

G.5.3 Date Format Displayed on the Dashboard (System Conditions)

Details of Modification

The Date format displayed on the Dashboard (System Conditions) has been modified.

In V3.0 the format was yyyy/mm/dd.

In V3.1, the format is yyyy-mm-dd.

Note that the date format output to CSV files has also been modified.

Effect

When using the date output to the CSV file, processing may fail.

Corrective Actions

When using the date output to the CSV file, modification is required.

G.5.4 Date Format Displayed on the Dashboard (Pool Conditions)

Details of Modification

The Date format displayed on the Dashboard (pool conditions) has been modified.

In V3.0 the format was mm/dd/yyyy.

In V3.1, the format is yyyy-mm-dd.

Note that the date format output to CSV files has also been modified.

Effect

When using the date output to the CSV file, processing may fail.

Corrective Actions

When using the date output to the CSV file, modification is required.

G.5.5 L-Server Template Setting Values that occur in L-Platform Reconfiguration

Details of Modification

The method of handling L-Server template setting values that occur in L-Platform reconfiguration has been modified.

In V3.0, when reconfiguring post deployment L-Platforms, even if the following setting values were modified to a different type (L-Server template), the changes were not reflected in the L-Server setting values:

- Alive Monitoring Settings
- Redundancy

- Repurpose

In V3.1, when reconfiguring post deployment L-Platforms, if the above setting values are modified to a different type (L-Server template), the changes are now reflected in the L-Server setting values.

Corrective Actions

Reregister the L-Server template which has the same setting values as the following items:

Also, when modifying only the Server specs, select the type of Server that has the same setting values as the following items, and perform the L-Platform reconfiguration:

- Alive Monitoring Settings
- Redundancy
- Repurpose

G.5.6 Registering Image Information Specifying Cloning Images that include Data Disks

Details of Modification

Previously, when registering L-Platform template image information which specified cloning images that included data disks, the image information from the system disk configuration only was registered in V3.0.

But in V3.1, image information with the data disks is now included in the configuration is registered.

Corrective Actions

- Infrastructure administrators

After deleting the data disk from the L-Server which was the source of the cloning image collection, recollect the cloning image. Specify the recollected cloning image and reregister the image information.

- Tenant administrators

After deploying a configuration which includes the data disks, collect a cloning image in the L-Platform Management window which specifies exclusion of the data disks. If this is done, image information configured only with system disks is automatically registered.

G.5.7 The Number of Disks That Can Be Attached Using the L-Platform API

Details of Modification

AttachDisk or CreateDisk of the L-Platform API was able to attach one disk to a server even if the maximum number of extension disks of the server was set to zero.

It has been corrected, and now AttachDisk and CreateDisk cannot attach a disk if the maximum number of extension disks is zero.

Corrective Actions

If it is expected that a disk will be attached to a server that is created using image information with the maximum number of extension disks set to zero, edit the image information and change the maximum number of extension disks to a value more than zero.

Appendix H Configuration when Using Ethernet Fabrics

This appendix explains how to configure the settings when using an Ethernet Fabric as a network device.

H.1 Performing Preconfiguration

Perform preconfiguration for Ethernet Fabric switches, referring to "9.2.3 Settings for Managed Network Devices" in the "Design Guide CE".

H.2 Creating the Network Configuration Information

Create the network configuration information (XML definition), referring to "9.4.8.1 Creation of Network Configuration Information (XML definition)" in the "Design Guide CE".

H.3 Registering Network Devices

Use the `rxadm netdevice` command to execute network device registration.

For details on the `rxadm netdevice` command, refer to "3.8 `rxadm netdevice`" in the "Reference Guide (Command/XML) CE".

Back up environments using the functions provided by the Ethernet fabric after registration.

The backup can be used for restoration when replacing Ethernet fabric devices due to failure.

For details on how to back up environments, refer to the manual of the Ethernet fabric.

H.4 Automatic Network Configuration

When using Ethernet Fabrics, the port profile migration function (hereinafter AMPP) can be used on virtual L-Servers. Resource Orchestrator supports VLAN as a parameter of AMPP. AMPP works with virtual L-Server migration and automatically migrates the port settings of the Ethernet fabric switch to the physical port of the Ethernet fabric switch adjacent to the migration target server.

When creating a network resource, a VLAN port profile is created for the Ethernet fabric with port profile configuration enabled.

The VLAN port profiles are created for the specified virtual fabrics (VFAB), if the VFAB are linked with the tenants when registering network devices. When linking is not performed, the profile is created for the default VFAB.

When creating a virtual L-Server, the NIC of the virtual L-Server is linked with the VLAN port profile. This configures a VLAN for the server connection port of the Ethernet fabric when the virtual L-Server on the migration target server performs communications.

H.5 Creating Definition Files for the Port Profile Configuration Function

When using the port profile manually configured on the relevant devices for the port profile configuration function used in Resource Orchestrator, refer to "9.4.8.4 Port Profile Configuration Function Definition Files" in the "Design Guide CE".

H.6 Registering Network Resources

When using an Ethernet Fabric, it is necessary to configure an external connection port for network devices. Configure the CIR port of the Ethernet Fabric as the external connection port.

Create network resources, referring to "14.3 Network Resources" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

When using a virtual fabric (VFAB) other than the default VFAB on Converged Fabric, a pool is necessary for each tenant.

Refer to "6.6 Concept for Separating Tenants by Resource Pool" and "H.1.3 Virtual Fabrics" in the "Design Guide CE".

Appendix I Coordination with Other Products

This appendix explains how to coordinate Resource Orchestrator with other products.

I.1 Coordination with BMC BladeLogic Server Automation

This section explains how to coordinate Resource Orchestrator with BMC's server automation software BMC BladeLogic Server Automation.

External Software

Resource Orchestrator can coordinate with the software in BMC BladeLogic Server Automation Suite 8.0 or later.



For coordination for the creation and migration of virtual L-Servers, BMC BladeLogic Server Automation Suite 8.2 or later is required.

I.1.1 Coordination for Creation and Migration of Virtual L-Servers

Functional Overview

Through coordination, the following becomes possible:

- Virtual L-Server Creation [Solaris Zones]

Registering BMC BladeLogic Server Automation with Resource Orchestrator as server management software enables creation of virtual L-Servers.

- Virtual L-Server Operation [Solaris Zones] [OVM for SPARC]

Registering BMC BladeLogic Server Automation with Resource Orchestrator as server management software enables operations such as migration of virtual L-Servers between servers.

Function Details

- Virtual L-Server Creation

For details on how to design a virtual L-Server, refer to "E.6 Solaris Zones" in the "Design Guide CE".

For details on how to create a virtual L-Server, refer to "[C.7 Solaris Zones](#)".

- Virtual L-Server Operation

For details on how to operate virtual L-Servers, refer to "Chapter 17 L-Server Operations" in the "User's Guide for Infrastructure Administrators (Resource Management) CE".

Installing BMC BladeLogic Server Automation

Install BMC BladeLogic Server Automation referring to the BMC BladeLogic Server Automation manual. The following are advisory notices regarding coordination with Resource Orchestrator.

- Installation Order

The order of installation of Resource Orchestrator and BMC BladeLogic Server Automation is not important. Therefore, you can install in any order you like.

- Manager Installation

It is possible to install the Resource Orchestrator manager and Application Server (the BMC BladeLogic Server Automation manager) on the same server or on separate servers.

Note

When registering BMC BladeLogic Server Automation with Resource Orchestrator as server management software, it is recommended to install it on the same server. However, when operating Resource Orchestrator managers in clusters, it is recommended to install it on a different server.

- Required Coordination Components

When the Resource Orchestrator manager and Application Server are installed on separate servers, please install the BMC BladeLogic Server Automation console on the server on which the Resource Orchestrator manager has been installed.

Setup Procedure

After installing BMC BladeLogic Server Automation, perform the following settings on the admin server. For details, contact Fujitsu technical staff.

1. Create Users

Create the user for coordination with Resource Orchestrator.

Make the user name "ServerAdmin".

Configure the "BLAdmins" role for the role of the "ServerAdmin" user.

2. Create Authentication Files

Use the `bl_gen_bcli_user_info` command and create an authentication file for the user created in 1.

The path and name for the file to create are as below.

Path

[Windows]

BladeLogic_installation_folder\user

[Linux]

/opt/bmc/bladelogic/user

Name

user_info.dat

3. Create Authentication Profiles

Create an authentication profile with the name "server-profile".

Specify "SRP" for the authentication method.

4. Confirm the Connection

Login to the admin server as the "Administrator" for Windows, or the "root" for Linux.

Start the BladeLogic console, and connect to the Application Server.

I.1.2 Coordination of Registration and Deletion of Managed Servers, Cloning, and Software Deployment

Functional Overview

Through coordination, the following becomes possible:

- Coordination of registration and deletion of managed servers

When registration or deletion of managed servers is performed using Resource Orchestrator, the managed servers are automatically registered or deleted from BMC BladeLogic Server Automation. When Resource Orchestrator and BMC BladeLogic Server Automation both manage a server in the same environment, this coordination eases the workload of the staff responsible for server registration.

- Coordination of cloning and software deployment

Coordination of Resource Orchestrator's cloning function and BMC BladeLogic Server Automation's software deployment function enables deployment of software to servers installed through cloning. This coordination eases the workload of installing software that cannot be deployed using cloning images (software that saves environment specific information such as MAC addresses on installation) on managed servers.

Function Details

- Common notes
 - The BMC BladeLogic Server Automation processes and process results resulting from execution of coordination are displayed as Resource Orchestrator processes in the recent operations area of the ROR console.
 - Resource Orchestrator processes are given priority in the order of execution. If Resource Orchestrator processes terminate abnormally, BMC BladeLogic Server Automation processes will not be executed.
 - If Resource Orchestrator processes are completed normally, but BMC BladeLogic Server Automation processes terminate abnormally, they will be displayed as errors in the recent operations area of the ROR console.
 - Check the details of BMC BladeLogic Server Automation processes that terminated abnormally on the Server Automation console of BMC BladeLogic Server Automation, and take corrective action referring to the BMC BladeLogic Server Automation manual.
- Coordination of managed server registration
 - When managed server registration is performed due to automatic registration of Resource Orchestrator agents, server registration with BMC BladeLogic Server Automation is performed automatically.
 - When agents are not registered automatically during server registration, coordination is not performed. By registering agents after registering servers, server registration with BMC BladeLogic Server Automation is performed automatically.
 - The computer name set in the OS (for Windows) or the hostname (for Linux) is used as the server name of servers registered with BMC BladeLogic Server Automation.
 - If Resource Orchestrator processes are completed normally, but BMC BladeLogic Server Automation processes terminate abnormally, they will be displayed as errors in the recent operations area of the ROR console. In such cases, as status is one where the physical server has been registered with Resource Orchestrator but the agent is still not registered, resolve the cause of the problem and register the agent again.
- Coordination of managed server deletion
 - When performing deletion of managed servers using Resource Orchestrator, the server will automatically be deleted from BMC BladeLogic Server Automation.
 - If Resource Orchestrator processes are completed normally, but BMC BladeLogic Server Automation processes terminate abnormally, they will be displayed as errors in the recent operations area of the ROR console. In such cases, as server deletion from Resource Orchestrator is complete, perform server deletion for BMC BladeLogic Server Automation using the Server Automation console.
- Coordination of cloning and software deployment
 - By preparing software application batch jobs with BMC BladeLogic Server Automation in advance, software deployment settings are performed.
 - After deployment of cloning images using Resource Orchestrator, as well as automatic registration with BMC BladeLogic Server Automation, the batch job registered with BMC BladeLogic Server Automation will be executed.
 - If Resource Orchestrator processes are completed normally, but BMC BladeLogic Server Automation processes terminate abnormally, they will be displayed as errors in the recent operations area of the ROR console. In such cases, as image deployment from Resource Orchestrator is complete, execute the software deployment batch job for BMC BladeLogic Server Automation using the Server Automation console.

Installing BMC BladeLogic Server Automation

Install BMC BladeLogic Server Automation referring to the BMC BladeLogic Server Automation manual. The following are advisory notices regarding coordination with Resource Orchestrator.

- Installation Order

The order of installation of Resource Orchestrator and BMC BladeLogic Server Automation is not important. Therefore, you can install in any order you like.

- Manager Installation

It is possible to install the Resource Orchestrator manager and Application Server (the BMC BladeLogic Server Automation manager) on the same server or on separate servers.



When registering BMC BladeLogic Server Automation with Resource Orchestrator as server management software, it is recommended to install it on the same server. However, when operating Resource Orchestrator managers in clusters, it is recommended to install in on a different server.

- Required Coordination Components

When the Resource Orchestrator manager and Application Server are installed on separate servers, please install the BMC BladeLogic Server Automation console on the server on which the Resource Orchestrator manager has been installed.

Setup Procedure

Coordination can be performed after processing of Resource Orchestrator, by executing BMC BladeLogic Server Automation functions by using the coordination script. Before using the coordination script, use the following procedure to perform settings for BMC BladeLogic Server Automation and the coordination script.

Common Settings

- Settings for BMC BladeLogic Server Automation

1. Perform settings for managed server name resolution.

On BMC BladeLogic Server Automation, servers are registered by specifying the server names. Therefore, it is necessary to configure DNS or a hosts file in advance so that registered server names can be resolved from Application Server.



When using the Resource Orchestrator cloning function to install a server, the name of the server can be set in "Server name after deployment" of the [Deploy a Cloning Image] dialog.

If the server name set in "Server name after deployment" cannot be resolved from Application Server, the coordination process for BMC BladeLogic Server Automation will fail.

In order to avoid the above problem, in "Server name after deployment" set a server name that can be resolved.

2. Connect to Application Server using the Server Automation console and obtain the certificate. When the certificate has already been obtained, this step is not necessary.

[Windows]

While logged in as the Administrator, connect to the Application Server.



Depending on the language version of Windows, the name of the built-in account for the administrator may not be named "Administrator". In such cases, change the user name of the administrator based on the environment being used.

[Linux]

While logged in to the OS as root, connect to the Application Server.

3. In the property dictionary, create an integer type property named "CLONING_DEPLOY" as a property of the server, setting the default value to "0".
4. Create a server smart group named "CLONING_DEPLOY" in the [Servers] workspace. In the conditions area of the window displayed when creating the smart group, configure the following conditions.
 - Select "Server" from the list, and enter "CLONING_DEPLOY".
 - Select "equals" from the list, and enter "1".

- Settings for Resource Orchestrator

1. Change the extension of the script for coordination.

The script for coordination can be found in the following location:

[Windows Manager]

Installation_folder\SVROR\Manager\etc\scripts

[Linux Manager]

/etc/opt/FJSVrcvnr/scripts

Based on the functions being used, change the extension of the file named "sample" to "bat".

Table I.1 Coordination Scripts

Function	File name (excluding extension)
Server registration	post_register_server
Server deletion	post_delete_server
Cloning image deployment	post_cloning_deploy

2. Settings for connection to Application Server

Edit the file named "blenv.bat" that is in the same folder as the script for coordination, rewriting the values specified for the following variables based on the connection information for Application Server.

Variable	Meaning
PROFILE	The name of the authentication profile used for connection to Application Server
ID	A user name with authority for executing coordination patch jobs
PASSWD	The password for the above user

 Note

- As "blenv.bat" contains connection information for Application Server, protect the connection information using the following method.
 - Secure the admin server.
 - Restrict the authority of the BMC BladeLogic Server Automation account used for coordination so that only the coordination batch job can be executed.

[Windows]

- The following path configured in "blenv.bat" may not exist depending on the language version of Windows being used. In such cases, change the user name of the built-in administrator and the application data storage folder based on the environment being used.

```
set BL_SSO_TRUSTED_CERT_KEYSTORE_FILE="C:\Documents and Settings\Administrator\Application Data\BladeLogic\client_keystore.pkcs12.PEM"
```

Required Settings for Coordination of Cloning and Software Deployment

Perform the following settings for Resource Orchestrator.

Edit the script for coordination "post_cloning_deploy.bat", and specify the batch job created for software deployment using BMC BladeLogic Server Automation.

Re-write the values of the following variables as given below.

Variable	Meaning
JOB_GROUP	Job folder name
JOB_NAME	Batch job name

Advisory Notes

When uninstalling the manager, the coordination scripts will not be saved. Therefore, back them up if necessary.

I.2 Sending SNMP Traps

This section explains the function used to send the details of Resource Orchestrator events to other products as SNMP traps.

Functional Overview

By receiving SNMP traps sent by Resource Orchestrator on other products (operation management products, etc.) it is possible to monitor major Resource Orchestrator events on other products. With this function, in operating environments where monitoring is mainly performed using the consoles of other products, as it is not necessary to constantly display the Resource Orchestrator console, centralization of the monitoring console is possible.

Function Details

- SNMPv1 traps are sent to servers registered as destinations. Destination servers are registered, changed, and deleted using the rcxadm eventctl command.
For details on this command, refer to "5.7 rcxadm eventctl" in the "Reference Guide (Command) VE".
- The SNMP traps sent by Resource Orchestrator contain information about the operation details of Resource Orchestrator. For events related to status changes of resources managed by Resource Orchestrator and events internal to resources, the SNMP traps will be sent by the resource itself.
- The events that are the target of sending as SNMP traps are as follow:
FJSVrcx:INFO:21143:operation:started
FJSVrcx:INFO:21144:operation:completed
FJSVrcx:INFO:21145:operation:cancelled
FJSVrcx:ERROR:61143:operation:failed
FJSVrcx:ERROR:61144:operation:rollback failed
- For details of the Resource Orchestrator events that are sent as SNMP traps, check the event log of the ROR console.

Setup Procedure

This section explains the procedure for setting other products to receive Resource Orchestrator SNMP traps.

Here it is assumed that installation of other products for receiving SNMP traps has been performed, and that basic settings such as those of the SNMP trap service necessary to receive traps and the required ports, have been made.

1. Configure a SNMP community name for the product that will receive SNMP traps.
Enter a string of up to 32 alphanumeric characters, hyphens ("-"), and underscores ("_") for the SNMP community name.

2. Load the Resource Orchestrator MIB file on the product that is to receive SNMP traps.
The MIB file that defines the SNMP traps for Resource Orchestrator is located in the following folder on the admin server.

[Windows Manager]

Installation_folder\SVROR\Manager\etc\mibs\RCVE-Event-Trap-MIB.mib

[Linux Manager]

/etc/opt/FJSVrcvnr/mibs/RCVE-Event-Trap-MIB.mib

3. Register destination servers using the rxdm eventctl add command of Resource Orchestrator.

Modification Procedure

Use the following procedure to change SNMP trap destination settings:

1. Delete the target destination server information using the rxdm eventctl delete command of Resource Orchestrator.
2. Register the new destination servers using the rxdm eventctl add command of Resource Orchestrator.

Deletion Procedure

Delete the target destination server information using the rxdm eventctl delete command of Resource Orchestrator.

Operation Checks

Use the following procedure to confirm that SNMP trap destinations have been registered correctly.

1. From the ROR console, place the desired managed server into maintenance mode.
 - a. In the ROR console server resource tree, right-click the desired server (or its physical OS), and select [Maintenance Mode]-[Set] from the popup menu.
The [Set Maintenance Mode] dialog is displayed.
 - b. Click <OK>.
2. The managed server is released from maintenance mode.
 - a. In the ROR console server resource tree, right-click the desired server (or its physical OS) and select [Maintenance Mode]-[Release] from the popup menu.
The [Release Maintenance Mode] dialog is displayed.
 - b. Click <OK>.

As a result of the above operation, the following four events will be sent as SNMP traps to the registered server. If the destination has been registered correctly, it is possible to check the receipt of the Resource Orchestrator SNMP traps on the destination device. Please note that the display of SNMP traps varies depending on the product.

Event ID	OID
FJSVrcx:INFO:21143: setting maintenance mode:started	1.3.6.1.4.1.211.4.1.3.55.100.1.2.1.21143
FJSVrcx:INFO:21144: setting maintenance mode:completed	1.3.6.1.4.1.211.4.1.3.55.100.1.2.1.21144
FJSVrcx:INFO:21143: releasing maintenance mode:started	1.3.6.1.4.1.211.4.1.3.55.100.1.2.1.21143
FJSVrcx:INFO:21144: releasing maintenance mode:completed	1.3.6.1.4.1.211.4.1.3.55.100.1.2.1.21144

If the receipt of SNMP traps cannot be confirmed, use the rxdm eventctl command to check if the desired destination has been registered correctly. If there are no problems with the registered details, check that there are no problems with the network or the settings for the SNMP trap destination. After resolving any problems, repeat the above procedure and check if the Resource Orchestrator SNMP traps can be received.

I.2.1 SNMP Trap Settings Using CA Spectrum

This section explains the settings for CA Spectrum to receive Resource Orchestrator SNMP traps. Also refer to "[I.2 Sending SNMP Traps](#)".

For details on CA Spectrum, refer to the CA Spectrum manual.

External Software

The information in this manual has been based on that of CA Spectrum Infrastructure Manager r9.1.2.

Depending on the version of CA Spectrum Infrastructure Manager, some of the terms and procedures may differ slightly from those given here.

Installing CA Spectrum

Perform installation of CA Spectrum referring to the CA Spectrum manual.

The following are advisory notices regarding coordination with Resource Orchestrator.

- Installation Order

The order of installation of Resource Orchestrator and CA Spectrum is not important. Therefore, you can install in any order you like.

- Manager Installation

[Windows Manager]

The Resource Orchestrator manager and CA Spectrum's manager, SpectroSERVER cannot be installed on the same server. Install the Resource Orchestrator manager and the CA Spectrum manager on separate servers.

[Linux Manager]

The Resource Orchestrator manager and CA Spectrum's manager, SpectroSERVER can be installed on the same server or on separate servers. However, when they are installed on the same server, it is necessary to perform the settings given in "[Preparations](#)".

Preparations

Register the admin server on which the Resource Orchestrator manager has been installed as a management target of CA spectrum.

[Linux Manager]

When installing the Resource Orchestrator manager and SpectroSERVER on the same server, in order to share SNMP traps between Resource Orchestrator and CA Spectrum, ServerView Trap Server for Linux (trpsrvd) is necessary.

ServerView Trap Server for Linux is a program that is used to transfer SNMP traps received at UDP port 162 to other UDP port numbers.

ServerView Trap Server for Linux is shipped with some versions of ServerView Operations Manager. In such cases, install ServerView Trap Server for Linux following the instructions given in the ServerView Operations Manager manual.

If ServerView Trap Server for Linux is not shipped with ServerView Operations Manager, download it from the following site, and install it referring to the attached documents.

URL: http://download.ts.fujitsu.com/prim_supported/SVSSoftware/html/ServerView_e.html
--

Perform the following settings after installing ServerView Trap Server for Linux.

1. Log in as OS administrator (root).
2. Change the SpectroSERVER SNMP trap reception port to one other than 162.

The port number can be changed by editing the file shown below.

{*SpectroSERVER_installation_folder*}/CC/.vnmrc



Example

When changing the port number to 9162:

snmp_trap_port=9162

- Restart SpectroSERVER.
- Edit the /usr/share/SMAWtrpsv/conf/trpsrvtargets file and add the SpectroSERVER SNMP trap reception port.

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 (When making the SpectroSERVER SNMP trap reception port 9162)

```
#####  
# 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 9162.  
9162
```

- Restart the system.

Setup Procedure

In this section, the procedures for checking SNMP traps that CA Spectrum receives from Resource Orchestrator, as event messages on OneClick (CA Spectrum's console) are explained. Refer to the CA Spectrum manual for details on each procedure.

- Start CA Spectrum's MIB Tools.
- Click <Add MIB> on the "Navigation" panel.
The [MIB Tools: Add MIB] dialog is displayed.
- Click <Browse> and select the Resource Orchestrator MIB file.
- Click <Compile>.

Confirm that compiling of the MIB file was successful in the messages displayed in "Compiler" of the [MIB Tools: Add MIB] dialog.

5. Click <Add & Close>.

The loaded MIB is displayed in the MIB Tools "Navigation" panel.

6. On "Navigation" panel, select the Resource Orchestrator MIB, and click the [Map] tab on the "Contents" panel.

7. Select the trap displayed in "Trap Support", and click <Information> to check the trap details.

8. Select the trap displayed in "Trap Support", and click <Map Traps>.

The [MIB Tools: Assign Trap Alarms] dialog is displayed.

9. Click <set> in "Alarm Severity", and select the severity of alarms for each trap.

10. Click <OK>.

The [MIB Tools: Trap Support Results] dialog will be displayed, and you can check the results of the operation.

11. Click <Close>.

Check that event codes have been allocated for each trap in the MIB Tools "Trap Support".

12. Select a trap from "Trap Support", and click <Edit Traps>.

The Event Configuration application will start.

13. On the "Navigation" panel, select the event code allocated to the trap.

14. In "Event Message" of the "Contents" panel, the event message to be displayed when the trap is received is displayed.

The message can be edited following the format specified by CA Spectrum.

For details of the format, refer to the CA Spectrum manual.

15. After changing a message, select [Save All] or [Save Selected] from the Event Configuration application menu and save the settings.

After performing the above settings, perform the operation check described in "[I.2 Sending SNMP Traps](#)".

Appendix J Co-Existence with ServerView Deployment Manager

This appendix explains how to use both Resource Orchestrator and ServerView Deployment Manager on the same network.

J.1 Overview

Resource Orchestrator and ServerView Deployment Manager can be installed either on the same server or on two different servers. In both cases, they can share the same subnet (admin LAN) to control managed servers. In a shared subnet configuration, ServerView Deployment Manager should be used instead of Resource Orchestrator for all image operations such as server cloning, backup and restore.

Figure J.1 System Configuration Example (Separate Server Installation)

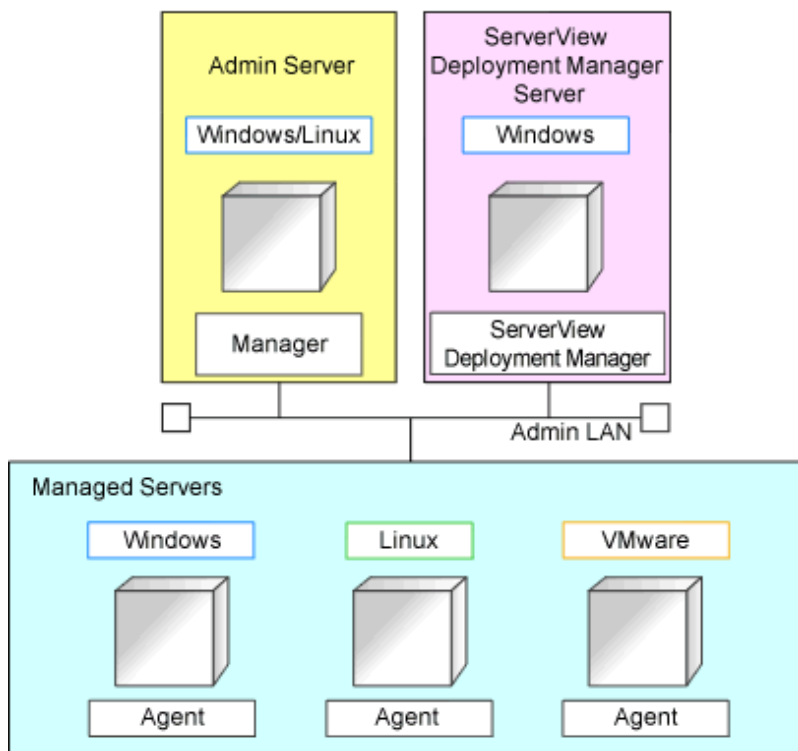
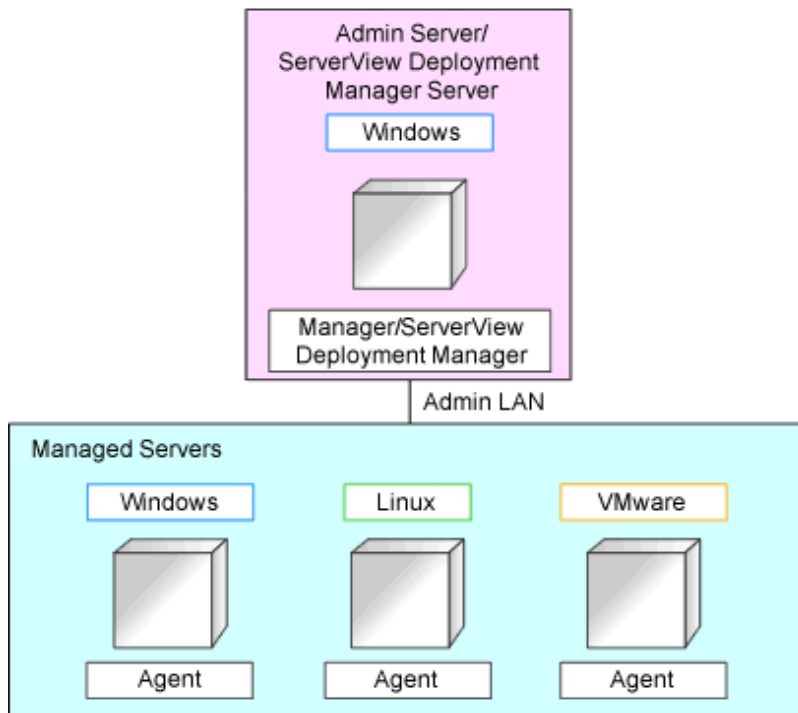


Figure J.2 System Configuration Example (Single Server Installation)



J.2 Restricted Functions

In shared subnet configurations, the following functions are no longer available from Resource Orchestrator.

- Backup and Restore
- cloning
- I/O virtualization (HBA address rename)
- Server switchover (based on the backup-restore and HBA address rename methods)

In Resource Orchestrator, the switchover of VIOM method can be used.

However, users are recommended to use the following ServerView products.

- ServerView Deployment Manager (for cloning, backup and restore)
- ServerView Virtual-IO Manager (for I/O virtualization)