

# **FUJITSU Software**

## **ServerView Resource Orchestrator**

### **Cloud Edition V3.2.0**

A decorative horizontal band with a red-to-white gradient and abstract, glowing white lines and curves.

# **User's Guide**

## **for Infrastructure Administrators**

### **(Resource Management)**

Windows/Linux

J2X1-7612-07ENZ0(08)  
September 2016

# Preface

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## Purpose of This Document

This manual provides an outline of the operation method of the ROR console provided by FUJITSU Software 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 Resource Management Overview](#)

Provides an overview of the two views available in Resource Orchestrator.

### [Chapter 2 License Setup and Confirmation](#)

Explains license setup.

### [Chapter 3 Configuring Users and Customizing Roles](#)

Explains how to configure user settings for infrastructure administrators.

### [Chapter 4 BladeViewer](#)

Provides an overview of BladeViewer and explains its features.

### [Chapter 5 Registering Resources](#)

Explains how to register the resources used by Resource Orchestrator.

### [Chapter 6 Changing Admin Server Settings](#)

Explains how to change the settings of the admin server.

### [Chapter 7 Changing Resources](#)

Explains how to change settings for the admin server or resources registered on the admin server.

### [Chapter 8 Configuring the Operating Environments of Managed Servers](#)

Explains how to install software to the registered managed servers and set up their operating environment.

### [Chapter 9 Deleting Resources](#)

Explains how to delete resources.

### [Chapter 10 Pre-configuration for Resource Registration and Modification](#)

Provides an overview of the pre-configuration function and explains how to use system configuration files.

### [Chapter 11 NetworkViewer](#)

Provides an overview of the NetworkViewer and explains its features.

### [Chapter 12 Cloning \[Physical Servers\]](#)

Explains how to use the server cloning function.

### Chapter 13 Collecting Power Consumption Data and Displaying Graphs

Explains how to export the power consumption data collected from registered power monitoring targets and how to display it as graphs, and also describes the exported data's format.

### Chapter 14 Registering Resources in Resource Pools

Explains how to register a resource managed by Resource Orchestrator to a resource pool.

### Chapter 15 L-Server Template Operations

Explains how to operate L-Server templates.

### Chapter 16 Creating L-Servers

Explains how to create L-Servers.

### Chapter 17 L-Server Operations

Explains how to operate L-Servers.

### Chapter 18 Linking L-Servers with Configured Physical Servers or Virtual Machines

Explains how to link a configured physical server to a physical L-Server and how to link a configured virtual machine to a virtual L-Server.

### Chapter 19 Resource Operations

This section explains how to perform resource operations with resource pools.

### Chapter 20 Resource Pool Operations

Explains how to add new resource pools, and delete or modify existing resource pools.

### Chapter 21 Resource Folder Operations

Explains resource folders, which are used when managing a large number of resources or when you want to divide resources according to certain conditions.

### Chapter 22 Network Device Operations

Explains how to operate network devices.

### Chapter 23 Network Resource Operations

Explains how to operate network resources.

### Appendix A User Interface

Provides an overview of the ROR console GUI.

### Appendix B Format of CSV System Configuration Files

Explains the format of the CSV system configuration files used by Resource Orchestrator's pre-configuration function.

### Appendix C Maintenance Mode

Explains the maintenance mode available in Resource Orchestrator and how to use it.

## Web Site URLs

URLs provided as reference sources within the main text are correct as of September 2016.

## 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
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- 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
[Red Hat Enterprise Linux]	Sections related to Red Hat Enterprise Linux
[Solaris]	Sections related to Solaris
[VMware]	Sections related to VMware
[Horizon View]	Sections related to VMware Horizon View
[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 (Solaris 10) and Solaris Zones (Solaris 11)
[Solaris Zones (Solaris 10)]	Sections related to Solaris Zones with Solaris 10 VM hosts
[Solaris Zones (Solaris 11)]	Sections related to Solaris Zones with Solaris 11 VM hosts
[OVM for x86]	Sections related to Oracle VM Server for x86 2.2 and Oracle VM Server for x86 3.x
[OVM for x86 2.2]	Sections related to Oracle VM Server for x86 2.2
[OVM for x86 3.x]	Sections related to Oracle VM Server for x86 3.2 and Oracle VM Server for x86 3.3
[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 SPARC M10.
  - SPARC M10-1/M10-4/M10-4S
- Fujitsu M10 is the product name used for SPARC M10 when they are sold outside Japan.
- References and character strings or values requiring emphasis are indicated using double quotes ( " ).
- GUI items are shown enclosed by 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 "#".
- When using Resource Orchestrator on Windows 8 and Windows Server 2012, please note the following.  
When OS operations are explained in this manual, the examples assume OSs up to Windows 7 and Windows Server 2008. When using Resource Orchestrator on Windows 8 or Windows Server 2012, take explanations regarding the [Start] menu as indicating the [Apps] screen.  
The [Apps] screen can be displayed by right-clicking on the [Start] screen and then right-clicking [All apps].
- When using Resource Orchestrator on Windows 8.1 and Windows Server 2012 R2, please note the following.  
When OS operations are explained in this manual, the examples assume OSs up to Windows 7 and Windows Server 2008. When using Resource Orchestrator on Windows 8.1 or Windows Server 2012 R2, take explanations regarding the [Start] menu as indicating the [Apps] screen.  
The [Apps] screen can be displayed by swiping the [Start] screen from bottom to top, or clicking the downward facing arrow on the lower-left of the [Start] screen.

## 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.

[Virtual Edition]

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

[Cloud Edition]

C:\Program Files (x86)\Resource Orchestrator

## Command Examples

The paths used in command examples may be abbreviated. When using commands, execute them using the paths in the "Name" column in the "Reference Guide (Command) VE" and the "Reference Guide (Command/XML) CE".

## 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

Abbreviation	Products
	Microsoft(R) Windows Server(R) 2012 Standard Microsoft(R) Windows Server(R) 2012 Datacenter Microsoft(R) Windows Server(R) 2012 R2 Essentials Microsoft(R) Windows Server(R) 2012 R2 Standard Microsoft(R) Windows Server(R) 2012 R2 Datacenter Windows Vista(R) Business Windows Vista(R) Enterprise Windows Vista(R) Ultimate Windows(R) 7 Professional Windows(R) 7 Ultimate Windows(R) 8 Pro Windows(R) 8 Enterprise Windows(R) 8.1 Pro Windows(R) 8.1 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 Microsoft(R) Windows Server(R) 2012 R2 Essentials Microsoft(R) Windows Server(R) 2012 R2 Standard Microsoft(R) Windows Server(R) 2012 R2 Datacenter
Windows PE	Microsoft(R) Windows(R) Preinstallation Environment
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 Windows(R) 8.1 Pro Windows(R) 8.1 Enterprise
Windows 10	Windows(R) 10 Pro Windows(R) 10 Enterprise
Linux	Red Hat(R) Enterprise Linux(R) AS (v.4 for x86) Red Hat(R) Enterprise Linux(R) ES (v.4 for x86) Red Hat(R) Enterprise Linux(R) AS (v.4 for EM64T) Red Hat(R) Enterprise Linux(R) ES (v.4 for EM64T) Red Hat(R) Enterprise Linux(R) AS (4.5 for x86)

Abbreviation	Products
	Red Hat(R) Enterprise Linux(R) ES (4.5 for x86)
	Red Hat(R) Enterprise Linux(R) AS (4.5 for EM64T)
	Red Hat(R) Enterprise Linux(R) ES (4.5 for EM64T)
	Red Hat(R) Enterprise Linux(R) AS (4.6 for x86)
	Red Hat(R) Enterprise Linux(R) ES (4.6 for x86)
	Red Hat(R) Enterprise Linux(R) AS (4.6 for EM64T)
	Red Hat(R) Enterprise Linux(R) ES (4.6 for EM64T)
	Red Hat(R) Enterprise Linux(R) AS (4.7 for x86)
	Red Hat(R) Enterprise Linux(R) ES (4.7 for x86)
	Red Hat(R) Enterprise Linux(R) AS (4.7 for EM64T)
	Red Hat(R) Enterprise Linux(R) ES (4.7 for EM64T)
	Red Hat(R) Enterprise Linux(R) AS (4.8 for x86)
	Red Hat(R) Enterprise Linux(R) ES (4.8 for x86)
	Red Hat(R) Enterprise Linux(R) AS (4.8 for EM64T)
	Red Hat(R) Enterprise Linux(R) ES (4.8 for EM64T)
	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) 5.9 (for x86)
	Red Hat(R) Enterprise Linux(R) 5.9 (for Intel64)
	Red Hat(R) Enterprise Linux(R) 5.10 (for x86)
	Red Hat(R) Enterprise Linux(R) 5.10 (for Intel64)
	Red Hat(R) Enterprise Linux(R) 5.11 (for x86)
	Red Hat(R) Enterprise Linux(R) 5.11 (for Intel64)
	Red Hat(R) Enterprise Linux(R) 6 (for x86)
	Red Hat(R) Enterprise Linux(R) 6 (for Intel64)
	Red Hat(R) Enterprise Linux(R) 6.1 (for x86)
	Red Hat(R) Enterprise Linux(R) 6.1 (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(R) Enterprise Linux(R) 6.5 (for x86)
	Red Hat(R) Enterprise Linux(R) 6.5 (for Intel64)
	Red Hat(R) Enterprise Linux(R) 6.6 (for x86)
	Red Hat(R) Enterprise Linux(R) 6.6 (for Intel64)
	Red Hat(R) Enterprise Linux(R) 6.7 (for x86)
	Red Hat(R) Enterprise Linux(R) 6.7 (for Intel64)
	Red Hat(R) Enterprise Linux(R) 6.8 (for x86)

Abbreviation	Products
	<p>Red Hat(R) Enterprise Linux(R) 6.8 (for Intel64)  Red Hat(R) Enterprise Linux(R) 7.0 (for Intel64)  SUSE(R) Linux Enterprise Server 10 Service Pack 2 for x86  SUSE(R) Linux Enterprise Server 10 Service Pack 2 for EM64T  SUSE(R) Linux Enterprise Server 10 Service Pack 3 for x86  SUSE(R) Linux Enterprise Server 10 Service Pack 3 for EM64T  SUSE(R) Linux Enterprise Server 11 for x86  SUSE(R) Linux Enterprise Server 11 for EM64T  SUSE(R) Linux Enterprise Server 11 Service Pack 1 for x86  SUSE(R) Linux Enterprise Server 11 Service Pack 1 for EM64T  Oracle Enterprise Linux Release 6.7 for x86 (32bit)  Oracle Enterprise Linux Release 6.7 for 86_64 (64bit)  Oracle Enterprise Linux Release 7.2 for x86 (32bit)  Oracle Enterprise Linux Release 7.2 for x86_64 (64bit)</p>
Red Hat Enterprise Linux	<p>Red Hat(R) Enterprise Linux(R) AS (v.4 for x86)  Red Hat(R) Enterprise Linux(R) ES (v.4 for x86)  Red Hat(R) Enterprise Linux(R) AS (v.4 for EM64T)  Red Hat(R) Enterprise Linux(R) ES (v.4 for EM64T)  Red Hat(R) Enterprise Linux(R) AS (4.5 for x86)  Red Hat(R) Enterprise Linux(R) ES (4.5 for x86)  Red Hat(R) Enterprise Linux(R) AS (4.5 for EM64T)  Red Hat(R) Enterprise Linux(R) ES (4.5 for EM64T)  Red Hat(R) Enterprise Linux(R) AS (4.6 for x86)  Red Hat(R) Enterprise Linux(R) ES (4.6 for x86)  Red Hat(R) Enterprise Linux(R) AS (4.6 for EM64T)  Red Hat(R) Enterprise Linux(R) ES (4.6 for EM64T)  Red Hat(R) Enterprise Linux(R) AS (4.7 for x86)  Red Hat(R) Enterprise Linux(R) ES (4.7 for x86)  Red Hat(R) Enterprise Linux(R) AS (4.7 for EM64T)  Red Hat(R) Enterprise Linux(R) ES (4.7 for EM64T)  Red Hat(R) Enterprise Linux(R) AS (4.8 for x86)  Red Hat(R) Enterprise Linux(R) ES (4.8 for x86)  Red Hat(R) Enterprise Linux(R) AS (4.8 for EM64T)  Red Hat(R) Enterprise Linux(R) ES (4.8 for EM64T)  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) 5.9 (for x86)  Red Hat(R) Enterprise Linux(R) 5.9 (for Intel64)  Red Hat(R) Enterprise Linux(R) 5.10 (for x86)  Red Hat(R) Enterprise Linux(R) 5.10 (for Intel64)</p>



Abbreviation	Products
	<p>Red Hat(R) Enterprise Linux(R) 5.11 (for x86)  Red Hat(R) Enterprise Linux(R) 5.11 (for Intel64)  Red Hat(R) Enterprise Linux(R) 6 (for x86)  Red Hat(R) Enterprise Linux(R) 6 (for Intel64)  Red Hat(R) Enterprise Linux(R) 6.1 (for x86)  Red Hat(R) Enterprise Linux(R) 6.1 (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(R) Enterprise Linux(R) 6.5 (for x86)  Red Hat(R) Enterprise Linux(R) 6.5 (for Intel64)  Red Hat(R) Enterprise Linux(R) 6.6 (for x86)  Red Hat(R) Enterprise Linux(R) 6.6 (for Intel64)  Red Hat(R) Enterprise Linux(R) 6.7 (for x86)  Red Hat(R) Enterprise Linux(R) 6.7 (for Intel64)  Red Hat(R) Enterprise Linux(R) 6.8 (for x86)  Red Hat(R) Enterprise Linux(R) 6.8 (for Intel64)  Red Hat(R) Enterprise Linux(R) 7.0 (for Intel64)</p>
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Red Hat Enterprise Linux 6	<p>Red Hat(R) Enterprise Linux(R) 6 (for x86)  Red Hat(R) Enterprise Linux(R) 6 (for Intel64)  Red Hat(R) Enterprise Linux(R) 6.1 (for x86)  Red Hat(R) Enterprise Linux(R) 6.1 (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(R) Enterprise Linux(R) 6.5 (for x86)</p>

Abbreviation	Products
	Red Hat(R) Enterprise Linux(R) 6.5 (for Intel64) Red Hat(R) Enterprise Linux(R) 6.6 (for x86) Red Hat(R) Enterprise Linux(R) 6.6 (for Intel64) Red Hat(R) Enterprise Linux(R) 6.7 (for x86) Red Hat(R) Enterprise Linux(R) 6.7 (for Intel64) Red Hat(R) Enterprise Linux(R) 6.8 (for x86) Red Hat(R) Enterprise Linux(R) 6.8 (for Intel64)
Red Hat Enterprise Linux 7	Red Hat(R) Enterprise Linux(R) 7.0 (for Intel64)
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) 6.1 (for x86) Virtual Machine Function Red Hat(R) Enterprise Linux(R) 6.1 (for Intel64) Virtual Machine Function 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 Red Hat(R) Enterprise Linux(R) 6.5 (for x86) Virtual Machine Function Red Hat(R) Enterprise Linux(R) 6.5 (for Intel64) Virtual Machine Function Red Hat(R) Enterprise Linux(R) 6.6 (for x86) Virtual Machine Function Red Hat(R) Enterprise Linux(R) 6.6 (for Intel64) Virtual Machine Function Red Hat(R) Enterprise Linux(R) 6.7 (for x86) Virtual Machine Function Red Hat(R) Enterprise Linux(R) 6.7 (for Intel64) Virtual Machine Function Red Hat(R) Enterprise Linux(R) 6.8 (for x86) Virtual Machine Function Red Hat(R) Enterprise Linux(R) 6.8 (for Intel64) Virtual Machine Function
Xen	Citrix XenServer(R) 5.5 Citrix Essentials(TM) for XenServer 5.5, Enterprise Edition Citrix XenServer(R) 6.0 Citrix Essentials(TM) for XenServer 6.0, Enterprise Edition Red Hat(R) Enterprise Linux(R) 5.3 (for x86) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.3 (for Intel64) Linux Virtual Machine Function 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

Abbreviation	Products	
	Machine Function Red Hat(R) Enterprise Linux(R) 5.5 (for x86) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.5 (for Intel64) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.6 (for x86) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.6 (for Intel64) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.7 (for x86) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.7 (for Intel64) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.8 (for x86) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.8 (for Intel64) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.9 (for x86) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.9 (for Intel64) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.10 (for x86) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.10 (for Intel64) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.11 (for x86) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.11 (for Intel64) Linux Virtual Machine Function	
XenServer 6	Citrix XenServer(R) 6.0 Citrix Essentials(TM) for XenServer 6.0, Enterprise Edition	
DOS	Microsoft(R) MS-DOS(R) operating system, DR DOS(R)	
SUSE Linux Enterprise Server	SUSE(R) Linux Enterprise Server 10 Service Pack 2 for x86 SUSE(R) Linux Enterprise Server 10 Service Pack 2 for EM64T SUSE(R) Linux Enterprise Server 10 Service Pack 3 for x86 SUSE(R) Linux Enterprise Server 10 Service Pack 3 for EM64T SUSE(R) Linux Enterprise Server 11 for x86 SUSE(R) Linux Enterprise Server 11 for EM64T SUSE(R) Linux Enterprise Server 11 Service Pack 1 for x86 SUSE(R) Linux Enterprise Server 11 Service Pack 1 for EM64T	
Oracle Enterprise Linux	Oracle Enterprise Linux Release 6.7 for x86 (32bit) Oracle Enterprise Linux Release 6.7 for 86_64 (64bit) Oracle Enterprise Linux Release 7.2 for x86 (32bit) Oracle Enterprise Linux Release 7.2 for x86_64 (64bit)	
Solaris	Oracle Solaris 10 05/09 (Update7) Oracle Solaris 11 11/11 Oracle Solaris 11.1 Oracle Solaris 11.2	
OVM for x86 2.2	Oracle(R) VM Server for x86 2.2	
OVM for x86 3.x	OVM for x86 3.2	Oracle VM Server for x86 v3.2.x
	OVM for x86 3.3	Oracle VM Server for x86 v3.3.x
OVM for SPARC	Oracle(R) VM Server for SPARC	

Abbreviation	Products
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 Citrix XenServer(R) 6.2.0
ESC	ETERNUS SF Storage Cruiser
GLS	PRIMECLUSTER GLS
Navisphere	EMC Navisphere Manager
Solutions Enabler	EMC Solutions Enabler
MSFC	Microsoft Failover Cluster
Solaris	Oracle Solaris 10 05/09 (Update7) Oracle Solaris 11 11/11 Oracle Solaris 11.1 Oracle Solaris 11.2
SCVMM	System Center Virtual Machine Manager 2008 R2 System Center 2012 Virtual Machine Manager System Center 2012 R2 Virtual Machine Manager
VMware	VMware vSphere(R) 4 VMware vSphere(R) 4.1 VMware vSphere(R) 5 VMware vSphere(R) 5.1 VMware vSphere(R) 5.5 VMware vSphere(R) 6
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 ESXi 5.5	VMware(R) ESXi(TM) 5.5
VMware ESXi 6.0	VMware(R) ESXi(TM) 6.0
VMware Infrastructure Client	VMware(R) Infrastructure Client
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 5.5	VMware vSphere(R) 5.5
VMware vSphere 6.0	VMware vSphere(R) 6.0
VMware vSphere Client	VMware vSphere(R) Client
VMware vCenter Server	VMware(R) vCenter(TM) Server
VMware vClient	VMware(R) vClient(TM)
VMware FT	VMware(R) Fault Tolerance
VMware DRS	VMware(R) Distributed Resource Scheduler

Abbreviation	Products
VMware DPM	VMware(R) Distributed Power Management
VMware Storage VMotion	VMware(R) Storage VMotion
VMware vDS	VMware(R) vNetwork Distributed Switch
VMware Horizon View	VMware Horizon View 5.2.x VMware Horizon View 5.3.x VMware Horizon 6.0 (with View)
VIOM	ServerView Virtual-IO Manager
SVOM	ServerView Operations Manager
BladeLogic	BMC BladeLogic Server Automation
Excel	Microsoft(R) Office Excel(R) 2003 Microsoft(R) Office Excel(R) 2007 Microsoft(R) Office Excel(R) 2010 Microsoft(R) Office Excel(R) 2013
Excel 2003	Microsoft(R) Office Excel(R) 2003
Excel 2007	Microsoft(R) Office Excel(R) 2007
Excel 2010	Microsoft(R) Office Excel(R) 2010
Excel 2013	Microsoft(R) Office Excel(R) 2013
Internet Explorer	Windows(R) Internet Explorer(R) 8 Windows(R) Internet Explorer(R) 9 Windows(R) Internet Explorer(R) 10 Internet Explorer(R) 11
Firefox	Firefox(R)
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	FUJITSU Software ServerView Resource Orchestrator
ROR VE	FUJITSU Software ServerView Resource Orchestrator Virtual Edition
ROR CE	FUJITSU Software ServerView Resource Orchestrator Cloud Edition
Resource Coordinator	Systemwalker Resource Coordinator Systemwalker Resource Coordinator Virtual server Edition
Resource Coordinator VE	ServerView Resource Coordinator VE Systemwalker Resource Coordinator Virtual server Edition
Resource Orchestrator	FUJITSU Software ServerView Resource Orchestrator
SVFAB	ServerView Fabric Manager

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## Revision History

Month/Year Issued, Edition	Manual Code
November 2011, First Edition	J2X1-7612-01ENZ0(00)
December 2011, Edition 1.1	J2X1-7612-01ENZ0(01)
December 2011, Edition 1.2	J2X1-7612-01ENZ0(02)
February 2012, Edition 1.3	J2X1-7612-01ENZ0(03)
March 2012, Edition 1.4	J2X1-7612-01ENZ0(04)
April 2012, Edition 1.5	J2X1-7612-01ENZ0(05)
July 2012, Second Edition	J2X1-7612-02ENZ0(00)
October 2012, Third Edition	J2X1-7612-03ENZ0(00)
December 2012, Fourth Edition	J2X1-7612-04ENZ0(00)
January 2013, Fifth Edition	J2X1-7612-05ENZ0(00)
January 2013, Edition 5.1	J2X1-7612-05ENZ0(01)

Month/Year Issued, Edition	Manual Code
January 2013, Edition 5.2	J2X1-7612-05ENZ0(02)
March 2013, Edition 5.3	J2X1-7612-05ENZ0(03)
June 2013, Edition 5.4	J2X1-7612-05ENZ0(04)
August 2013, Edition 5.5	J2X1-7612-05ENZ0(05)
December 2013, Sixth Edition	J2X1-7612-06ENZ0(00)
February 2014, Edition 6.1	J2X1-7612-06ENZ0(01)
February 2014, Edition 6.2	J2X1-7612-06ENZ0(02)
April 2014, Edition 6.3	J2X1-7612-06ENZ0(03)
April 2014, Edition 6.4	J2X1-7612-06ENZ0(04)
June 2014, Edition 6.5	J2X1-7612-06ENZ0(05)
April 2015, Seventh Edition	J2X1-7612-07ENZ0(00)
May 2015, Edition 7.1	J2X1-7612-07ENZ0(01)
July 2015, Edition 7.2	J2X1-7612-07ENZ0(02)
August 2015, Edition 7.3	J2X1-7612-07ENZ0(03)
September 2015, Edition 7.4	J2X1-7612-07ENZ0(04)
December 2015, Edition 7.5	J2X1-7612-07ENZ0(05)
January 2016, Edition 7.6	J2X1-7612-07ENZ0(06)
June 2016, Edition 7.7	J2X1-7612-07ENZ0(07)
September 2016, Edition 7.8	J2X1-7612-07ENZ0(08)

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# Chapter 1 Resource Management Overview

This chapter provides an overview of the two views available on the [Resource] tab in Resource Orchestrator.

Resource Orchestrator provides two different GUIs on the [Resource] tab: the default window and BladeViewer. Choosing an appropriate GUI depends on the administrator's authority level, or the kind of operations to be performed.

- ROR console

The ROR console gives access to all functions of Resource Orchestrator.

- BladeViewer

BladeViewer offers a simplified, lifelike representation of blade servers and their statuses. While this enables intuitive operation, it does not include the tree-based navigation or detailed menus available in the [Resource] tab of the ROR console.

BladeViewer makes it easier to monitor blade servers, visualize their hosted applications, and perform power operations. This makes BladeViewer suitable for administrators who only need to monitor blades and perform basic operations.

To switch the view of the [Resource] tab from the default window to BladeViewer, click [BladeViewer>>]. To switch the view of the [Resource] tab from BladeViewer to the default window, click [Advanced>>].



## Information

- All descriptions about the user interface other than those in "[Chapter 4 BladeViewer](#)" apply to the default window.
- For details on the [Resource] tab of the ROR console, refer to "[Appendix A User Interface](#)".
- For details on BladeViewer, refer to "[Chapter 4 BladeViewer](#)". This explains the BladeViewer screen and the functions that it provides.
- When logging in for the first time, the ROR console is displayed.  
Otherwise, the last view used before logging out (either the ROR console or BladeViewer) is displayed.
- In this manual, the [Resource] tab of the ROR console is sometimes referred to as the "ROR console".

# Chapter 2 License Setup and Confirmation

This chapter explains how to configure and confirm licenses.

## 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 in to Resource Orchestrator, select [Tools]-[Licenses] from the menu, and click the [Add] button in the displayed dialog.

The [Register License] dialog is displayed.

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

3. Click the [OK] button.

The license will be registered.

4. After registering the Cloud Edition license, restart the manager.

When using a command, execute the rxcadm license command.

For details on the rxcadm license command, refer to "5.12 rxcadm license" in the "Reference Guide (Command/XML) CE".



.....  
If a Cloud Edition license has been already registered and activated (Active), it is not necessary to restart the manager.  
.....

## Confirming the License

Use the following procedure to confirm the registered license:

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

The [Licenses] dialog is displayed.

When using a command, execute the rxcadm license command.

For details on the rxcadm license command, refer to "5.12 rxcadm license" in the "Reference Guide (Command/XML) CE".



.....  
When "-" is displayed for "NUMBER\_OF\_LICENSES", the same number of agents as purchased licenses can be used.  
.....



# Chapter 3 Configuring Users and Customizing Roles

This chapter explains how to configure users for infrastructure administrators and how to customize roles.

Only users with the infrastructure administrator, tenant administrator, or administrator role can create user accounts.

For details on operation methods by a tenant administrator, refer to "Chapter 10 Tenant" in the "User's Guide for Tenant Administrators CE".

## 3.1 Registering User Accounts

This section explains how to register user accounts of infrastructure administrators.

Use the following procedure to register a user account on the [Resource] tab of the ROR console:

1. When using Single Sign-On authentication, confirm the user information registered in the directory service.
  - When the user is not to be registered from Resource Orchestrator to the directory service  
When registering user accounts, the specified user accounts are registered in Resource Orchestrator if they are already registered in the directory service.  
If the specified user account does not exist in the directory service, register it in the directory service before proceeding further.
  - When the user is to be registered from Resource Orchestrator to the directory service  
When registering user accounts, the specified user accounts are registered both in Resource Orchestrator and in the directory service.

2. In the ROR console, select [Settings]-[User Accounts].

The [User Accounts] dialog is displayed.

3. Click the [Add] button.

The [Register User Account] dialog is displayed.

4. Set the following:

### User ID

When using internal authentication, or when user registration to the directory service is to be performed using Single Sign-On authentication

Enter a character string beginning with an alphanumeric character and containing up to 32 alphanumeric characters, underscores ("\_"), hyphens ("-"), and periods (".").

When user registration to the directory service is not to be performed using Single Sign-On authentication

Specify a user ID registered in the directory service.

### Password (Confirm password)

This item is only displayed when using internal authentication or when user registration to the directory service is to be performed using Single Sign-On authentication.

Specify a string using up to 64 alphanumeric characters or symbols.

### E-mail address

Specify the email address of the user.

Specify a string using up to 64 alphanumeric characters or symbols.

### User group

Select the user group to configure for the user account from the already created user group.

### Scopes/Roles (Optional)

#### Resource

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 the [OK] button.  
The user account is created.

When using Resource Orchestrator user operations to register users in the directory service using Single Sign-On authentication, check the settings of the operation 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".



- Specify "all" (no access scope restriction) for the access scope.
- When users of Resource Orchestrator log in to ServerView Operations Manager using Single Sign On authentication, 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:
  - "12.2 Setting Up ServerView Operations Manager and the Directory Service Environment" in the "Design Guide CE"

## 3.2 Viewing a User Account

---

This section explains how to view user accounts.

Use the following procedure to view a registered user account.

1. In the ROR console, select [Settings]-[User Accounts].  
The [User Accounts] dialog is displayed.  
A list of user accounts (user IDs and user groups) is displayed.

From the command-line, execute rcxadm user list or rcxadm user show.

For details on the rcxadm user list command and the rcxadm user show command, refer to "7.1 rcxadm user" in the "Reference Guide (Command/XML) CE".

## 3.3 Modifying a User Account

---

This section explains how to modify user accounts and passwords.

### User Accounts

Use the following procedure to modify a user account:

1. In the ROR console, select [Settings]-[User Accounts].  
The [User Accounts] dialog is displayed.
2. Select the user account to modify.
3. Click the [Change] button.  
The [Change User Account] dialog is displayed.
4. Change the items you want to modify.

5. Click the [OK] button.

The user account information is modified.

## Password

Use the following procedure to change the password of the logged-in user.

1. On the ROR console, select [Settings]-[Change Password].

The [Change Password] dialog is displayed.

2. Enter the necessary items to change passwords.

Current password

Enter the current password.

New password

Enter the new password.

Confirm password

Enter the new password again to confirm it.

3. Click the [OK] button.

The password is changed.

Execute the rcxadm user modify command.

For details on the rcxadm user modify command, refer to "7.1 rcxadm user" in the "Reference Guide (Command/XML) CE".

## 3.4 Deleting a User Account

---

This section explains how to delete user accounts.

### When Using Single-Sign-On Authentication

The user information in the directory service is not deleted when the settings are made not to register users in the directory services.

The user information in the directory service is deleted when the settings are made to register users in the directory services.

A definition file for directory service operations (ldap\_attr.rcxprop) is used to define whether user information is registered in the directory service. 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".

### Procedure Common to Internal Authentication and Single-Sign-On Authentication

Use the following procedure to delete a user account:

1. In the ROR console, select [Settings]-[User Accounts].

The [User Accounts] dialog is displayed.

2. Select the user account to delete.

3. Click the [Delete] button.

The [Delete User Account] dialog is displayed.

4. Confirm the user account to delete.

5. Click the [OK] button.

The selected user account is deleted.

From the command-line, execute rcxadm user delete.

For details on the rcxadm user delete command, refer to "7.1 rcxadm user" in the "Reference Guide (Command/XML) CE".

## 3.5 Viewing Roles

---

This section explains how to view a list of roles.

Use the following procedure to view a list of roles.

1. In the ROR console, select [Settings]-[Role Management].

The [Role Management] dialog is displayed.

A list of roles is displayed.

The following information is displayed:

- Role Name
- In Use  
This item shows use state of the role.
  - Yes  
There is a user with the role assigned.
  - No  
There is no user with the role assigned.
- Label
- Comment

The table may not display roles correctly if the creation or deletion process is still in progress.

Click the [Update] icon to get the latest information.

## 3.6 Creating a Role

---

This section explains how to create a role. New roles are created by reproducing basic roles.

Use the following procedure to create a role.

1. In the ROR console, select [Settings]-[Role Management].

The [Role Management] dialog is displayed.

2. Click [Create].

The [Create Role] dialog is displayed.

3. Set the following:

### Role Name

Enter a name for the new role.

Enter a character string beginning with an alphanumeric character and containing up to 32 alphanumeric characters, underscores (" \_"), and hyphens ("-")

### Label (Optional)

Enter a label for the role.

Enter a maximum of 32 characters.

### Comment (Optional)

Enter any comments for the role.

Enter a maximum of 256 characters.

### Base role

Select the basic role.

### Operating Authority

To add the authority, select the checkbox. To delete the authority, clear the checkbox.

To return it to the state of the base role, click the [Reset] button.

4. Click the [OK] button.

The role is created.

## 3.7 Modifying a Role

---

This section explains how to modify a role.

Use the following procedure to modify a role.

1. In the ROR console, select [Settings]-[Role Management].

The [Role Management] dialog is displayed.

2. Select the role to modify.

3. Click [Modify].

The [Modify Role] dialog is displayed.

4. Change the items you want to modify.

### Role Name

Enter a name for the role.

Enter a character string beginning with an alphanumeric character and containing up to 32 alphanumeric characters, underscores ("\_"), and hyphens ("-")

The name of a basic role cannot be changed.

### Label

Enter a label for the role.

Enter a maximum of 32 characters.

### Comment

Enter any comments for the role.

Enter a maximum of 256 characters.

### Base role

This item cannot be changed.

### Operating Authority

To add the authority, select the checkbox. To delete the authority, clear the checkbox.

To return it to the original state (state when the [Modify Role] dialog is displayed), click [Reset].

5. Click the [OK] button.

The role is modified.



.....  
For details on the default value of operation authority, refer to "Table-Operation Group and Operation Name" in "15.9 Roles" in the "Reference Guide (Command/XML) CE".

Changing the operation authority of each role to the default value based on the table above will initialize the value.  
.....

## 3.8 Deleting a Role

---

This section explains how to delete a role.

Use the following procedure to delete a role.

1. In the ROR console, select [Settings]-[Role Management].

The [Role Management] dialog is displayed.

2. Select the role to delete.

When there is a user to which the selected role is allocated , the role cannot be deleted.

3. Click [Delete].

The [Delete Role] dialog is displayed.

4. Confirm the deleted role.

5. Click the [OK] button.

The role is deleted.

# Chapter 4 BladeViewer

This chapter provides an overview of BladeViewer and explains its features.

Note that BladeViewer is only available for PRIMERGY BX servers.

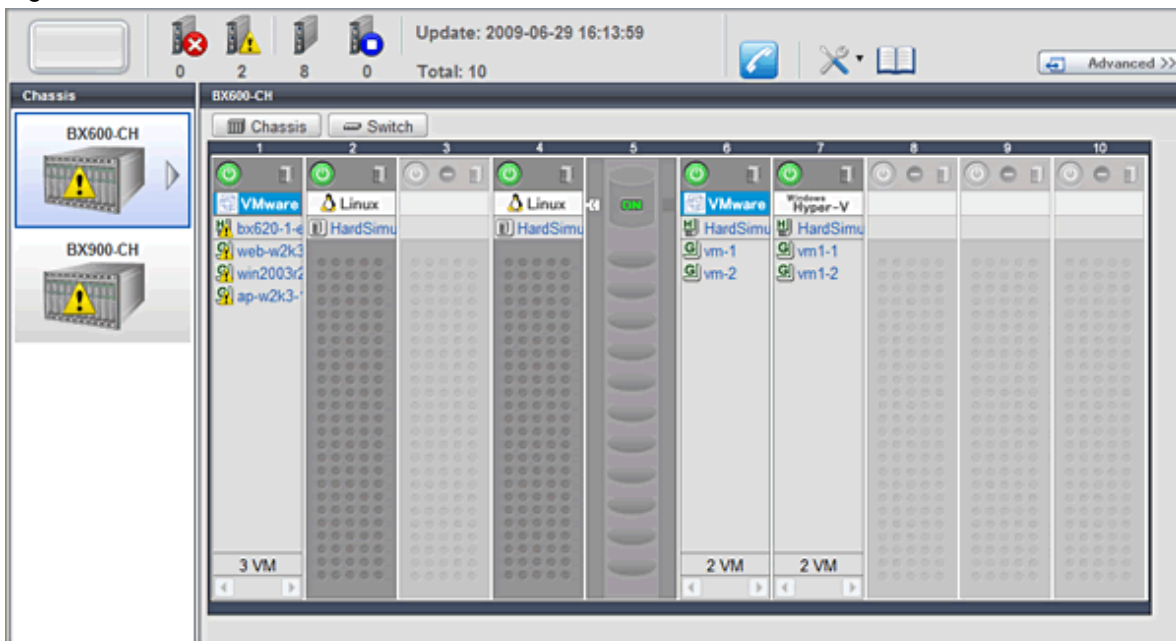
For details on the ROR console, refer to "[Appendix A User Interface](#)".

## 4.1 Overview

This section provides a functional overview of BladeViewer.

BladeViewer provides an intuitive representation of blade servers and their statuses. This makes it easier to monitor resource states or perform basic operations on blade servers.

Figure 4.1 BladeViewer



BladeViewer allows the following operations:

- Monitoring of resource statuses

The statuses of chassis, servers, L2 switches, and physical OSs can be monitored from a view representative of the actual placement and configuration of physical devices.

When using virtual servers, BladeViewer shows a list of VM guests for each VM host. This helps keeping track of relationships between VM guests and VM hosts.

BladeViewer also makes it easy to confirm which operating systems (physical OS and guest OS) are affected by a hardware failure.

- Display and control of power status

The power status of each server blade, storage blade, and VM guest is represented by an intuitive power button. Clicking this button provides quick access to power control operations (for both server blades and VM guests).

- Display of custom labels and comments

BladeViewer allows users to define custom labels and comments for each physical OS, VM host, and VM guest.

Once defined, labels are shown on top of each displayed physical OS, VM host, and VM guest. Using labels to display application contents makes it easy to visualize what applications are running on each server blade and identify the applications affected by a server failure.

Clicking on a label displays the comment defined for the related resource. Registering troubleshooting and recovery procedures beforehand can speed up the recovery of affected applications when a problem occurs.

- Display of contact information

BladeViewer allows users to define technical (support) contact information for their entire IT system. This contact information can be shown by clicking on the Contact icon.

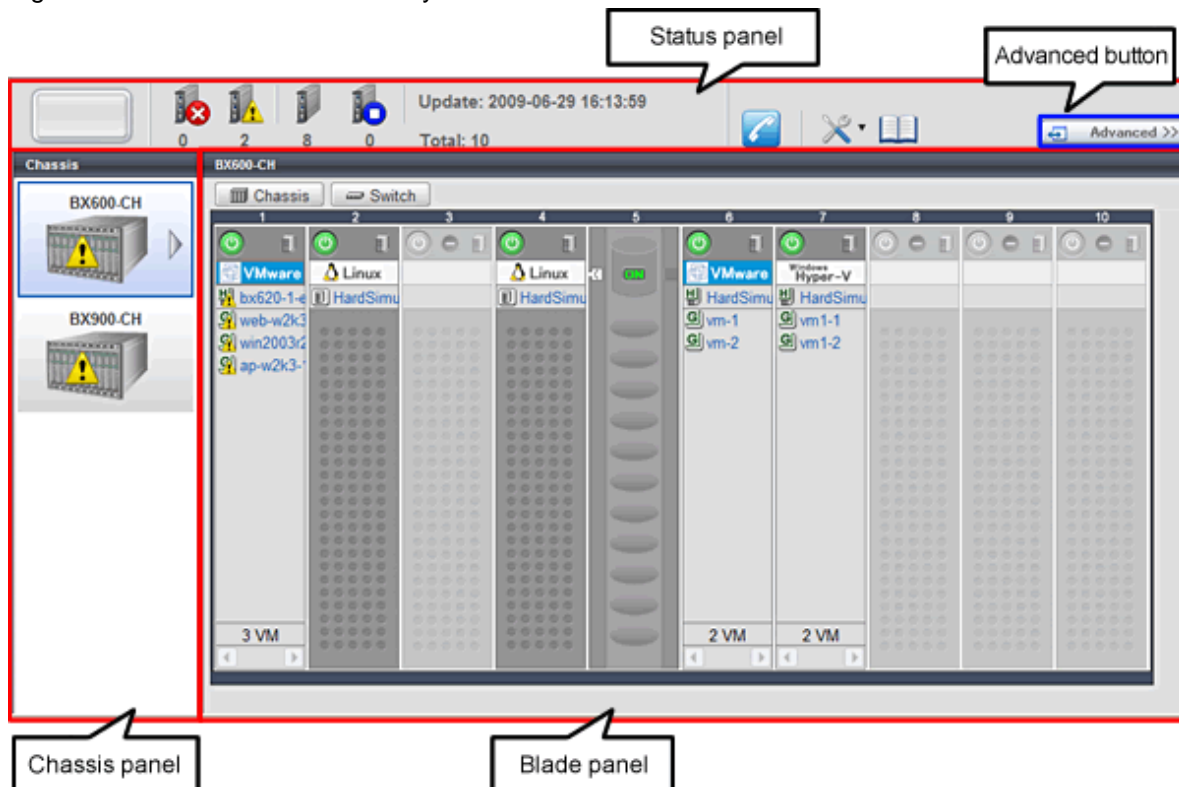
Registering contact details of technical support staff beforehand can help streamline recovery procedures when problems occur.

## 4.2 User Interface

This section explains how the BladeViewer screen is organized.

The BladeViewer screen consists of a status panel, a chassis panel, and a blade panel.

Figure 4.2 BladeViewer: Screen Layout



### Status panel

This panel displays a summary of resources statuses.

### Chassis panel

This panel displays the statuses of each registered chassis.

### Blade panel

This panel displays the status of all resources mounted within the selected chassis.

### Information

To switch from BladeViewer to the ROR console, click [Advanced>>], which is displayed in the upper-right of the BladeViewer screen. Switch to the ROR console when necessary, for example to register servers and change various settings. Otherwise, the last view used before logging out (either the ROR console or BladeViewer) is displayed.

## 4.3 Resource Status Monitoring

This section explains how to monitor resource statuses using BladeViewer.



## 4.3.1 Status Panel

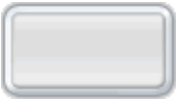


The status panel displays a summary of resources statuses (including resources other than PRIMERGY BX servers).

When a problem occurs in the system, a red or yellow light icon starts blinking on the left side of the status panel.

Clicking the light icon changes its color back to gray.

The table below shows the status and meaning associated with each light icon.

Table 4.1 Light Icons

Icon	Color	Status	Meaning
	Gray (not lit)	Normal	No errors or warnings have been detected in the system.
	Yellow (blinking)	Warning	A warning has been detected in the system.
	Red (blinking)	Error	An error has been detected in the system.


### Information

When the light icon blinks, it means that a warning or an error has been detected. Check the location of the problem from the chassis or blade panel.

If BladeViewer shows no resources with a warning or error status in either the chassis panel or blade panel, switch to the ROR console and check the event log to identify the cause of the problem.




To the right of the light icon, BladeViewer shows the number of servers with an "error", "warning", "normal", and "stop" status.

Table 4.2 Displaying the Server Icon and the Number of Units

Icon and number of units	Meaning
 $N(*)$	Server and number of units

\* Note:  $N$  is the number of servers.


Table 4.3 Status Icons

Icon	Status	Meaning
None	Normal	The resource can be used normally.
	Warning	An error occurred, however the resource can be used. Alternatively, the status of some resources cannot be obtained.
	Error	A fault or error occurred, therefore the resource cannot be used.
	Stop	The resource is stopped, therefore it cannot be used.

## 4.3.2 Chassis Panel

The chassis panel displays the statuses of each registered chassis.

Table 4.4 Chassis Icon

Icon	Meaning
	Chassis

 See

For details on the different chassis statuses, refer to "Table 4.3 Status Icons" of "4.3.1 Status Panel".

If a chassis icon shows a warning or error status, it means that a problem occurred in a resource contained in the chassis.  
 For details on how to identify faulty resources, refer to "4.3.3 Blade Panel".

 Information

Selecting a chassis icon from the chassis panel displays the contents of that chassis in the blade panel.  
 For details, refer to "4.3.3 Blade Panel".

### 4.3.3 Blade Panel

The blade panel displays the statuses of all the resources inserted into the selected chassis. Those resources are shown in a format representative of their physical configuration (shape and position).

To display the contents of a specific chassis in the blade panel, click on its icon in the chassis panel.

In the upper-part of the blade panel, the selected chassis and its L2 switches are represented by the following icons.

Table 4.5 Chassis Icon



Icon	Meaning
	Chassis

Table 4.6 L2 Switch Icons

Icon	Meaning
	L2 switches

 See

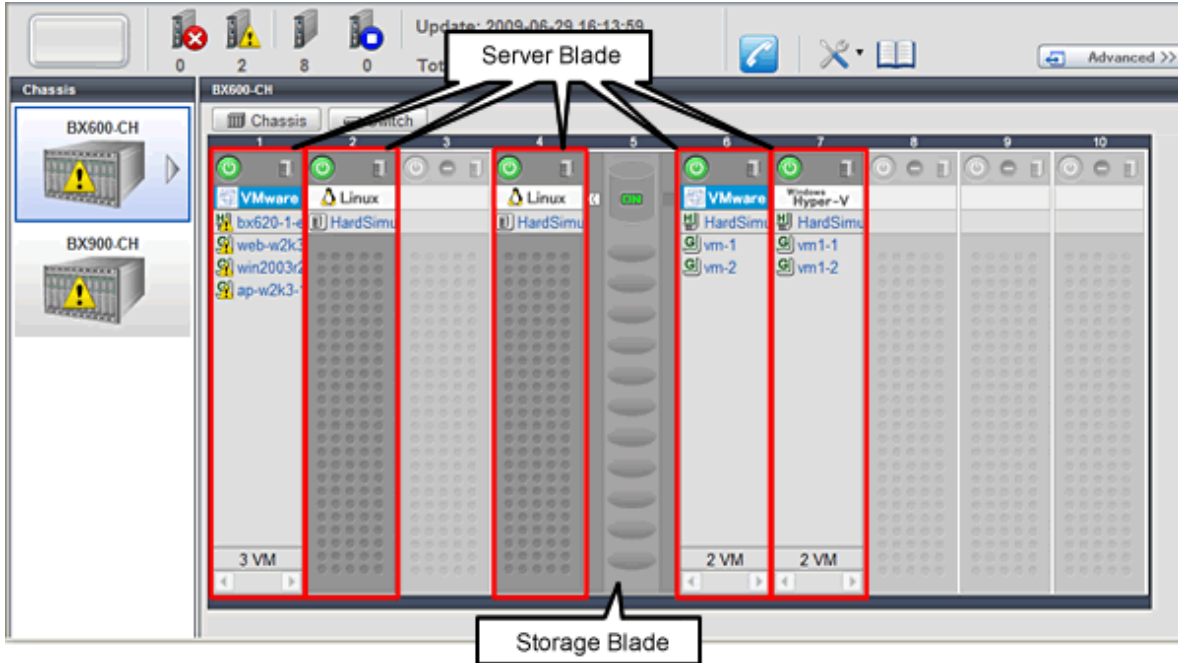
For details on the status icons that are displayed for the chassis and its L2 switches, refer to "Table 4.3 Status Icons" of "4.3.1 Status Panel".

#### 4.3.3.1 Resource List

The blade panel graphically displays each slot within a chassis. Each server or storage blade is displayed according to its actual position (slot) within the chassis.

Note that an unregistered server is shown in light gray while an empty slot is shown in white.





Figure 4.3 Blade Panel: Resource List



### Server Blade

A power button is displayed in the upper-part of each server blade. This power button is used to represent the power status of each server, as shown below.

Table 4.7 Server Blade Power Buttons





Power button	Color	Status	Meaning
	Green (lit)	Power ON	Power ON status.
	Gray (not lit)	Power OFF	Power OFF status.
	Green (blinking)	Power ON in progress	Power ON or reboot in progress.
	Orange (blinking)	Power OFF in progress	Power OFF in progress.

### Information

The power status of a server blade can be easily controlled by clicking on its power button. For details, refer to "4.4.1 Server Blade".

A physical server icon is displayed on the right side of the server blade power button. The table below shows the meanings associated with each physical server icon.

Table 4.8 Physical Server Icons


Icon	Meaning
	Server
	Spare server
	Unregistered server
	Maintenance mode server

 See

For details on the different physical server statuses, refer to "Table 4.3 Status Icons" in "4.3.1 Status Panel".





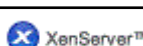
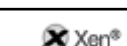
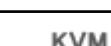
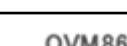
When a server blade is used as the admin server, the following admin server icon is displayed.

Table 4.9 Admin Server Icon

Icon	Status	Meaning
	Admin server	Indicates the server used as the admin server.

An OS icon is displayed below the physical server icon.  
The table below shows the meaning of each OS icon.

Table 4.10 OS Icons

Icon	Meaning
	Windows OS
	Linux OS
	VMware host OS
	Hyper-V host OS
	Citrix XenServer host OS
	Linux Xen host OS
	KVM host OS
	OVM for x86 host OS

 Information

Clicking on a VM host OS icon displays a detailed list of the VM guests operating on the selected VM host.  
For details, refer to "4.3.3.2 VM Guest List".

A user-defined label is displayed with a resource icon below the OS icon.




- If no label is set  
The OS name is displayed.

- If the OS name cannot be acquired (because the OS has not been installed or for other reasons)

The server name (physical server name or VM guest name) is displayed.

The following table shows the resource icons used in BladeViewer and their associated meanings.

Table 4.11 Resource Icons

Icon	Meaning
	Physical OS
	VM host
	VM guest

### See

For details on the resource status, refer to "[Table 4.3 Status Icons](#)" in "[4.3.1 Status Panel](#)".

### Information

If a comment has been defined for a server, clicking on its label displays the [Server Properties] dialog.

The [Server Properties] dialog displays the comment and label set for the selected server, as well as its OS name, server name (for a physical OS, the physical server name, for a VM guest, the VM guest name), and IP address.



For details on defining comments, refer to "[4.5.1 Listing and Editing of Labels and Comments](#)".

## Storage Blade

A power lamp is displayed in the top part of each storage blade.

The table below shows the status and meaning associated with each power lamp.

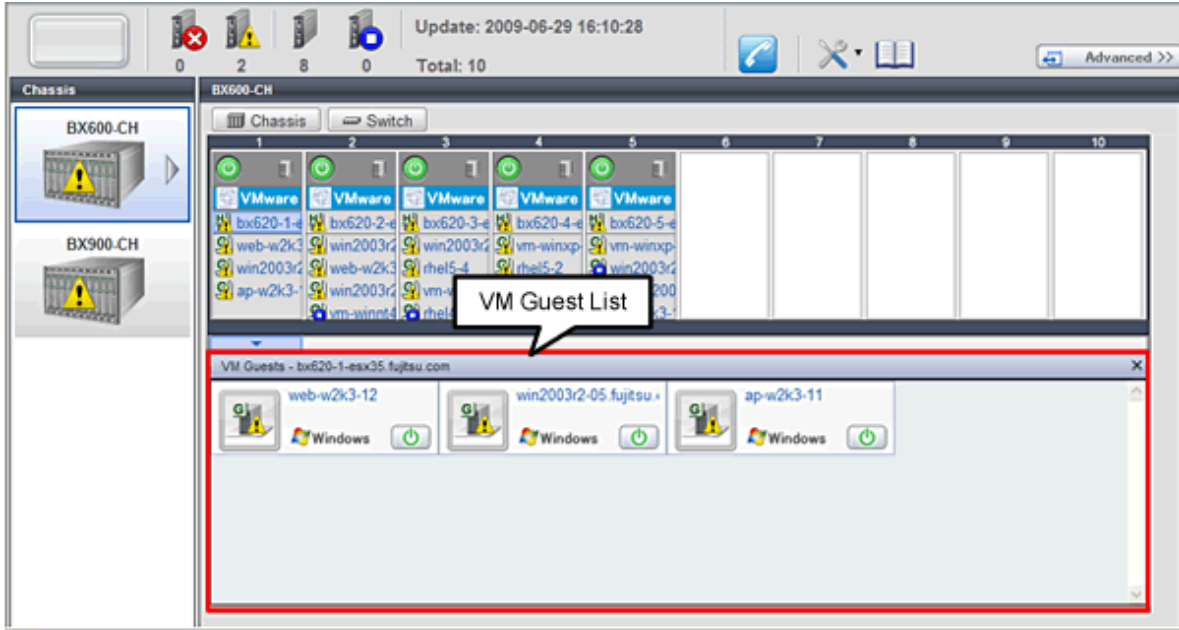
Table 4.12 Storage Blade Power Lamps

Power lamp	Color	Status	Meaning
	Green (lit)	Power ON	Power ON status.
	Gray (not lit)	Power OFF	Power OFF status.

### 4.3.3.2 VM Guest List

When a VM host is displayed in the blade panel, clicking the VM host OS icon displays a list of hosted VM guests with their statuses.

Figure 4.4 Blade Panel: VM Guest List



A VM guest icon is shown on the left side of each VM guest displayed in the VM guest list.

Table 4.13 VM Guest Icon

Icon	Meaning
	VM guest

See

For details on the different VM guest statuses, refer to "Table 4.3 Status Icons" in "4.3.1 Status Panel".

A user-defined label is displayed on the upper-right side of the VM guest icon.

- If no label is set  
The OS name is displayed.
- If the OS name cannot be acquired (because the OS has not been installed or for other reasons)  
The VM guest name is displayed.

An OS icon is displayed below the label.


For details on the different OS icons, refer to "Table 4.10 OS Icons" in "4.3.3.1 Resource List".

A power button is displayed on the lower-right side of each VM guest.

This power button represents the power status of each VM guest, as shown below.

Table 4.14 VM Guest Power Buttons

Power button	Color	Status	Meaning
	Green (lit)	Power ON	Power ON status.
	Gray (not lit)	Power OFF	Power OFF status.
	Green (blinking)	Power ON in progress	Power ON or reboot in progress.

Power button	Color	Status	Meaning
	Orange (blinking)	Power OFF in progress	Power OFF in progress.

### Information

The power status of a VM guest can be easily controlled by clicking on its power button. Refer to "[4.4.2 VM Guest](#)" for details.

## 4.3.4 Resource Details

To view a resource's details, click on its icon (chassis, L2 switch, or physical server icon) from the blade panel.

### - Chassis

Clicking a chassis icon (from the blade panel) opens up its management blade's Web interface in a new window. This Web interface provides more details on the chassis' status and contents. For details on the chassis icon, refer to "[4.3.3 Blade Panel](#)".

### - L2 switches

Clicking on a L2 switch icon opens up its L2 switch details screen. This screen provides more details on the L2 switch's status and configuration. For details on the L2 switch icon, refer to "[4.3.3 Blade Panel](#)".

### - Physical Server

Clicking on a physical server icon opens it up in the ServerView Operation Manager's Web interface. This interface provides more details on the physical server's status and its internal components. For details on the physical server icon, refer to "[Table 4.8 Physical Server Icons](#)" in "[4.3.3.1 Resource List](#)".



## 4.4 Power Control

This section explains how to control the power status of server blades and VM guests from BladeViewer.

### 4.4.1 Server Blade

The power status of a server blade can be easily controlled by clicking its power button.

Table 4.15 Actions of Server Blade Power Buttons

Power button	Color	Status	Action
	Gray (not lit)	Power OFF	Powers on a server blade.
	Green (lit)	Power ON	Shuts down or reboots a server blade.

### Power On

Clicking on a power button that shows "Power OFF" status will power on the target server blade. A confirmation dialog is displayed first. Clicking [OK] in the confirmation dialog powers on the server and starts its OS.

At this time, the power button changes to an intermediate "Power ON in progress" state (green - blinking). The power button finally displays a "Power ON" state after confirming that the OS has started up correctly on the target server.

## Power Off and Reboot

Clicking on a power button that shows "Power ON" status will either shut down or reboot the target server blade. A [Power Operation] dialog is displayed, in which the appropriate action can be selected.

Figure 4.5 Power Operation Dialog



### - "Shutdown"

Selecting "Shutdown" will shut down the target server blade. A confirmation dialog is displayed first.

Clicking [OK] in the confirmation dialog shuts down the OS and powers off the managed server.

At this time, the power button changes to an intermediate "Power OFF in progress" state (orange - blinking). The power button finally displays "Power OFF" status after confirming that the target server has been shut down correctly.

### - "Reboot"

Selecting "Reboot" will reboot the target server blade. A confirmation dialog is displayed first.

Clicking [OK] in the confirmation dialog shuts down the OS and reboots the managed server.

At this time, the power button changes to an intermediate "Power ON in progress" state (green - blinking). The power button finally displays "Power ON" status after confirming that the OS has started up correctly on the target server.

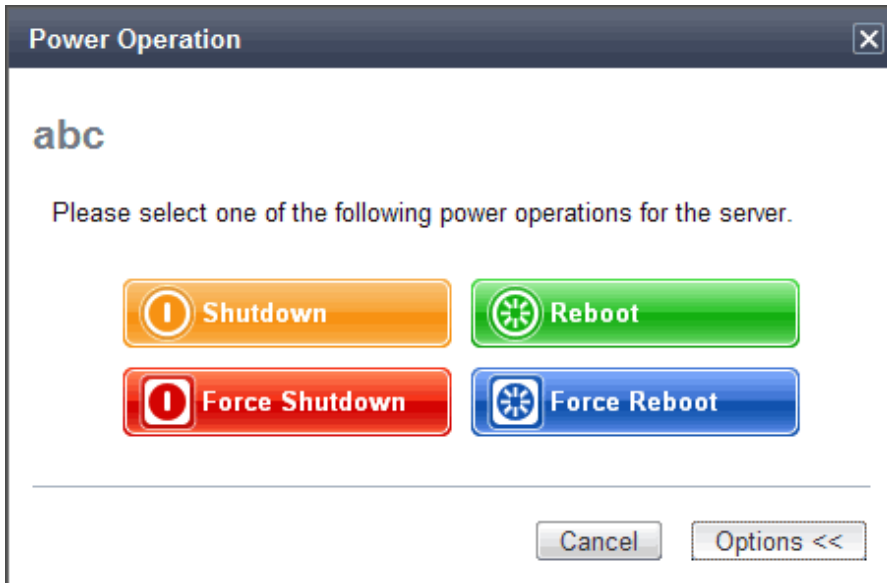
## Forced Power Off and Reboot

Clicking on a power button that shows "Power ON" status, and selecting [Options >>] in the displayed [Power Operation] dialog enables selection of the "Force Shutdown" and "Force Reboot" actions.

A forced shutdown (or reboot) will forcibly power off (or reboot) the managed server blade without waiting for its OS to shut down cleanly.



Figure 4.6 Power Operation Dialog (with Additional Options)



- "Force Shutdown"

Selecting "Force Shutdown" will forcibly power off the target server blade. A confirmation dialog is displayed first. Clicking [OK] in the confirmation dialog will power off the managed server without waiting for its OS to shut down cleanly. At this time, the power button changes to an intermediate "Power OFF in progress" state (orange - blinking). The power button finally displays "Power OFF" status after confirming that the target server has been shut down correctly.

- "Force Reboot"

Selecting "Force Reboot" will forcibly reboot the target server blade. A confirmation dialog is displayed first. Clicking [OK] in the confirmation dialog will power off and reboot the managed server without waiting for its OS to shut down cleanly. At this time, the power button changes to an intermediate "Power ON in progress" state (green - blinking). The power button finally displays "Power ON" status after confirming that the OS has started up correctly on the target server.

 Note

[VMware] [Hyper-V] [Xen] [Citrix Xen] [KVM] [Solaris Zones] [OVM for x86 3.x] [OVM for SPARC]  
 Take caution regarding the following points when powering-off or rebooting a VM host.


- When using a server virtualization software's high-availability feature, confirm that the server is set to VM maintenance mode within that virtualization software. This can be confirmed from the virtualization software client.
- Perform power operations only after setting VM maintenance mode (either from the VM management software client or using the resource control command).  
 Refer to the server virtualization software manual, or to "3.11 rcxadm server" in the "Reference Guide (Command/XML) CE" for details.  
 Depending on the server virtualization software used, some restrictions may apply to the use of VM maintenance mode settings. For details about such restrictions, refer to "9.2.2 Functional Differences between Products" in the "Design Guide VE".


## 4.4.2 VM Guest

The power status of a VM guest can be controlled by clicking the OS icon of its VM host and then clicking its power button in the list of VM guests that is displayed.

Clicking on the power button provides power controls similar to those provided for server blades.

Table 4.16 Actions of VM Guest Power Buttons

Power button	Color	Status	Action
	Gray (not lit)	Power OFF	Powers on a VM guest.

Power button	Color	Status	Action
	Green (lit)	Power ON	Shuts down or reboots a VM guest.

## Note

- VM guests need to be properly configured in order to use the shut down or reboot buttons. Attempting to shut down or reboot a VM guest that is not properly configured will result in an error. For details, refer to "9.2.1 Configuration Requirements" in the "Design Guide VE".
- Depending on the server virtualization environment, a VM guest may automatically migrate to another VM host when a power control operation is performed. This may cause power control operations to fail and return an error when used on VM guests. For details, refer to "9.2.2 Functional Differences between Products" in the "Design Guide VE".
- A VM guest can be configured to automatically start or stop whenever its VM host starts up or shuts down. This can be achieved by configuring the VM guest's startup and shutdown options in the server virtualization software used. For details, refer to the server virtualization software manual.

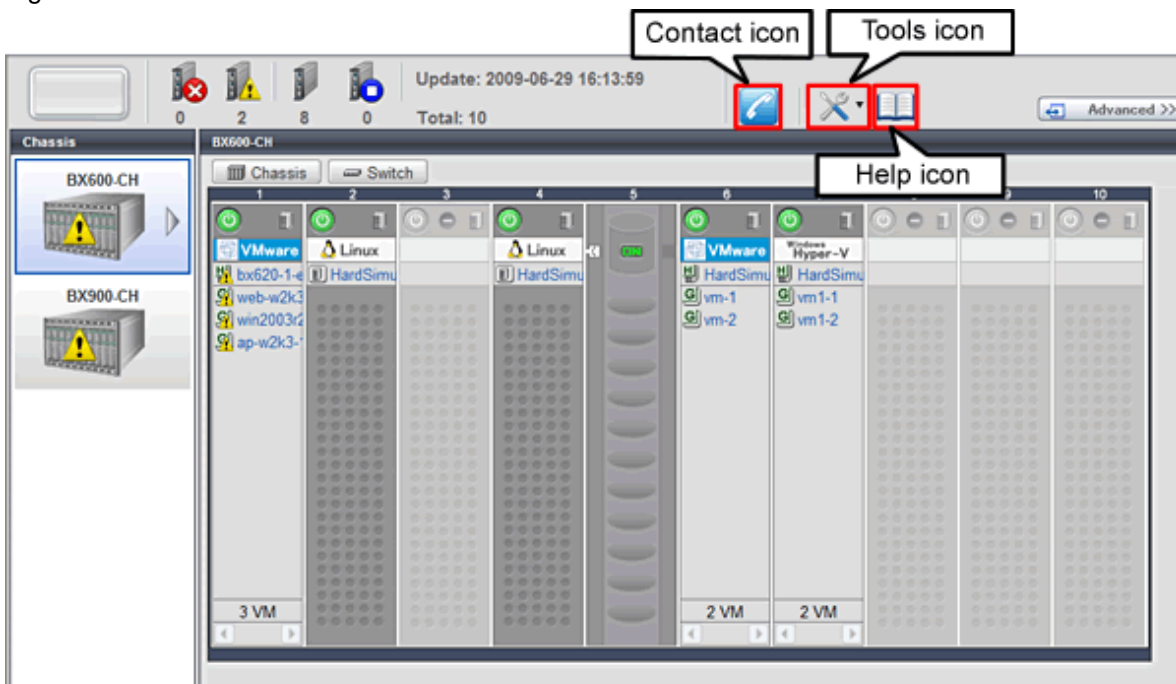
[Windows]

- Take caution regarding the following points when shutting down or rebooting a managed server running a Windows operating system.
  - If Windows is not configured to shut down when the computer's power button is pressed, the power operations in Resource Orchestrator may not function properly. To check this option, access the Control Panel, open the [Power Options], and check the settings of the [Advanced] tab in the [Power Options Properties] window.
  - If a file is being edited by a logged-in user, a dialog prompting the user to save the file is displayed, and the system may not shut down immediately. In such cases, shutdown does not take place until the user takes the appropriate action or a specified time (approximately five minutes) has elapsed.

## 4.5 Status Panel Operations

This section describes the operations that can be performed from the status panel.

Figure 4.7 BladeViewer: Tool Icons



Contact icon

Displays the [Contact] dialog. This dialog shows the contact information that was set for the entire system.

Tools icon

Enables selection of the following menu options:

Display Label List

Displays the [Label List] dialog.  
Displays a list of labels. This list also allows modification of labels and comments.  
For details on editing labels and comments, refer to "4.5.1 Listing and Editing of Labels and Comments".

Set Contact Information

Displays the [Set Contact Information] dialog.  
For details on modifying contact information, refer to "4.5.2 Editing Contacts".

Change Password

Displays the [Change Password] dialog.  
For details on changing passwords, refer to "4.5.3 Changing Passwords".

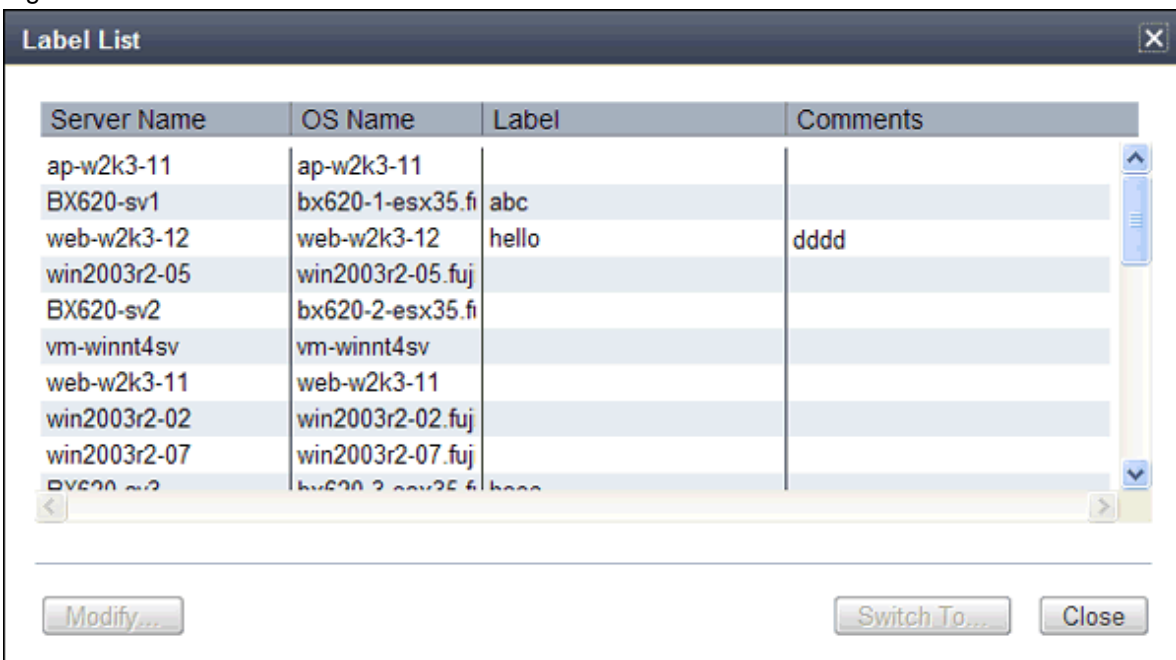
Help icon

The Help is displayed.

### 4.5.1 Listing and Editing of Labels and Comments

Clicking on the Tools icon and selecting "Display Label List" from the drop-down list displays the [Label List] dialog shown below. When applications are defined with labels, this list can provide a quick overview of the applications running on each server.

Figure 4.8 Label List



#### Contents of the Label List

The [Label List] dialog displays server names, OS names, labels, and comments for each server.

Clicking [Switch To] after selecting a server from the list will switch the view to the blade panel and display the selected server within its enclosing chassis.

## Editing Labels and Comments

This function is only available to privileged users.  
General users are only able to consult labels and comments.

- Privileged user

In the [Label List] dialog, select a server and click [Modify]. The [Modify Server Settings] dialog is displayed.

The label and comment of the selected server can be edited directly from the [Modify Server Settings] dialog.

Enter the following items:

### Label

Enter up to 32 alphanumeric characters or symbols (ASCII characters 0x20 to 0x7e).

### Comment

Enter up to 256 alphanumeric characters or symbols (ASCII characters 0x20 to 0x7e).



.....  
New lines are counted as two characters.  
.....

Additional information such as OS name, server name (for a physical OS, the physical server name, for a VM guest, the VM guest name), and IP address are displayed to help identify the selected server.

Clicking [Save] saves the modified label and comment into the manager's database. The saved content is then updated and displayed in BladeViewer.

- General user

If logged in as a general user, [Show] is displayed in place of [Modify] in the [Label List] dialog.

Clicking [Show] displays the [Server Properties] dialog, but does not allow editing of labels or comments.

## 4.5.2 Editing Contacts

---

Clicking the Tools icon and selecting "Set Contact Information" from the drop-down list displays the [Set Contact Information] dialog. This function is only available to privileged users. If logged in as a general user, the "Set Contact Information" menu item cannot be selected.

Enter the following item.

### Contact

The currently defined contact information is displayed.

Enter a maximum of 256 characters.



.....  
New lines are counted as two characters.  
.....

Clicking [Save] saves the modified contact information into the manager's database. The saved content will be displayed the next time the [Contact] dialog is opened.

## 4.5.3 Changing Passwords

---

Clicking the Tools icon and selecting "Change Password" from the drop-down list displays the [Change Password] dialog.

The required information varies according to the authority level of the logged in user, as described below. The password is changed after entering the required information and clicking [Change].

- Privileged user

**New password (Confirm password)**

Enter a string using up to 16 alphanumeric characters or symbols.

- General user

**Current password**

Enter the password that is currently set.

Enter a string using up to 16 alphanumeric characters or symbols.

**New password (Confirm password)**

Enter a string using up to 16 alphanumeric characters or symbols.

# Chapter 5 Registering Resources

This chapter explains how to register resources used by Resource Orchestrator. The Resource Orchestrator manager must be completely installed beforehand.

In addition to the usual method of registering each resource individually, it is also possible to register or change registered settings of multiple resources in batches using the pre-configuration function.

- Registering or modifying resources individually

This method is used when the number of servers to be installed is small (from one to four), or when adding a similar number of servers to an existing environment.

- Registering or modifying multiple resources collectively

This method is used when there are many (five or more) servers to be installed.

For information on how to register and modify multiple resources together, refer to "[Chapter 10 Pre-configuration for Resource Registration and Modification](#)".



## Information

- **User Accounts**

When creating new user accounts, changing passwords, or modifying permission levels during setup, refer to "[Chapter 3 Configuring Users and Customizing Roles](#)".

- **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 information about backing up the admin server, refer to "10.1 Backup and Restoration of Admin Servers" in the "Operation Guide CE".

## 5.1 Registering VIOM Coordination

This section explains how to register management software (VIOM).

Use the following procedure to register management software (VIOM):

1. From the ROR console menu, select [Settings]-[Register]-[Management Software (VIOM)].

The [Register Management Software(VIOM)] dialog is displayed.

2. Perform the following settings:

User ID

Enter the ID of a VIOM user account.

Password

Enter the password of the above VIOM user account.

3. Click the [OK] button.

### 5.1.1 Registering VIOM Server Profiles

Use the following procedure to configure VIOM server profiles:

1. Select Management Software (VIOM) from the ROR console, and then select the [Resource Details] tab.

2. In General of the [Resource Details] tab, click the link for the Management software.

The Web interface of ServerView Virtual-IO Manager starts up.

3. Refer to the ServerView Virtual-IO Manager manual to configure server profiles.

## Note

HBA address rename and VIOM cannot be used together within the same chassis.

When using backup and restore or cloning, prioritize the following two boot operations:

1. Boot from the first admin LAN network interface (NIC1 (Index1))
2. Boot from the network interface used by the admin LAN (NIC2 (Index2))

When not using the onboard LAN of rack mount and tower servers as the admin LAN, refer to "7.1.6 Configuration when Creating a Physical L-Server without Specifying a Model Name in the L-Server Template" in the "Setup Guide CE".

## 5.1.2 When Managing Rack Mount or Tower Servers Using VIOM

When managing rack mount and tower servers using VIOM, the positions of the admin LAN and the public LAN are specified in the "cardinfo" information of the following definition file.

When this setting is omitted, NIC configuration defined for each model is used and the onboard NIC is treated as the admin LAN. For details, refer to the description in the cardinfo information.

When using the target server as a server resource of the physical L-Server, refer to "7.1.6 Configuration when Creating a Physical L-Server without Specifying a Model Name in the L-Server Template" in the "Setup Guide CE".

### 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

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.

Enter each line 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*

The total number of physical CPU cores.

Enter "0", because this is not used when changing the specified admin LAN.

##### *cpu\_clock*

The CPU clock speed.

Enter "0", because this is not used when changing the specified admin LAN.

##### *memory\_size*

The total memory size.

Enter "0", because this is not used when changing the specified admin LAN.

##### *cpu\_type*

The CPU type.

Do not enter the value, because this is not used when changing the specified admin LAN.

##### *cardinfo*

Enter the information for cards mounted on servers.

Specify the NICs used for the admin LAN and the public LAN.

Enter the information for each card in the following format. Use colons (":") to separate each piece of card information.

- Card type

Enter one of the following card types:

- "LAN"
- "FC"
- "CNA"

If something other than the above is entered, the card information will be invalid.

- Slot type

Enter the slot type.

Enter an integer between 0 and 9 for the slot type, based on the following.

- "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 ("-").

- Flag 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.

This item is 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.

Enter the order of the definition of the LAN or CNA as follow:

```
Primary_admin_LAN-> Secondary_admin_LAN-> Public_LAN
```

When omitting the card information, the number is configured in the following order based on the model of each server.

- RX/TX300 S7 or later, TX2560 M1 or later, RX2540 M1 or later, and RX2560 M1 or later  
["LAN0-1\*", "LAN0-2\*\*", "LAN1-1", "LAN1-2", "LAN2-1", "LAN2-2", "FC3-1", "FC3-2", "FC4-1", "FC4-2"]
- RX/TX200 S7 or later and RX2530 M1 or later  
["LAN0-1\*", "LAN0-2\*\*", "LAN1-1", "LAN1-2", "FC2-1", "FC2-2"]
- For other models  
["LAN0-1\*", "LAN0-2\*\*"]

### Example

In the following example, the admin LAN is ports 1 and 2 of PCI slot1.

```
ServerSpec,V1.1
[PRIMERGY RX300 S7],0,0,0,,LAN1-1*:LAN1-2**::LAN0-1:LAN0-2
server00,0,0,0,,LAN1-1*:LAN1-2**::LAN0-1:LAN0-2
```

## 5.2 Registering VM Management Software

This section explains how to register VM management software.

Registration of VM management software (such as VMware vCenter Server) enables use of virtual L-Servers that include resource pool management provided by server virtualization software. Registration of multiple VM management software (VMware vCenter Server) is possible.

For details on the required VM management software settings, refer to "Chapter 8 Configuration when Creating Virtual L-Servers" in the "Setup Guide CE".

Resource Orchestrator manages a server (with storage and networks) with defined logical specifications (number of CPUs, memory capacity, disk capacity, number of NICs, etc.) as an L-Server. In order to manage a virtual machine as an L-Server, VM management software must be registered in Resource Orchestrator.

Use the following procedure to register VM management software:

1. From the ROR console menu, select [Settings]-[Register], and then select the type of the VM management software to use.

The [Register Management Software(*name*)] dialog is displayed.

In *name*, the type of the VM management software is displayed.

2. Perform 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.

- If VM management software is installed on the admin server

Select [Admin Server].

- In other cases

Select [Other Server].

Selecting this option activates the IP address field. Enter the IP address of the server on which VM management software is installed.

By default, [Admin Server] is selected.

#### 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 ".".



When receiving SNMP traps from VM management software (VMware vCenter Server), the configured IP address and the SNMP trap source IP address of the VM management software (VMware vCenter Server) should be the same. The SNMP trap source IP address is the IP address of the protocol with the highest priority of protocol binding. When changing the SNMP trap source IP address, change the order of protocol binding.

#### User ID

Enter the user ID to use to control VM management software.

Enter up to 84 characters, including alphanumeric characters and symbols (ASCII characters 0x20 to 0x7e).

#### Password

Enter the password for VM management software.

Enter up to 128 characters, including alphanumeric characters and symbols (ASCII characters 0x20 to 0x7e).

3. Click the [OK] button.

VM management software is registered with the entered information.



Registration and management of multiple VM management software packages (VMware vCenter Server, etc) are possible. It is also possible to register a single VM management product multiple times and use it for management.

The following VM management software can be registered in Resource Orchestrator.

- VMware vCenter Server
- System Center Virtual Machine Manager
- Oracle VM Manager

## Note

In Disaster Recovery environments, multiple occurrences of the same virtual machine name may cause failures of the import of configuration information.

Avoid setting the same virtual machine name for machines.

### [Hyper-V]

The administrator account registered with Resource Orchestrator will be an account of the domain that the server belongs to, not a local account on the server on which SCVMM is installed.

The registered account must meet all of the following conditions.

- Be an account of the domain that the SCVMM server belongs to
- Be a member of the SCVMM Administrator role
- Be a member of the Administrators group of the SCVMM server
- Be a member of the Administrators group of all Hyper-V hosts under the management of SCVMM

Specify the account to register in the following format:

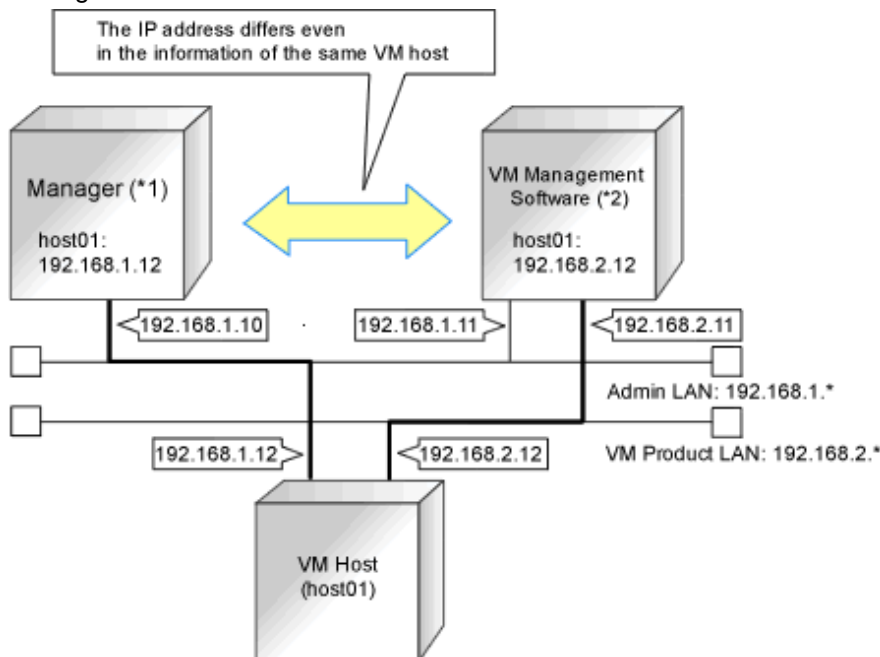
```
Domain_name\User_name
```

## Information

### VM Host Relation Definition File

Depending on the network configuration and network settings of VM management software and VM hosts, the VM host IP address retained by Resource Orchestrator may not match the VM host IP address retained by VM management software. If those IP addresses differ, the functions for coordinating with VM management software will be unavailable because Resource Orchestrator cannot associate the VM management software with the VM host. A definition file must be created to associate VM management software with a VM host. Use the UTF-8 character code for definition files.

Figure 5.1 Configuration When the IP Address Information of VM Hosts Differ Between the Manager and VM Management Software



\*1: When the VM host is a rack mount server or another maker's server, only the admin LAN IP address of the VM host can be obtained.

\*2: Depending on the VM management product, an IP address that differs from that of the admin LAN of the VM host may be obtained.

### Location of the Definition File

[Windows Manager]

*Installation\_folder*\SVROR\Manager\etc\customize\_data

[Linux Manager]

/etc/opt/FJSVrcvnr/customize\_data

### Definition File Name

vmhost\_ip\_addresses.rcxprop

### Format of the Definition File

In the definition file, information for a single VM host is entered on each line. Each line is exported in the following format.

```
admin_lan_ip = other_lan_ip[,other_lan_ip...]
```

### Definition File Items

- *admin\_lan\_ip*

Specify the IP address of the admin LAN of the VM host.

- *other\_lan\_ip*

Specify an IP address other than the IP address of the admin LAN of a VM host that has been registered with VM management software. Multiple IP addresses can be specified, separated using commas (",").

[OVM for x86 2.2]

When specifying a host name instead of an IP address for IP address specification during registration of an Oracle VM Server with Oracle VM Manager, specify the host name.

### Example of the Definition File

The following is an example of the definition file.

```
# Oracle VM Server
192.168.0.10 = 192.168.10.10
192.168.0.11 = 192.168.10.11,172.16.0.11
192.168.0.12 = 192.168.10.12,host01
```

---

## 5.3 Storage Management Software

In the following cases, it is necessary to register storage management software with Resource Orchestrator for coordination.

- When the server type is "Physical"
- When using RHEL5-Xen as server virtualization software



For storage management software, only PRIMECLUSTER GDS can be coordinated, when using RHEL5-Xen.

Use the following procedure to register storage management software:

1. Decide the storage environment.
2. Configure the storage environment using storage management software which can be registered.

The following storage management software can be registered with Resource Orchestrator:

- ETERNUS SF Storage Cruiser
- Data ONTAP
- PRIMECLUSTER GDS

- EMC Navisphere Manager
- EMC Solutions Enabler
- FalconStor NSS
- libvirt
- zfs

For details on configuration of storage environments, refer to "D.1 System Configuration" in the "Design Guide CE".

3. 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.

For details, refer to "7.1.5 Definition File for EMC Storage" in the "Setup Guide CE".

4. When registering the SAN Client CLI as storage management software, it is necessary to specify the installation folder of the SAN Client CLI in the definition file for FalconStor NSS.

For details, refer to "7.1.11 Definition File for FalconStor NSS" in the "Setup Guide CE".

5. Register storage management software for coordination with Resource Orchestrator.

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".

## 5.4 When Using Blade Servers

---

This section explains how to register resources when using blade servers.

When using blade servers, use the following procedure to register resources:

- Register Chassis
- Register blade servers
- Register LAN switch blades
- Configure VLANs on LAN switch blades

### 5.4.1 Registering Chassis

---

This section explains how to register a chassis.

Registering chassis makes it possible to use the optional power monitoring settings.

When collecting power data, perform the power data collection settings according to "[7.8.1 Changing Environmental Data Settings](#)".

For details on devices supporting power monitoring, refer to "2.5 Hardware Environment" in the "Design Guide CE".

By registering a chassis, every server blade mounted in the chassis will be automatically detected and displayed as an unregistered server in the server resource tree. Register these managed servers individually.

For details on registering servers to manage, refer to "[5.4.2 Registering Blade Servers](#)".

Use the following procedure to register a chassis:

1. In the ROR console server resource tree, right-click "Server Resources", and select [Register]-[Chassis] from the popup menu.

The [Register Chassis] dialog is displayed.

2. Perform the following settings:

Admin LAN (IP address)

Enter the IP address that was set on the chassis management blade.

Enter the IP address using periods ".".

### Chassis name

Enter a name to assign to this chassis.

Enter a character string beginning with an alphabetical character and containing up to 10 alphanumeric characters and hyphens ("-").

### SNMP Community

Enter the SNMP community that was set on the chassis management blade.

Either select "public" or enter an arbitrary string.

Enter a string of up to 32 alphanumeric characters, underscores ("\_"), and hyphens ("-").

3. Click the [OK] button.

The mounted chassis will be displayed under the server resource tree.

Any server blade mounted within this chassis will be detected automatically and shown as: [*chassis\_name-Slot\_number*[Unregistered]].

The only operation available for those unregistered server blades is server registration, while the ROR console can only display their hardware statuses and properties.

If the manager is installed on one of those server blades, this blade will be shown as: [*chassis\_name-Slot\_number*[Admin Server]].

In that case, server registration will not be available for the admin server, but its hardware status and properties will be displayed in the ROR console.

## 5.4.2 Registering Blade Servers

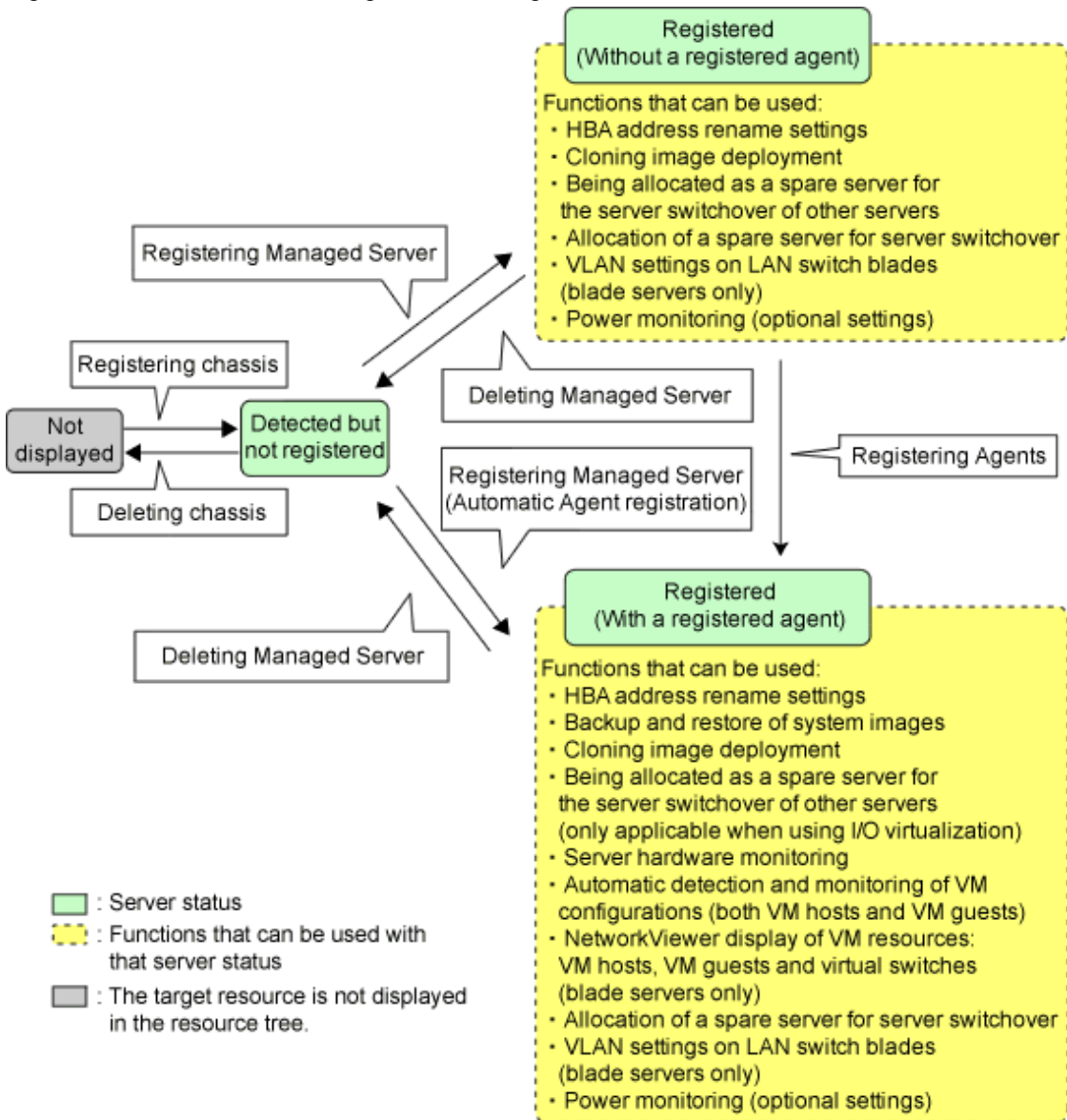
---

To register a blade server (PRIMERGY BX series), its enclosing chassis must be registered first.

When using VIOM for I/O virtualization, VIOM server profiles should be registered in advance according to the procedure described in "[5.1.1 Registering VIOM Server Profiles](#)".

To register blade servers other than PRIMERGY BX servers, refer to "[5.5 When Using Rack Mount and Tower Servers](#)".

Figure 5.2 Status Transition Diagram for Managed Servers



Use the following procedure to register blade servers.

1. In the ROR console server resource tree, right-click an unregistered server blade or partition in the target chassis, and select [Register]-[Server] from the popup menu.

The [Register Server] dialog is displayed.

2. Perform the following settings:

**Physical Server Name**

Enter a name to assign to this physical server.

Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters and hyphens ("-").

**Admin LAN (IP address)**

Enter the IP address used by this server on the admin LAN.

**When IP address is displayed**

Entering an admin LAN (IP address) is not required.

Agents are automatically registered.

## Note

- If ServerView Agents (mandatory software) is not running, message number 67231 will be displayed. In this case, server registration succeeds, but the agent is not registered.

For details on the appropriate corrective action, refer to "Message number 67231" in "Messages".

- If the admin LAN (IP address) of servers not running a physical OS or a VM host are displayed, old information may have been being displayed. After canceling registration of the server, right-click the chassis on the server resource tree and select [Update] from the popup menu to request an update of hardware properties. The IP address is updated to the correct value (it takes several seconds to obtain the information and to update).

### **When IP address is not displayed**

Enter the IP address of this server's admin LAN network interface.

The Agent will not be registered automatically, but can be manually registered after server registration if necessary. After registering servers, register agents as required.

For details on registering agents, refer to "[8.2 Installing Software and Registering Agents on VM Hosts](#)".

## Information

When a physical OS and VM host are running on this server, the admin LAN (IP address) may be obtained automatically.

After canceling registration of the server, right-click the chassis on the server resource tree and select [Update] from the popup menu to request an update of hardware properties.

If the IP address is not shown after going through the above procedure, set it by manually entering the IP address and registering the server.

### Server OS category

This option is displayed if the target server runs a physical OS or VM host.

Select the appropriate server OS category (Physical OS or VM host).

Selecting [VM Host] activates the user ID and password input fields. Those refer to the user name and password entered during installation of this VM host.

Select the server OS category depending on whether the relevant server is used on a physical OS or a VM host.

- For a Physical OS

Select [Windows/Linux] or [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 a user ID that has VM host administrator authority.

[Hyper-V]

Users of the Hyper-V Administrators group can be specified.

### Password

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

### [Use Admin LAN redundancy] checkbox

Check this when performing redundancy for the NIC on the admin LAN.

Perform the redundancy of the admin LAN as below.

- For physical L-Servers, use Intel PROSet, PRIMECLUSTER GLS, or Linux bonding.
- For VM hosts, perform redundancy according to the server virtualization software used.



#### [Apply Admin LAN NIC settings] checkbox

- When not changing the Admin LAN NIC settings

NIC1 (Index1) and NIC2 (Index2) are used, without changing the NICs used for the admin LAN, the HBA address rename setup service, or for redundancy of the admin LAN.

- When changing the Admin LAN NIC settings

NIC1 (Index1) and NIC2 (Index2) are used as the NICs for the admin LAN, the HBA address rename setup service, and redundancy of the admin LAN.

Select the NICs to use from Admin LAN (MAC address1) and Admin LAN (MAC address2).

#### Admin LAN (MAC address 1)

Displayed when the [Apply Admin LAN NIC settings] checkbox is selected.

Select the NIC to use for the admin LAN. The IP address allocated to the selected NIC is displayed in [Admin LAN (IP address)].

When an IP address is not allocated, specify the admin LAN (IP address) of the server to register.

#### Admin LAN (MAC address 2)

Displayed when the [Apply Admin LAN NIC settings] checkbox is selected.

Select the NICs used for the HBA address rename setup service or for admin LAN redundancy.

For the following cases, select the [Disable MAC address 2].

- When not using the HBA address rename setup service
- When not performing admin LAN redundancy

#### Note

- For details about the network interfaces used on the admin LAN, refer to "9.1.1 Admin LAN Network Design" in the "Design Guide CE".

If an incorrect network interface is used, Resource Orchestrator will use a wrong MAC address for the admin LAN.

An admin LAN IP address is required even when registering a spare server.

Enter an IP address that does not conflict with the IP address of any other managed server on the admin LAN.

- When using backup and restore, cloning, or HBA address rename, the NIC (or LAN expansion board) must support PXE boot.
- When registering a newly-mounted PRIMERGY BX900 server, as recognition of this server blade's admin LAN MAC address will take time, error message number 61142 may be displayed.

In this case, after registration has been canceled, right-click the chassis on the server resource tree and select [Update] from the popup menu to request an update of hardware properties. This will update the MAC address to the correct value. This may also take a few minutes to obtain hardware information and update internal properties.

Confirm that the correct MAC address is displayed correctly before registering the server again.

For details on the appropriate corrective action, refer to "Message number 61142" in "Messages".

- A server running a VM host can still be registered as a physical OS if its [Server OS category] is set to [Windows/Linux]. (For 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.

- The same NIC cannot be selected for [Admin LAN (MAC address 1)] and [Admin LAN (MAC address 2)].
- For the following cases, after selecting [Disable MAC address 2] for [Admin LAN (MAC address 2)], the lowest numbered NIC which is not used for [Admin LAN (MAC address 1)] is used for Admin LAN2.
  - When using the HBA address rename setup service
  - When performing admin LAN redundancy

#### 3. Click the [OK] button.

The registered server will be displayed in the server resource tree.



## Note

- 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 host name defined in the guest OS.  
The timing at which the host name of a guest OS is detected and displayed varies according its server virtualization software. For details, refer to "9.2.2 Functional Differences between Products" in the "Design Guide VE".
- It is recommended not to use duplicate names for physical OSs, VM hosts, and VM guests. If duplicated names are used, those resources cannot be managed from the command-line.
- When registering a server on which the agent was installed, it is necessary to either reboot the server or restart its related services (explained in the "2.2 Starting and Stopping Agents" in the "Operation Guide CE") after server registration. This step has to be done before running any image operation (system image backup or cloning image collection).  
For details on how to restart the agent, refer to "2.2 Starting and Stopping Agents" in the "Operation Guide CE".
- When registering resources, directories and files that are necessary for performance monitoring are created on the server where the resources are registered. Refer to "8.6.9 Advisory Notes for RHEL-KVM Usage" in the "Setup Guide CE" for details.

## 5.4.3 Registering LAN Switch Blades

To register a LAN switch blade, its enclosing chassis must be registered first.

Use the following procedure to register a LAN switch blade.

1. In the ROR console server resource tree, right-click an unregistered LAN switch blade from the target chassis, and select [Register]-[LAN Switch] from the popup menu.

The [Register LAN Switch] dialog is displayed.

2. Perform the following settings: For a LAN switch blade PY CB 10Gb FEX Nexus B22, only the LAN switch name can be configured.

### LAN switch name

Enter the name to assign to this LAN switch blade.

Enter up to 15 characters, including alphanumeric characters (upper or lower case), underscores ("\_"), or hyphens ("-").

### Admin port

Set the value for this item when defining Converged Fabric mode of a LAN switch blade PY CB Eth Switch 10/40Gb 18/8+2. Select [oob] or [cfab]. The default setting is [oob].

### Admin LAN (IP address)

Enter the admin LAN IP address that was set on this LAN switch blade.

Enter the IP address using periods ".".

When is LAN switch blade CB Eth Switch 10/40Gb 18/8+2 is in Converged Fabric mode, enter the admin IP address for the management port.

- When management port is cfab

Enter the virtual domain representative IP address of the fabric.

- When management port is oob

Enter the IP address of oob.

### User ID

Enter the name of a telnet or SSH user account that can log in to this LAN switch blade.

For a LAN switch blade PY CB DCB SW 10Gb 18/6/6, enter the name of the administrator account for the LAN switch blade.

### Password

Enter the password of the above telnet or SSH user account.

### Connection method

Select either [Telnet] or [SSH]. The default setting is as follows:

- LAN switch blade PY CB DCB SW 10Gb 18/6/6 or PY CB Eth Switch 10/40Gb 18/8+2  
[SSH]
- In other cases  
[Telnet]

### Administrative password

Enter the password of this LAN switch blade's telnet or SSH administrator account.

If the user ID and the password of the administrator account for the LAN switch blade were set in [User ID] and [Password], simply re-enter the same password in this field. In this case, Resource Orchestrator does not check whether the password entered here matches the password set on the LAN switch blade.

### SNMP Community

Enter the SNMP community that was set on this LAN switch blade.

Either select [public] or enter an arbitrary string.

Enter a string of up to 32 alphanumeric characters, underscores ("\_"), and hyphens ("-").

For LAN switch blades operating in Converged Fabric mode, select [public]. In this case, Resource Orchestrator does not communicate with LAN switch blades using SNMP, so it does not check whether the SNMP community entered here matches the SNMP community set on the LAN switch blade.

3. Click the [OK] button.

The registered LAN switch blade will be displayed in the server resource tree.

### Information

For the following LAN switch blades, check the setting after the LAN switch blade has been registered.

- For a PY CB DCB SW 10Gb 18/6/6

Check that the following settings are displayed correctly in the resource details of the LAN switch blade.

- Operation mode (VCS mode and other modes)
- VCS ID and RBridge ID
- For a PY CB Eth Switch 10/40Gb 18/8+2 operating in Converged Fabric mode

Check that the following settings are displayed correctly in the resource details of the LAN switch blade.

- Fabric ID, Domain ID, and Switch ID

If a displayed value is incorrect, log in to the LAN switch blade and check that the settings of operating mode and these IDs are correct.

For the confirmation method, refer to the manual for the LAN switch.

If the settings are correct, delete the LAN switch blade and register it again.

### Note

- A telnet or SSH connection is made when registering a LAN switch blade.

When telnet or SSH (SSH version 2) connection is disabled, enable it.

Refer to the manual of the relevant product.

Some models may have restrictions regarding the number of simultaneous connections. In this case, log out from other connections.

If the connection is unavailable, the following features are also unavailable.

- Registration of LAN switch blades
- Changing of LAN switch blade settings
- Changing and setting the VLAN for LAN switch blades (internal and external connection ports)

- Restoration of LAN switch blades
- Server switchover (changing network settings while a server is switched over)

SSH connection (SSH version 2) can be selected for the following LAN switch blades.

- LAN switch blade PY CB Eth Switch/IBP 10Gb 18/8 (1.00 or later version)
  - LAN switch blade PY CB Eth Switch 10/40Gb 18/8+2 (1.00 or later version)
  - LAN switch blade PY CB Eth Switch/IBP 1Gb 36/8+2 (4.16 or later version)
  - LAN switch blade PY CB Eth Switch/IBP 1Gb 36/12 (3.12 or later version)
  - LAN switch blade PY CB Eth Switch/IBP 1Gb 18/6 (3.12 or later version)
  - LAN switch blade PY CB DCB SW 10Gb 18/6/6 (2.1.1\_fuj or later version)
- Virtual domain representative IP addresses cannot be registered with LAN switch blade CB Eth Switch 10/40Gb 18/8+2.

## 5.4.4 Configuring VLANs on LAN Switch Blades

On managed LAN switch blades, VLANs should be set on both the ports (external connection ports) connected with the adjacent managed network devices (such as L2 switches) and the ports (internal connection ports) connected to the NIC on the managed servers.



### Note

- VLANs cannot be configured on PRIMERGY BX 900 and BX 400 LAN switch blades operating in IBP mode or Converged Fabric mode.
- For a LAN switch blade PY CB 10Gb FEX Nexus B22, this cannot be configured.

### 5.4.4.1 Configuring VLANs on External Connection Ports

When not performing automatic VLAN configuration, use the following procedure to configure VLANs on a LAN switch blade's external connection ports.

1. In the ROR console server resource tree, right-click the target LAN switch blade and select [Modify]-[Network Settings] from the popup menu.

The [VLAN Settings] dialog is displayed.

2. Perform the following settings:

#### VLAN

Specify the VLAN ID to assign to a LAN switch blade port.

#### Adding a new VLAN ID

- a. Under VLAN, select [Create new].
- b. Enter a VLAN ID number.  
For details on VLAN IDs, refer to the manual of the LAN switch blade to be used.

#### Modifying an existing VLAN ID

- a. Under VLAN, select [Change].
- b. Select a VLAN ID.

#### Physical Port, Link Aggregation

Select port numbers to configure or VLAN types of link aggregation group names ([Untagged] or [Tagged]).

3. Click the [OK] button.

Check that the VLAN has been set.

4. Select the LAN switch blade in the server resource tree of the ROR console and display the [Resource Details] tab. Confirm that the VLAN information is displayed in [VLAN Area] on [Resource Details].

### Note

For a LAN switch blade PY CB DCB SW 10Gb 18/6/6, the VLAN settings of external connection ports cannot be configured.

## 5.4.4.2 Configuring VLANs on Internal Connection Ports

Use the following procedure to configure VLANs on a LAN switch blade's internal ports.

1. In the ROR console server resource tree, right-click the target server (or the physical OS or VM host on the server), and select [Modify]-[Network Settings] from the popup menu.

The [Network Settings] dialog is displayed.

2. Select the index of the network interface for which to assign a VLAN ID, and click [Setting].

The [VLAN Configuration] dialog is displayed.

3. Perform the following settings:

Port VLAN

VLAN ID

Enter the VLAN ID to assign to the LAN switch blade port that is connected to the network interface selected in step 2.

Tagged VLAN

VLAN ID

Enter the tagged VLAN ID(s) to assign to the LAN switch blade port that is connected to the network interface selected in step 2.

Multiple VLAN IDs can be entered by separating them with commas (",").

4. Click the [OK] button.

Note that the VLAN settings are not applied onto the LAN switch blade at this stage. To configure VLANs for multiple network interfaces, repeat steps 2 to 4.

5. Confirm the configuration set in the [Network Settings] dialog.

6. Click the [OK] button.

VLAN settings are applied to the related LAN switch blade.

### Note

- When the VLAN configuration of a registered LAN switch blade is changed from the Web-based or command-based interface of the LAN switch, it may take a while for that configuration to be reflected on Resource Orchestrator through periodic queries.

When performing server switchover before new VLAN information is reflected, the VLAN information previously set is configured in LAN switch blades. Set the VLAN configuration from the ROR console instead of the LAN switch's own Web-based and command-based interfaces.

- If the Port VLAN ID field is left blank and a value is entered for Tagged VLAN ID in the [VLAN Configuration] dialog, the tagged LAN only will be enabled.

To enable a port VLAN, enter a value for Port VLAN ID.

When only a tagged VLAN is configured, the value for the port VLAN is not displayed on the ROR console even if it has been configured on the switch. For the devices for which port VLANs cannot be deleted, it is necessary to limit the frames that let ports pass through to the tagged frames only.

If the port VLAN ID is unspecified or 1, a tagged VLAN ID cannot be set to 1.

- VLAN settings cannot be configured for ports with Automatic Migration of Port Profile (AMPP) configured.

## 5.4.5 HBA address rename Settings

For details, refer to "5.5.2 HBA address rename Settings".

### Point

When creating a physical L-Server using a blade server, HBA address rename settings are not necessary.

## 5.5 When Using Rack Mount and Tower Servers

This section explains how to register resources when using rack mount or tower servers.

When using rack mount or tower servers, use the following procedure to register resources:

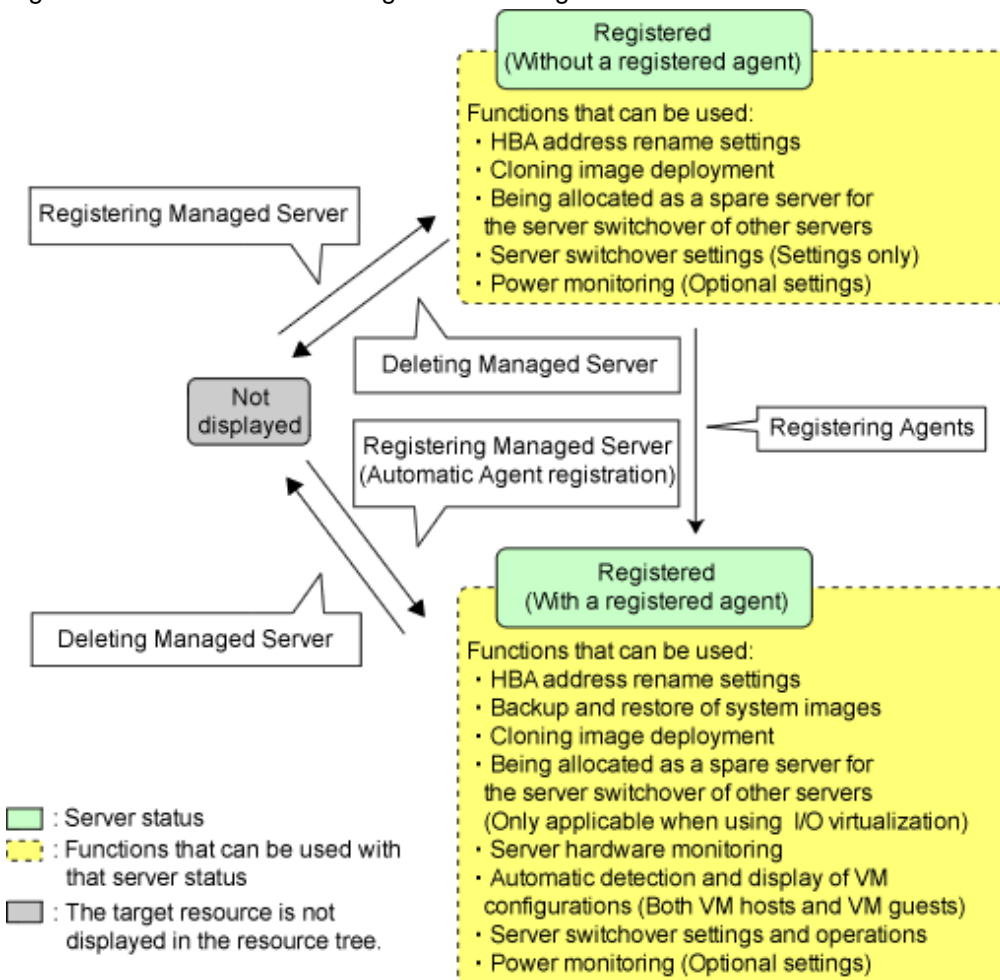
- Register Rack Mount or Tower Servers
- Register L2 Switches

### 5.5.1 Registering Rack Mount or Tower Servers

This section explains how to register a rack mount or tower server.

When using VIOM for I/O virtualization, VIOM server profiles should be registered in advance according to the procedure described in "5.1.1 Registering VIOM Server Profiles".

Figure 5.3 Status Transition Diagram for Managed Servers



Use the following procedure to register servers.

1. In the ROR console server resource tree, right-click [Server Resources], and select [Register]-[Server] from the popup menu.  
The [Register Server] dialog is displayed.

2. Perform the following settings:

Enter items differ depending on whether the [Register agent] checkbox is selected, as described below.

If this checkbox is checked, agents will be registered after server registration.

If this checkbox is not checked, registration of agents will not be performed, so register agents after server registration when necessary.

For details on registering agents, refer to "[8.2 Installing Software and Registering Agents on VM Hosts](#)".

#### **Without Agent Registration**

- Physical server name
- Remote management controller
  - IP address
  - User ID
  - Password
- Association with server management software (ServerView)
  - Enable/Disable
  - SNMP Community
- Admin LAN
  - IP address
  - MAC address (NIC1)

For physical L-Servers, specify the MAC address of the second specified NIC decided in "9.1.1 Admin LAN Network Design" in the "Design Guide CE".

Enter a physical MAC address in either one of the following formats: hyphen-delimited ("xx-xx-xx-xx-xx-xx"), or colon-delimited ("xx:xx:xx:xx:xx:xx").

- SAN Boot/Admin LAN Redundancy
  - [Use Admin LAN redundancy] checkbox
  - MAC address (NIC2)

For physical L-Servers, specify the MAC address of the second specified NIC decided in "9.1.1 Admin LAN Network Design" in the "Design Guide CE".

Enter a physical MAC address in either one of the following formats: hyphen-delimited ("xx-xx-xx-xx-xx-xx"), or colon-delimited ("xx:xx:xx:xx:xx:xx").

Automatic registration of agents is not performed after server registration. After registering servers, register agents as required.

If registering agents, register agents after checking the product name is displayed in the General Area of [Resource Details] tab.

Executing [Update] acquires the latest information.

#### **With Agent Registration**

- Physical server name
- Remote management controller
  - IP address
  - User ID
  - Password
- Association with server management software (ServerView)
  - Enable/Disable

- SNMP Community
- Admin LAN
  - IP address
- Admin LAN Redundancy
  - [Use Admin LAN redundancy] checkbox
  - MAC address (NIC2)
 

For physical L-Servers, specify the MAC address of the second specified NIC decided in "9.1.1 Admin LAN Network Design" in the "Design Guide CE".

Enter a physical MAC address in either one of the following formats: hyphen-delimited ("xx-xx-xx-xx-xx-xx"), or colon-delimited ("xx:xx:xx:xx:xx:xx").
- OS
  - Type

Agents are automatically registered after server registration is completed.

#### Physical Server Name

Enter a name to assign to this physical server.

Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters and hyphens ("-").

#### Remote management controller

##### IP address

Enter the IP address of this server's remote management controller.

##### User ID

Enter the ID of a remote management controller user account with administrative authority over this server.  
Enter up to 16 characters, including alphanumeric characters and symbols (ASCII characters 0x20 to 0x7e).

##### Password

Enter the password of the above remote management controller user account.  
Enter up to 16 characters, including alphanumeric characters and symbols (ASCII characters 0x20 to 0x7e).  
This field can be omitted if no password has been set for this user account.

#### Association with server management software (ServerView)

##### Enable/Disable

###### **For PRIMERGY BX servers**

Select [Enable] and enter an [SNMP Community].

###### **For servers other than PRIMERGY servers**

Select [Disable].

By default, [Enable] is selected.

##### SNMP Community

Enter the SNMP community that was set on this server.  
Either select "public" or enter an arbitrary string.  
Enter a string of up to 32 alphanumeric characters, underscores ("\_"), and hyphens ("-").

#### Admin LAN

##### IP address

Enter the IP address used by this server on the admin LAN.

##### MAC address (NIC1)

Enter the MAC address of this server's admin LAN network interface.  
Enter a physical MAC address in either one of the following formats: hyphen-delimited ("xx-xx-xx-xx-xx-xx"), or colon-



delimited ("xx:xx:xx:xx:xx:xx").

MAC addresses will be automatically detected when the [Register agent] checkbox is selected.

### SAN Boot/Admin LAN Redundancy

#### [Use Admin LAN redundancy] checkbox

Check this when performing redundancy for the NIC on the admin LAN.

#### MAC address (NIC2)

Enter the MAC address of the second admin LAN network interface. This network interface is to be used by the HBA address rename setup service, or to enable admin LAN redundancy on the registered server.

Enter a physical MAC address in either one of the following formats: hyphen-delimited ("xx-xx-xx-xx-xx-xx"), or colon-delimited ("xx:xx:xx:xx:xx:xx").

This field can be omitted in the following cases.

- When not using the HBA address rename setup service
- When not using GLS for admin LAN redundancy on the managed server
- For a spare server whose primary servers are not using admin LAN redundancy

### OS

#### Type

This option is displayed if the target server runs a physical OS or VM host.

Select the appropriate server OS category (Physical OS or VM host).

Selecting [VM Host] activates the user ID and password input fields. Those refer to the user name and password entered during installation of this VM host.

Select the server OS category depending on whether the relevant server is used on a physical OS or a VM host.

#### **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.

#### User ID

Enter the user ID to log in to the VM host. Specify a user ID that has VM host administrator authority.

[Hyper-V]

Users of the Hyper-V Administrators group can be specified.

#### Password

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

### Note

- For details about the network interfaces used on the admin LAN, refer to "9.1.1 Admin LAN Network Design" in the "Design Guide CE".  
If an incorrect network interface is used, Resource Orchestrator will use a wrong MAC address for the admin LAN.  
An admin LAN IP address is required even when registering a spare server.  
Enter an IP address that does not conflict with the IP address of any other managed server on the admin LAN.
- When using backup and restore, cloning, or HBA address rename, the NIC (or LAN expansion board) must support PXE boot.
- A server running a VM host can still be registered as a physical OS if its [Category] of [Server OS] is set to [Windows/Linux]. (For 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.

- When registering rack mount servers on which VMware ESXi is operating, select [Disable] for [Association with server management software (ServerView)] even when using PRIMERGY servers.  
After registering the server, clear the [Register agent] checkbox and register the agent after registration of the server is complete.

3. Click the [OK] button.

The registered server will be displayed in the server resource tree.

### Note

- After registering the server, verify that the information registered for the remote management controller is correct. This can be verified by trying out power operations (from Resource Orchestrator) against that server. Refer to "Chapter 14 Power Control" in the "User's Guide VE" for details on power operations.
- When using the HBA address rename setup service, confirm that the registered server can boot properly using the HBA address rename setup service.  
If the server cannot be booted properly, ensure that the specified MAC address (NIC2) is correct.
- 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 host name defined in the guest OS.  
The timing at which the hostname of a guest OS is detected and displayed varies according to its server virtualization software. For details, refer to "9.2.2 Functional Differences between Products" in the "Design Guide VE".
- It is recommended not to use duplicate names for physical OSs, VM hosts, and VM guests. If duplicated names are used, those resources cannot be managed from the command-line.
- When registering a server on which the agent was installed, it is necessary to either reboot the server or restart its related services (explained in the "2.2 Starting and Stopping Agents" in the "Operation Guide CE") after server registration. This step has to be done before running any image operation (system image backup or cloning image collection).  
For details on how to restart the agent, refer to "2.2 Starting and Stopping Agents" in the "Operation Guide CE".

## 5.5.2 HBA address rename Settings

This section explains the HBA address rename settings.

Use the following procedure to configure HBA address rename settings.

### Point

The following procedure is not necessary when creating physical L-Servers using HBA address rename for I/O virtualization. Only the HBA address rename setup service is necessary.  
Refer to "Chapter 6 Settings for the HBA address rename Setup Service" in the "Setup Guide CE".

The HBA address rename function allows the admin server to control the WWNs set on a managed server's HBAs. Since the admin server carries over these settings when performing maintenance on or switching managed servers, it is not necessary to set the storage side configuration again.

Use of the HBA address rename function requires registering specific settings for each managed server in advance.

### Note

- The HBA address rename function is not available if ServerView Deployment Manager is used on the admin LAN. For details, refer to "I.2 Co-Existence with ServerView Deployment Manager" in the "Setup Guide CE".

- For servers which already have server switchover configured, when configuring or changing HBA address rename, the following conditions must be met:

- Primary servers with HBA address rename configured
- Spare servers with the server switchover method HBA address rename configured

For any servers that do not meet these conditions, cancel any existing recovery settings before enabling the HBA address rename function on a server.

- HBA address rename and VIOM cannot be used together within the same chassis.

---

## 1. Storage Settings

Refer to "10.2 Configuring the Storage Environment" in the "Design Guide CE" to configure the storage.

When altering the configuration of a storage device already used by active servers, ensure those servers are powered off before performing any configuration changes.

## 2. Settings for the HBA address rename Function

1. On the ROR console server resource tree, right-click the target server (or the physical OS or VM host on the server), and select [Modify]-[HBA Address Rename Settings] from the popup menu.

The [HBA Address Rename Settings] dialog is displayed.

2. Define the following settings:

### WWNN

Specify the WWNN value provided by the "I/O virtualization Option".

The admin server generates WWPNs automatically from the values that are input into the WWNN and the number of HBA ports.

### HBA ports

Specify the following values according to the system configuration.

- To create a single-path configuration, specify "1".  
For details, refer to "[Figure 5.4 Procedures for Single-path Configurations](#)".
- To create a multi-path configuration, specify "2".

However, it is necessary to specify "1" during installation of the operating system. Specify "2" and reconfigure HBA address rename settings after setting up the multi-path driver.

For details, refer to "[Figure 5.5 Procedures for Multi-path Configurations](#)".

Figure 5.4 Procedures for Single-path Configurations

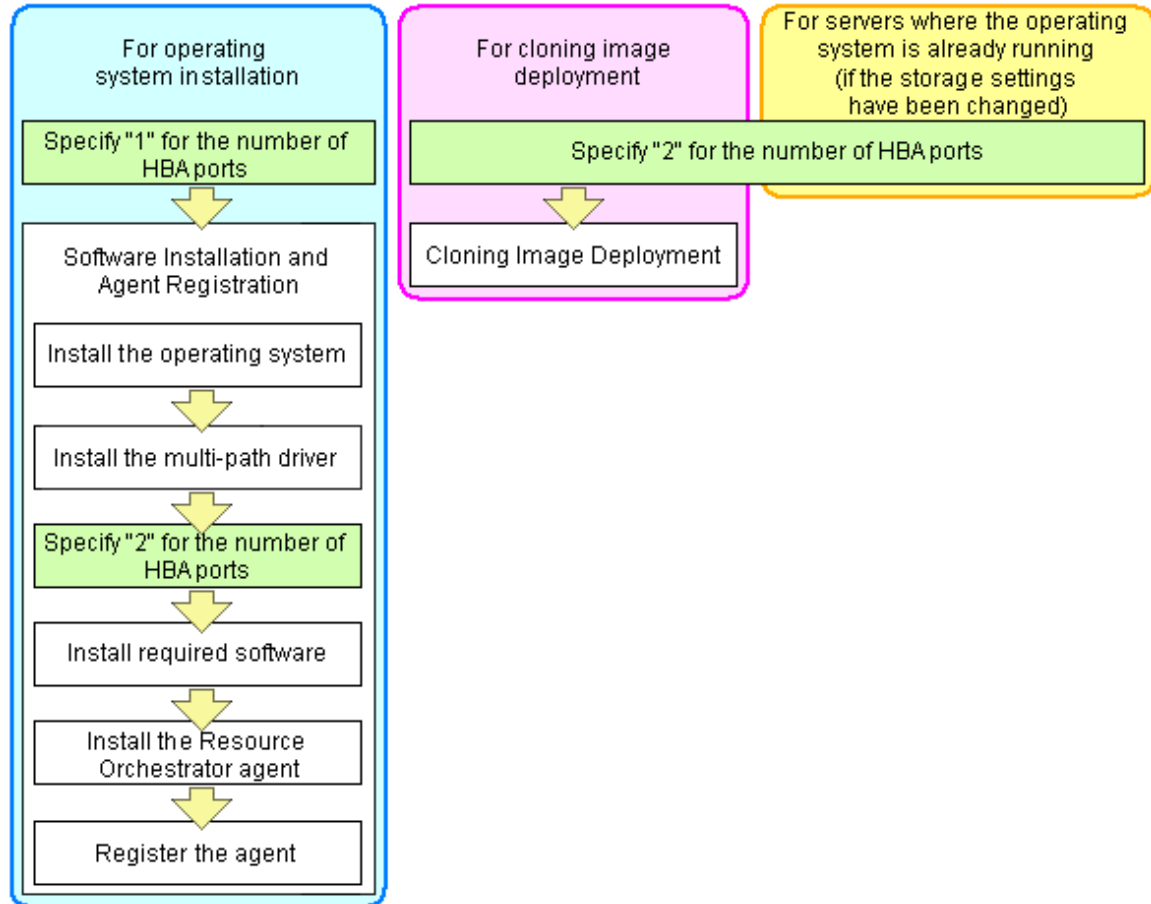
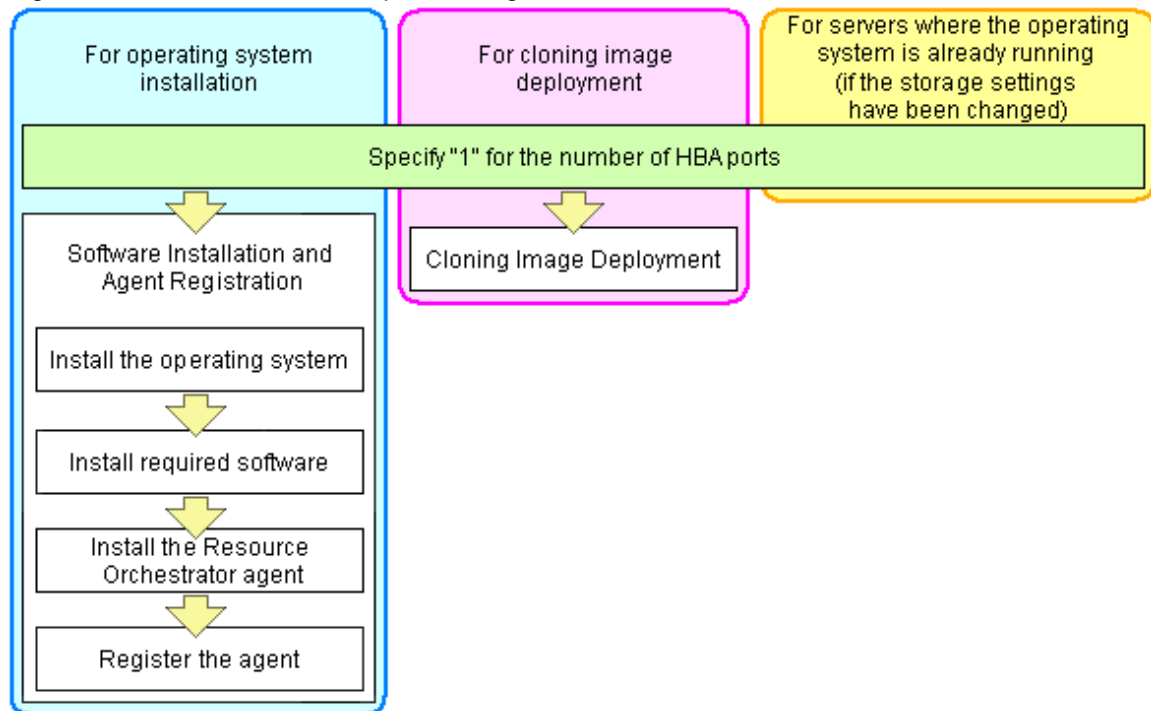


Figure 5.5 Procedures for Multi-path Configurations



## Example

For a server with two ports, WWNs could be configured as follows.

WWNN value provided by "I/O Virtualization Option": 20:00:00:17:42:51:00:00

### Values to set in the [HBA address rename settings] dialog

"WWNN" value 20:00:00:17:42:51:00:00

"HBA port number" on board: 2

### Values actually set by the admin server on the HBA (WWPNs are generated automatically)

WWNN value for ports 1 and 2 of the HBA	:	20:00:00:17:42:51:00:00
WWPN value for HBA port 1	:	21:00:00:17:42:51:00:00
WWPN value for HBA port 2	:	22:00:00:17:42:51:00:00

## Information

WWN settings are applied to managed servers during server startup.

## Note

With HBA address rename, as WWNs are allocated to the I/O addresses of HBAs in descending order, the order may not match the port order listed in the HBA.

For details, refer to "C.2 WWN Allocation Order during HBA address rename Configuration" in the "Design Guide CE".

3. Check the [Restart the server] checkbox if the server is to be restarted.

## Information

Select server restart in the following cases.

- When installing an operating system immediately after performing the above settings

Insert the operating system installation CD in the target server and select server restart. Once the server has been restarted, its WWN settings are applied and the operating system installation starts.

- When an operating system is already running (if changing storage settings)

Click [OK] to restart the target server and apply its WWN settings.

The server restart is not required in other cases. The WWN that has been set is enabled at the next restart.

4. Click the [OK] button.

## Information

When using a server without an OS, the resource name displayed on the server resource tree is the same as that of the physical server.

5. Restart the HBA address rename setup service.

The HBA address rename setup service must be running to use the HBA address rename function.

For details on how to configure these settings, refer to "Chapter 6 Settings for the HBA address rename Setup Service" in the "Setup Guide CE".

## 5.5.3 Registering the Public LAN (MAC Address) Information

---

This section explains how to register the public LAN (MAC address) information required when using a rack mount server or a tower server.

### When Coordinating with VIOM

Use the following procedure to register the public LAN (MAC address) information.

It is also necessary to register a public LAN (MAC address) information when using a rack mount server or a tower server as a server resource of a physical L-Server.

1. Definition File Settings  
Configure the definition file.  
For details, refer to "[5.1.2 When Managing Rack Mount or Tower Servers Using VIOM](#)".
2. In the ROR console server resource tree, right-click the target server, and select [Modify]-[Public LAN (MAC Address) Information] from the popup menu.  
The [Public LAN (MAC Address) Information] dialog is displayed.
3. Click the [Add] button to add the same number of input areas as the number of MAC addresses to register.
4. Enter the physical MAC addresses of the NICs for the public LAN.
  - Enter the physical MAC addresses of the NICs, not the virtual MAC address allocated by VIOM.
  - Enter the physical MAC addresses of the NICs for the public LAN in the order defined in the definition file described in step 1.

### When Not Coordinating with VIOM

Use the following procedure to register the public LAN (MAC address) information.

1. In the ROR console server resource tree, right-click the target server, and select [Modify]-[Public LAN (MAC Address) Information] from the popup menu.  
The [Public LAN (MAC Address) Information] dialog is displayed.
2. Click the [Add] button to add the same number of input areas as the number of MAC addresses to register.
3. Enter the MAC address of the NIC for the public LAN.

#### Point

.....  
Check the value of the MAC address to enter using the remote management controller. For details, refer to the manuals provided with the hardware.  
.....

#### Information

.....  
To display the link information with the network device on NetworkViewer, it is necessary to register the network device as well. For details, refer to "[5.7 Registering Network Devices](#)".  
.....

#### Note

.....  
The MAC address used for the admin LAN is specified when registering a server.  
For details, refer to "[5.5.1 Registering Rack Mount or Tower Servers](#)".  
.....

## 5.6 Registering Network Resources

---

To register a network resource, specify a network pool when creating the network resource. Configuration is necessary for each network with which connections will be established.

For physical L-Servers, network resources for the admin LAN and public LAN are necessary. For virtual L-Servers, network resources for the public LAN are necessary.

For details, refer to "[14.3 Network Resources](#)".

Apply the Cloud Edition license before registering network resources for the admin LAN.

### Prerequisites for Resource Orchestrator Operation

The prerequisites for the network environment, VM host, and physical server used to run Resource Orchestrator differ depending on the L-Server used.

- For Physical L-Servers

Refer to "D.4 Network Preparations" in the "Design Guide CE".

- For Virtual L-Servers

Refer to "Appendix E Preparations for Creating a Virtual L-Server" in the "Design Guide CE".

### Automatic Network Configuration

By creating network resources in advance and connecting NICs and network resources when creating an L-Server, the following settings matching the network resource definition will be registered automatically.

Configuration of a physical NIC (hereinafter a physical LAN segment) used by each blade server model and VM host must be defined in the server NIC definitions. Specifying the physical LAN segment defined in the server NIC definitions from the network resource allows the users to select a physical NIC for each network resource.

- When using VMware as server virtualization software

By entering the name of the port group to exclude from automatic network configuration in the "VMware excluded port group definition file", creation of an L-Server is possible even when the service console and port group use the same VLAN.

- When using blade servers and LAN switch blades in switch mode or end-host mode

Tagged VLANs can be automatically configured for external connection ports of LAN switch blades.

Details of auto configuration differ depending on L-Server type.

- For Physical L-Servers

When using physical L-Servers, refer to "7.3.1 Automatic Network Configuration" in the "Setup Guide CE".

- For Virtual L-Servers

Refer to the setup section for the server virtualization software to use in "Chapter 8 Configuration when Creating Virtual L-Servers" in the "Setup Guide CE".

### Manual Network Configuration

When using a port group on a virtual switch [VMware], a virtual network [Hyper-V], or a virtual bridge [Xen] [KVM] that has been manually configured with a physical NIC selected beforehand, use one of the following procedures to create a network resource:

- The Procedure From the GUI

In the dialog displayed when creating a new network resource, check [Use configured virtual switches.] checkbox and then create a network resource (manually configured network resource).

- The Procedure From the Command Line

Create a network resource (manually configured network resource) with auto="false" specified for the "<Network>" element in the XML definition file.

To perform auto-configuration of a network device (an L2 switch) when creating a network resource, specify auto="true" for the "<SwitchConfiguration>" element and the ruleset name to use for auto-configuration for the "<Ruleset>" element in the XML definition file.

## 5.7 Registering Network Devices

---

This section explains how to register network devices.

The devices that need to be registered as network devices must meet the following conditions:

- Network devices to be automatically configured using the "auto-configuration for network device" function
- Network devices to be monitored using the "Network monitoring" function

Resource Orchestrator supports registration of the following types of network devices.

- Firewall
- Server Load Balancer
- L2 Switches
- Ethernet Fabric

The following network devices are the targets:

- Fujitsu Converged Fabric switches
- Fujitsu PRIMERGY Converged Fabric switch blades (10Gbps 18/8+2)
- Brocade VDX 6710 series
- Brocade VDX 6720 series
- Brocade VDX 6730 series
- Brocade VDX 6740/6740T
- Brocade VDX 6940 series
- Management hosts

The following devices are the targets.

- Fujitsu IPCOM VX series

When identifying this device, it is indicated as "Management host (IPCOM VX)".

Use the following procedure to register a network device:

1. Create network configuration information for the network device to register.
2. Register the network device using the network configuration information created in step 1.

### 5.7.1 Creating the Network Configuration Information (XML Definition)

---

Create the network configuration information (XML definition) necessary for registering the network device to be managed by Resource Orchestrator.



For how to create network configuration information (XML definitions), refer to "9.4.8 When Managing Network Devices as Resources" in the "Design Guide CE".

---



## 5.7.2 Registering Network Devices

---

This section explains how to register network devices.

### When Registering Individual Network Devices

Use the `rcxadm netdevice create` command to register network devices defined in network configuration information (XML definition).

### When Batch Registering Multiple Network Devices

Use the `rcxadm netconfig import` command to register network devices defined in network configuration information (XML definition).



- For details on the `rcxadm netdevice` command, refer to "3.8 `rcxadm netdevice`" in the "Reference Guide (Command/XML) CE".
- For details on the `rcxadm netconfig` command, refer to "3.7 `rcxadm netconfig`" in the "Reference Guide (Command/XML) CE".
- When registering an unsupported network device, add the model of the network device to be registered to the model definition for network devices, and register the network device after updating the model definition file.

For information about the model definition file, refer to "15.15 Network Device Model Definition" in the "Reference Guide (Command/XML) CE".



- When registering network devices, if multiple network devices are registered with the same resource name, the following problems will occur. Make sure to use a name that is unique on the system when registering a network device.
  - Network devices cannot be identified by name in the resource list.
  - Modification of a network device using the `rcxadm netdevice modify` command is not possible because the target network device cannot be identified.

Change the name of the network device to modify the settings of, referring to "7.4 Changing Settings of LAN Switch Blades and LAN Switches (L2 Switches)" and then modify the settings using the `rcxadm netdevice modify` command.
  - Deletion of a network device using the `rcxadm netdevice delete` command is not possible because the target network device cannot be identified.

Refer to "9.4.2 Deleting Network Devices" to delete the target network device.
- The intended network device may not be automatically configured.
- Disaster Recovery may fail.
- Under redundancy configuration, it is only enabled for the same vendor and model. For this reason, registration should be made specifying the same group ID as the network device that has been already registered for redundancy configuration. During the registration confirmation process, if the network device has a different vendor name and device name from the registered one, registration as a network device will fail.

## 5.8 When Using PRIMEQUEST Servers

---

This section explains how to register resources when using PRIMEQUEST servers.

- Registering Chassis (For PRIMEQUEST Servers)
- Registering PRIMEQUEST Servers

## 5.8.1 Registering Chassis (For PRIMEQUEST Servers)

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This section explains how to register chassis when using PRIMEQUEST servers.

By registering a chassis, every partition mounted in the chassis will be automatically detected and displayed as an unregistered server in the server resource tree. Register these managed servers individually.

For details on registering servers, refer to "[5.8.2 Registering PRIMEQUEST Servers](#)".

Use the following procedure to register a chassis:

1. In the ROR console server resource tree, right-click [Server Resources], and select [Register]-[PRIMEQUEST] from the popup menu.

The [Register Chassis] dialog is displayed.

2. Perform the following settings:

### Admin LAN (IP address)

Enter the virtual IP address that was set on the chassis management board.

Enter the IP address using periods ".".

### Chassis name

Enter a name to assign to this chassis.

Enter a character string beginning with an alphabetical character and containing up to 10 alphanumeric characters and hyphens ("-").

### SNMP Community

Enter the SNMP community that was set on the chassis management board.

Either select [public] or enter an arbitrary string.

Enter a string of up to 32 alphanumeric characters, underscores ("\_"), and hyphens ("-").

### Remote server management

#### User ID

Enter the ID of a remote server management user account with administrative authority over this managed server.

This user ID must be between 8 and 16 alphanumeric characters long.

A user ID with at least administrator privileges within the remote server management must be specified.

#### Password

Enter the password of the above remote server management user account.

This password must be between 8 and 16 alphanumeric characters long.



### Note

The [User ID] and [Password] of [Remote server management] are different from the user name and password used to log in on the Web-UI for management board.

3. Click the [OK] button.

The mounted chassis will be displayed under the server resource tree.

Any partition mounted within this chassis will be detected automatically and shown as: [*chassis\_name-partition\_number*{Unregistered}].

The only operation available for those unregistered partitions is server registration, while the ROR console can only display their hardware statuses and properties.

If the manager is installed on one of those partitions, this partition will be shown as: [*chassis\_name-partition\_number*{Admin Server}].

In that case, server registration will not be available for the admin server. Its properties will be displayed in the ROR console.

## Information

For the PRIMEQUEST 2000 series, when the chassis is registered, partitions of PPAR and Extended Partition are detected automatically and they are displayed as unregistered servers in the server resource tree. However, PPAR with Extended Partitioning Mode set to "Enable" are not displayed.

When [Extended Partitioning Mode] of PPAR#3 is set to "Enable" and Extended Partition#4 and #5 are configured from PPAR#3 as shown in the figure below, PPAR#3 is not displayed in the server resource tree after the chassis is registered. Extended Partition#4 and #5 configured from PPAR#3 are displayed in the server resource tree.

Figure 5.6 About Auto-detection of Partitions on the PRIMEQUEST 2000 Series

The screenshot shows the 'Power Control' interface. On the left is a navigation tree with 'Partition' selected. The main area displays a table of partitions and their power control settings. Below the table is a 'Trees' section showing the 'Server Resource' tree.

#	Pa	Partition Name	Power Status	System Progress	Power Control	Force Power Off Delay
0	-	PPAR01	On	OS Running	(Not specified)	min
1	-	PPAR02	On	EFI	(Not specified)	min
2	-	PPAR03	Standby	Power Off	(Not specified)	min
3	P	ROR	On	Extended Partitioning Running		min
4	3	ExtendedPar4	Standby	Power Off	(Not specified)	min
5	3	ExtendedPar5	Standby	Power Off	(Not specified)	min

The 'Trees' section shows the following structure:

- Server Resource
  - Server Resources
    - bx600
      - Cassiopeia
        - Cassiopeia-0[Unregistered]
        - Cassiopeia-1[Unregistered]
        - Cassiopeia-2[Unregistered]
        - Cassiopeia-4[Unregistered]
        - Cassiopeia-5[Unregistered]

## 5.8.2 Registering PRIMEQUEST Servers

This section explains how to register servers when using PRIMEQUEST servers.

For the PRIMEQUEST 2000 series, the following partitions can be registered as managed servers.

- PPAR partitions with Extended Partitioning Mode set to "Disable"
- Extended Partitions configured on a PPAR partition with Extended Partitioning Mode set to "Enable"

Do not change Extended Partitioning Mode or PPAR Extended Partition configuration after registering the server.

If the Extended Partitioning Mode of a PPAR is changed to "Enable" after server registration, [Extended Partitioning Mode] is displayed for that PPAR, but it cannot be used as is.

If you want to change the Extended Partitioning Mode or Extended Partition configuration, delete the server from managed server on the ROR console first. Change the Extended Partitioning Mode or Extended Partition configuration and then register the server again.

Use the following procedure to register servers:

1. In the ROR console server resource tree, right-click an unregistered server blade or partition in the target chassis, and select [Register]-[Server] from the popup menu.

The [Register Server] dialog is displayed.

2. Perform the following settings:

#### Physical Server Name

Enter a name to assign to this physical server.

Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters and hyphens ("-").

#### Admin LAN (IP address)

Enter the IP address used by this server on the admin LAN.

Enter the IP address of this server's admin LAN network interface.

The Agent will not be registered automatically, but can be manually registered after server registration if necessary. After registering servers, register agents as required.

#### Boot option

Specify the boot option configured from BIOS when installing the OS.

- For UEFI

Select [UEFI].

- For Legacy Boot

Select [Legacy boot].

By default, [UEFI] is selected.

These settings can be changed after server registration.

For details on how to modify these settings, refer to "[7.1.10 Changing Boot Options](#)".

3. Click the [OK] button.

The registered server will be displayed in the server resource tree.



#### Note

For PRIMEQUEST, after IOU replacement or immediately after powering on, the MAC Address for each partition that is obtained from the MMB becomes FF:FF:FF:FF:FF:FF. As correct LAN MAC addresses are obtained from the MMB after each partition is powered on, perform server registration after that.

## 5.9 When Using Fujitsu M10/SPARC Enterprise

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This section explains how to register resources when using Fujitsu M10/SPARC Enterprise.

- Registering Chassis (SPARC Enterprise M4000/M5000/M8000/M9000) or Fujitsu M10-4S
- Registering SPARC Enterprise (M3000/T Series) servers or Fujitsu M10 M10-1/M10-4

### 5.9.1 Registering Chassis (SPARC Enterprise M4000/M5000/M8000/M9000) or Fujitsu M10-4S

---

This section explains how to register chassis when using SPARC M10/SPARC Enterprise servers.

By registering a chassis, every partition mounted in the chassis will be automatically detected and displayed as an unregistered server in the server resource tree. Register these managed servers individually.

For details on registering managed servers, refer to "[5.9.2 Registering SPARC Enterprise \(M3000/T Series\) servers or Fujitsu M10 M10-1/M10-4](#)".



Use the following procedure to register servers:

1. The dialog is displayed.

- For SPARC Enterprise (M3000/T series)

In the ROR console server resource tree, right-click [Server Resources], and select as below.

Select [Register]-[SPARC Enterprise (M3000/T Series)] from the popup menu.

The [Register SPARC Enterprise] dialog is displayed.

- For Fujitsu M10-1/M10-4

In the ROR console server resource tree, right-click [Server Resources], and select as below.

Select [Register]-[SPARC (M10-1/M10-4)] from the popup menu.

The [Register SPARC (M10-1/M10-4)] dialog is displayed.

- For SPARC Enterprise M4000/M5000/M8000/M9000 or Fujitsu M10-4S

Right-click the server in the chassis, and select as follows:

Select [Register]-[Server] from the popup menu.

The [Register Server] dialog is displayed.

2. Perform the following settings:

When using SPARC Enterprise M4000/M5000/M8000/M9000 or Fujitsu M10-4S, the items related to Remote Management Controller are not displayed.

When using Fujitsu M10-1/M10-4, the items related to Controller type are not displayed.

- Physical server name
- [Register agent] checkbox
- Remote management controller (ILOM/XSCF)
  - Controller type
  - IP address
  - User ID
  - Password
  - SNMP Community
- Admin LAN
  - IP address

For SPARC Enterprise M4000/M5000/M8000/M9000 servers and Fujitsu M10-4S, "admin LAN (IP address)" is displayed.

**With Agent Registration**

- OS
  - Type
  - User ID
  - Password

**Physical Server Name**

Enter a name to assign to this physical server.

Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters and hyphens ("-").

[Register agent] checkbox

- Without Agent Registration

Automatic registration of agents is not performed after server registration.  
After registering servers, register agents as required.

If registering agents, register agents after checking the product name is displayed in the General Area of [Resource Details] tab.

Executing [Update] acquires the latest information.

- With Agent Registration

Agents are automatically registered after server registration is completed.

Remote management controller (ILOM/XSCF)

**For SPARC Enterprise M3000 servers**

Controller type

Select [XSCF].

IP address

Enter the IP address of this server's remote management controller (XSCF).

User ID

Enter the ID of a XSCF user account with administrative authority over this server.

Enter up to 31 characters, including alphanumeric characters, underscores ("\_"), or hyphens ("-"). This name should start with an alphabet character.

This user should have "platadm" privileges for XSCF.

The user ID reserved for the system cannot be used. Create another user ID.

For details, refer to the XSCF manuals.

Password

Enter the password of the above XSCF user account.

Enter up to 32 characters, including alphanumeric characters, blank spaces (" "), and any of the following symbols.

!" , "@" , "#" , "\$" , "%" , "^" , "&" , "\*" , "[" , "]" , "{" , "}" , "(" , ")" , "-" , "+" , "=" , "~" , "\_" , ">" , "<" , "/" , "" , "?" , ";" , ":"

SNMP Community

Enter the SNMP community that was set on this server's remote management controller (XSCF).

Either select [public] or enter an arbitrary string.

Enter a string of up to 32 alphanumeric characters, underscores ("\_"), and hyphens ("-").

**For SPARC Enterprise T series**

Controller type

Select [ILOM].

IP address

Enter the IP address of this server's remote management controller (ILOM).

User ID

Enter the ID of an ILOM user account with administrative authority over this server.

Enter between 4 and 16 characters, including alphanumeric characters, underscores ("\_"), or hyphens ("-"). This name should start with an alphabet character.

This user ID should have "Admin" privileges for ILOM.

## Password

Enter the password of the above ILOM user account.

Enter between 8 and 16 characters, including alphanumeric characters, blank spaces (" "), and any of the following symbols.  
"! ", "@", "#", "\$", "%", "^", "&", "\*", "[", "]", "{", "}", "(, ")", "-", "+", "=", "~", ";", ">", "<", "/", "", "?", ":", "

## SNMP Community

Enter the SNMP community name of this server's remote management controller (ILOM).

Either select [public] or enter an arbitrary string.

Enter a string of up to 32 alphanumeric characters, underscores (" \_"), and hyphens (" -").

## Admin LAN

### IP address

Enter the IP address used by this server on the admin LAN.

For SPARC Enterprise M4000/M5000/M8000/M9000 servers and Fujitsu M10-4S, "admin LAN (IP address)" is displayed.

## Server OS

### Category

Select the appropriate server OS category (Physical OS or VM host).

Selecting [VM Host] activates the user name and password input fields.

Those refer to the user name and password entered during installation of this VM host.

#### For a Physical OS

Select [Solaris].

#### For a VM Host

Select [Solaris Zone], 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.



[OVM for SPARC]

Server switchover is only possible when [VM host] is selected and it is registered as OVM for SPARC.

## User ID

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

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



When using Solaris 11, if user accounts are created during installation, root will be registered for the role. 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.

Enter up to 256 characters, including alphanumeric characters, blank spaces (" "), and symbols.



3. Click the [OK] button.

The registered server will be displayed in the server resource tree.

### Note

After registering the server, verify that the information registered for the remote management controller is correct. This can be verified by trying out power operations (from Resource Orchestrator) against that server. For details on power operations, refer to "Chapter 14 Power Control" in the "User's Guide VE".

## 5.9.3 Registering Guest Domains on Oracle VM for SPARC

---

This section explains the methods for registering guest domains on Oracle VM for SPARC.

When a guest domain is registered as a VM host, information for zones created on the guest domain is also displayed.

Use the following procedure to register VM hosts. Perform it with the VM guest started.

When using a virtual L-Server for the target guest domain, if the IP address specified when performing this operation is used for the admin LAN of the virtual L-Server, perform this operation after deleting the NIC.

1. In the ROR console server resource tree, right-click the VM guest in [Server Resources], and select [Register]-[Agent] from the popup menu.

The [Register VM Host] dialog is displayed.

2. To use this feature, the following settings must be defined:

#### Admin LAN IP Address

Enter the IP address of the XSCF of the target chassis.

Enter the IP address using periods ".".

### Note

- After registering the guest domain, confirm that the VM guest is displayed under the VM host in the guest domain of Oracle VM for SPARC, and that the same VM guest is in the Solaris Zone operating on the actual server. When different VM guests are displayed, check the registered IP address and then change it to the correct one.
- L-Servers in L-Platforms cannot be registered.

#### User ID

Enter the user ID to log in to the guest domain.

Specify the user ID "root" which has guest domain administrator authority.

#### Password

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

Enter up to 256 characters, including alphanumeric characters, blank spaces (" "), and symbols.

3. Click the [OK] button.

The registered VM Host will be displayed in the server resource tree.

## 5.10 Registering Power Monitoring Devices

---

This section explains how to register power monitoring devices.

Registering power monitoring devices (PDU or UPS) enables monitoring of power consumption.

Use the following procedure to register power monitoring devices.

1. In the ROR console power monitoring device tree, right-click [Power Monitoring Devices] and select [Register]-[Power Monitoring Device] from the popup menu.

The [Register Power Monitoring Device] dialog is displayed.

2. Perform the following settings:

#### Device name

Enter a name to assign to this power monitoring device. When exporting power consumption data, use this name to select power monitoring devices for which to export data.

Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters and hyphens ("-").

#### Admin LAN (IP address)

Enter the IP address that was set on this power monitoring device. This IP address will be used to collect power consumption data from this power monitoring device.

#### SNMP Community

Enter the SNMP community that was set on this power monitoring device.

Either select [public] or enter an arbitrary string.

Enter a string of up to 32 alphanumeric characters, underscores ("\_"), and hyphens ("-").

This SNMP community will be used to collect power consumption data from this power monitoring device (via SNMP protocol).

#### Voltage

Enter the voltage (V) supplied to this power monitoring device. Enter a number between 10 and 999. Power consumption data is calculated using the electrical current value obtained from this power monitoring device and its specified voltage.

#### Comment

Enter a comment that describes this power monitoring device.

Enter up to 128 alphanumeric characters or symbols (ASCII characters 0x20 to 0x7e).



.....  
A line break is counted as one character.  
.....

3. Click the [OK] button.

The registered power monitoring device will be displayed under the power monitoring devices tree.

If collection of power data is disabled in the option settings, data will not be collected even if power monitoring devices are registered. Change power data collection settings according to "[7.8.1 Changing Environmental Data Settings](#)".



.....  
Resource Orchestrator is not aware of the relationship between power monitoring devices and actual server resources. Make sure to register the power monitoring devices that are connected to the server resources for which you want to monitor power consumption.  
.....

## 5.11 Registering Admin LAN Subnets

---

This section explains how to perform admin LAN subnet registration.

Registering admin LAN subnets enables management of managed servers belonging to subnets other than that of the admin LAN.

Apply the Cloud Edition license before registering an admin LAN subnet.

Use the following procedure to register an admin LAN subnet.

1. From the ROR console menu, select [Settings]-[Admin LAN Subnet].

The [Admin LAN Subnet] dialog is displayed.

2. Click the [Add] button.

The [Add Admin LAN Subnet] dialog is displayed.

3. Perform the following settings:

#### Subnet name

Set the subnet name for registration.

Enter a character string beginning with an alphabetic character and containing up to 16 alphanumeric characters, underscores (" \_"), hyphens (" -"), and periods (" .").

#### Network address

Configure the network address of the subnet used as the admin LAN.

Enter valid values for the network address.

#### Subnet mask

Enter valid values for the subnet mask.

#### Gateway

Enter the settings for the gateway used for communication with the admin server on the admin LAN.

4. Click the [OK] button.

### Information

When registering an admin LAN subnet for the first time, change the simplified DHCP service for Resource Orchestrator to the OS standard DHCP Service.

Resource Orchestrator takes exclusive possession of the OS standard DHCP Service.

### Note

- It is necessary to perform network settings for each admin LAN subnet so that managed servers belonging to subnets other than the admin LAN can communicate with the admin server.

For details on how to configure the network settings, refer to "Chapter 9 Defining and Configuring the Network Environment" in the "Design Guide CE".

- In a clustered manager configuration, when registering an admin LAN subnet for the first time, perform "[Settings for Clustered Manager Configurations](#)".

- When managing a managed server in a separate subnet from the admin server, an OS standard DHCP server is necessary.

For details, refer to "2.1.1.2 Software Preparation and Checks" or "2.1.2.2 Software Preparation and Checks" in the "Setup Guide CE".

## Settings for Clustered Manager Configurations

The following configuration is necessary only when registering an admin LAN subnet for the first time.

[Windows Manager]

### Information

When configuring a cluster system in an environment that already has an admin LAN registered, perform steps 5 to 10, and 13.

1. Allocate the shared disk to the primary node.

Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Move this service or application to another node]-[1 - Move to node *node\_name*] from the displayed menu.

The name of the primary node is displayed for *node\_name*.

2. Delete the registry replication settings from the following "Services and Applications" of the manager.

Based on the following table, delete registry replication for the resources.

- x64

Resources for Deletion	Registry Key
Deployment Service	[HKEY_LOCAL_MACHINE]\SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard\ResourceDepot
	[HKEY_LOCAL_MACHINE]\SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard\DatabaseBroker\Default
PXE Services	[HKEY_LOCAL_MACHINE]\SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard\DHCP
	[HKEY_LOCAL_MACHINE]\SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard\PXE\ClientBoot\

- x86

Resources for Deletion	Registry Key
Deployment Service	[HKEY_LOCAL_MACHINE]\SOFTWARE\Fujitsu\SystemcastWizard\ResourceDepot
	[HKEY_LOCAL_MACHINE]\SOFTWARE\Fujitsu\SystemcastWizard\DatabaseBroker\Default
PXE Services	[HKEY_LOCAL_MACHINE]\SOFTWARE\Fujitsu\SystemcastWizard\DHCP
	[HKEY_LOCAL_MACHINE]\SOFTWARE\Fujitsu\SystemcastWizard\PXE\ClientBoot\

Perform the following procedure for each of the above resources:

- a. Right-click the target resource on [Other Resources] on the [Summary of RC-manager] displayed in the middle of the [Failover Cluster Management] window, and select [Properties] from the displayed menu.  
The [*target\_resource* Properties] window will be displayed.
  - b. From the [Root Registry Key] displayed on the [Registry Replication] tab, select the above registry keys and click the [Remove] button.  
The selected key is removed from [Root Registry Key].  
When deleting the second registry key, repeat step b.
  - c. Click the [Apply] button.  
The settings are applied.
  - d. Click [OK] to close the dialog.
3. Take the following services of the "Services and Applications" for the manager offline.
    - Deployment Service
    - TFTP Service
    - PXE Services
  4. Register the admin LAN subnet.

5. On the primary node, bring the shared disk of the manager online, and take all other cluster resources offline.
6. 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.
7. From the [Services] window, stop the DHCP Server service.
8. Using Explorer, copy the following folder from the local disk of the primary node to the folder on the shared disk.

Local Disk (Source)	Shared Disk (Target)
%SystemRoot%\System32\dhcp	<i>Drive_name</i> :Fujitsu\ROR\SVROR\dhcp

### Example

When the OS has been installed on the C drive, it is %SystemRoot%C:\Windows.

9. Configure access rights for the folder for the DHCP Server that was copied to the shared disk. Execute the following command using the command prompt of the primary node:

```
>cacls Drive_name:Fujitsu\ROR\SVROR\dhcp /T /P "NT AUTHORITY\SYSTEM:F" "BUILTIN
\Administrators:F" "NT SERVICE\DHCPserver:F" <RETURN>
```

10. Add the DHCP Server to "Services and Applications" for the manager.
  - a. Right-click [Services and Applications]-[RC-manager], and select [Add a resource]-[Other Resources]-[1 - Add a DHCP Service] from the displayed menu.  
A [New DHCP Service] will be created in the [DHCP Service] in [Summary of RC-manager].
  - b. Right-click the [New DHCP Service], and select [Properties] from the popup menu.  
The [New DHCP Service Properties] window will be displayed.
  - c. Change the [Resource Name] on the [General] tab, and set the paths given in the following table.

Item	Value to Specify
Database path	<i>Drive_name</i> :Fujitsu\ROR\SVROR\dhcp\
Monitoring file path	<i>Drive_name</i> :Fujitsu\ROR\SVROR\dhcp\
Backup path	<i>Drive_name</i> :Fujitsu\ROR\SVROR\dhcp\backup\

After making the settings, click the [Apply] button.

From here, the explanation is made assuming that [Resource Name] was set as [DHCP Server].

- d. On the "Resource" of the [Dependencies] tab, select the following name, and select AND from "AND/OR".
    - Shared Disks
    - Network Name
    - Admin LAN IP Address
  - e. Click the [Apply] button.
  - f. Click the [OK] button.
11. Configure the registry replication settings from the following "Services and Applications" of the manager.  
Following the table in step 2, set replication of the registry of the resource.  
Perform the following procedure for each resource.

- a. Right-click the target resource on [Other Resources] on the [Summary of RC-manager] displayed in the middle of the [Failover Cluster Management] window, and select [Properties] from the displayed menu.  
The [*target\_resource* Properties] window will be displayed.
- b. Click the [Add] button on the [Registry Replication] tab.  
The [Registry Key] window will be displayed.
- c. Configure the above registry key in [Root registry key].
- d. Click the [OK] button.  
When configuring the second registry key as well, repeat steps b to d.
- e. After configuration of the registry keys is complete, click the [Apply] button.
- f. Click [OK] to close the dialog.

12. Configure the dependencies of the resources of the manager "service or application".

Configure the dependencies of resources based on the following table.

If some resources have been configured, select AND from [AND/OR] and add the dependent resource.

Resource for Configuration	Dependent Resource
PXE Services	DHCP Server

13. Restart the manager.

Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Bring this service or application online] from the displayed menu.

[Linux Manager]

### Information

When configuring a cluster system in an environment that already has an admin LAN registered, in addition to the installation procedure for the cluster system, perform steps 1 to 2 and 4 to 11.

In that case, set the manager that is operating now as the primary node of the cluster system.

1. Stop cluster applications.

Use the cluster system's operation management view (Cluster Admin) and stop the manager cluster service (cluster application).

2. Mount the shared disk (Primary node)

Mount the shared disk for managers on the primary node.

3. Stop automatic startup of the dhcpd service (Primary node and Secondary node)

Disable automatic startup of the dhcpd service by executing the following command.

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

4. Copy dynamic disk files (Primary node)

- a. Copy the files and directory on the local disk of the primary node to the shared disk for managers.

Execute the following command:

```
# tar cf - copy_target | tar xf - -C Shared_disk_mount_point/Fujitsu/ROR/SVROR <RETURN>
```

- Files and Directory to Copy
- /etc/dhcpd.conf (\*1)

- /etc/dhcp/dhcpd.conf (\*2)
- /var/lib/dhcpd
- \*1: When using Red Hat Enterprise Linux 5
- \*2: When using Red Hat Enterprise Linux 6

b. After copying the files, change `source_file_name` by executing the following command.

Make sure a name like "`source_file_name_old`" is specified for the `target_file_name`.

```
# mv -i source_file_name target_file_name <RETURN>
```

#### 5. Configure symbolic links for the shared disk (Primary node)

Configure symbolic links from the files and directory on the local disk of the primary node for the files on the shared disk.

Execute the following command:

```
# ln -s shared_disk local_disk <RETURN>
```

Table 5.1 Files to Link

Shared Disk	Local Disk
<code>Mount_destination_of_shared_disk/Fujitsu/ROR/SVROR/etc/dhcpd.conf (*1)</code>	<code>/etc/dhcpd.conf</code>
<code>Mount_destination_of_shared_disk/Fujitsu/ROR/SVROR/etc/dhcp/dhcpd.conf (*2)</code>	<code>/etc/dhcp/dhcpd.conf</code>
<code>Mount_destination_of_shared_disk/Fujitsu/ROR/SVROR/var/lib/dhcpd</code>	<code>/var/lib/dhcpd</code>

- \*1: When using Red Hat Enterprise Linux 5
- \*2: When using Red Hat Enterprise Linux 6

#### 6. Change the settings of the DHCP service (Primary node)

Change the following files when registering the admin LAN subnet, and set the takeover logical IP address after the change to the DHCP server.

File name

- Red Hat Enterprise Linux 5  
`/etc/dhcpd.conf`
- Red Hat Enterprise Linux 6  
`/etc/dhcp/dhcpd.conf`

Add the following lines, and set the takeover logical IP address.

```
option dhcp-server-identifier takeover_logical_IP_address;
```

### Example

**When the takeover logical IP address is 192.168.4.100**

```
#
# DHCP Server Configuration file.
# see /usr/share/doc/dhcp*/dhcpd.conf.sample
#
ddns-update-style none;
option vendor-class-identifier "PXEClient";
option dhcp-server-identifier 192.168.4.100; # This line is added.
subnet 192.168.4.0 netmask 255.255.255.0 {
```

7. Unmount the shared disk. (Primary node)  
Unmount the shared disk for managers from the primary node.
8. Mount the shared disk (Secondary node)  
Mount the shared disk for managers on the secondary node.
9. Back up files and configure symbolic links for the shared disk (Secondary node)
  - a. Perform step b. of step 4 and back up the files on the local disk.
  - b. Perform step 5 and configure symbolic links for the shared disk.
10. Unmount the shared disk. (Secondary node)  
Unmount the shared disk for managers from the secondary node.
11. Start cluster applications.  
Use the cluster system's operation management view (Cluster Admin) and start the manager cluster service (cluster application).
12. Register the admin LAN subnet.

## 5.12 Registering BMC BladeLogic Server Automation

---

This section explains how to register BMC BladeLogic Server Automation.

Registration of BMC BladeLogic Server Automation enables use of virtual L-Servers of Solaris zones (Solaris 10).

Registration of BMC BladeLogic Server Automation is not necessary for virtual L-Servers of Solaris zones (Solaris 11).

For details on the required BMC BladeLogic Server Automation settings, refer to "H.1 Coordination with BMC BladeLogic Server Automation" in the "Setup Guide CE".

Use the following procedure to register BMC BladeLogic Server Automation:

1. From the ROR console menu, select [Settings]-[Register]-[Management Software(BladeLogic)].

The [Register Management Software(BladeLogic)] dialog is displayed.

2. Set the following items:

### Management software name

Enter the name of the target BMC BladeLogic Server Automation.

Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters and hyphens ("-").

### Label

Enter the Label of the Management software.

Enter up to 32 alphanumeric characters or symbols.

### Comment

Enter the Comment of the Management software.

Enter up to 256 alphanumeric characters or symbols.

3. Click the [OK] button.

BMC BladeLogic Server Automation is registered using the entered information.

## 5.13 Registering LAN Switches (L2 Switches)

---

This section explains how to register LAN switches (L2 switches).

Use the following procedure to register LAN switches (L2 switches):

1. Discover network devices. For instructions, refer to "[Discovery](#)".



2. Register LAN switches (L2 switches) displayed in the network device tree. For instructions, refer to ["Register"](#).

## Note

Use the registration method described in this section when managing LAN switches (L2 switches) which have been managed using the same usage method before migration, in the case of migration from the ROR V2.3 or earlier versions, or the ROR Virtual Edition to the ROR Cloud Edition.

When registering new network devices such as LAN switches (L2 switches), use the method described in ["5.7 Registering Network Devices"](#).

## Discovery

1. From the ROR console menu, select [Tools]-[Topology]-[Discover Network Devices].

The [Discover Network Devices] dialog is displayed.

2. Perform the following settings:

### Start address

Enter the start IP address of the network where to discover network devices.

Enter the IP address using periods ".".

### Subnet mask

Enter the subnet mask of the network where to discover LAN switches.

Enter the IP address using periods ".".

### Addresses in range

Enter the number of addresses to scan for LAN switches.

Enter a number greater than 1.

The maximum number of addresses is determined by the number of hosts allowed by the subnet mask.



## Example

If subnet mask is "255.255.255.0", the number of addresses in the specified range could be any value between 1 and 256.

### SNMP Community

Enter the SNMP community that was set on this LAN switch (L2 switch).

Either select [public] or enter an arbitrary string.

Enter a string of up to 32 alphanumeric characters, underscores ("\_"), and hyphens ("-").

3. Click the [OK] button.

Resource Orchestrator starts scanning for LAN switches within the specified network range.

Discovered LAN switches (L2 switches) will be displayed under the network device tree with the status [[Unregistered]].

## Register

1. In the ROR console network device tree, right-click a discovered resource, and select [Register]-[Network Device] from the popup menu.

The [Register Network Device] dialog is displayed.

2. Perform the following settings:

### Network Device name (Node name for management)

Enter the name to assign to this LAN switch (L2 switch).

Enter up to 32 characters, including alphanumeric characters (upper or lower case), underscores ("\_"), hyphens ("-"), or periods (".").

By default, the name of a discovered network device will be set to its system name or to its IP address if the system name could not be detected.

### SNMP Community

Enter the SNMP community that was set on this LAN switch (L2 switch).

Either select [public] or enter an arbitrary string.

Enter a string of up to 32 alphanumeric characters, underscores ("\_"), and hyphens ("-").

3. Click the [OK] button.

The registered LAN switch (L2 switch) will be displayed in the network device tree.



It is possible to set an automatically detected IP address to another unregistered network device. However, this will result in the Resource Orchestrator configuration being inconsistent with the actual network configuration.

If a network device was registered with the IP address of another network device, delete the target network device following the instructions given in "9.4.2 Deleting Network Devices", then perform Discover and Register again.

## 5.14 Registering Converged Fabric Management Software

---

This section explains how to register the management software necessary for managing Converged Fabric when using ServerView Fabric Manager.

When registering the ServerView Fabric Manager as Converged Fabric management software, use the Windows manager. Other managers cannot be registered.

Use the following procedure to configure management software (Converged Fabric) settings:

1. From the ROR console menu, select [Settings]-[Register]-[Management Software(SVFAB)].

The [Register Management Software(SVFAB)] dialog is displayed.

2. Define the following settings:

#### Management software name

Enter the name of the target Converged Fabric management software.

Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters and hyphens ("-").

3. Click the [OK] button.

The registered Converged Fabric management software will be displayed in the management software tree.



When starting the ServerView Fabric Manager window from the [Management Software] tab in the ROR console, in order to perform Single Sign-On authentication it is necessary to configure the Single Sign-On function of ServerView Operations Manager. Appropriate roles must be allocated to users.

For details, refer to "12.2.3 Single Sign-On When Using the ServerView Operations Manager Console" in the "Design Guide CE".

## 5.15 Registering VDI Management Software

---

This section explains how to register VDI management software.

Use the following procedure to register VDI management software.

1. From the ROR console menu, select [Settings]-[Register], and then select the type of the VDI management software to use.

The [Register Management Software(*name*)] dialog is displayed.

The type of the VDI management software is displayed in *name*.

2. Perform the following settings:

#### Management software name

Enter the name of the target VDI management software.

Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters and hyphens ("-").

#### IP address

Enter the IP address of VDI management software.

Enter the IP address using periods ".".

#### User ID

Enter the user ID to use to control VDI management software.

Enter up to 84 characters, including alphanumeric characters and symbols (ASCII characters 0x20 to 0x7e).

Specify a user ID with administrative privileges.

For details, refer to "K.1.1 VDI Coordination Function" in the "Design Guide CE".

[Horizon View]

Enter using the format "*NetBIOS domain name*\User ID".

#### Password

Enter the password for controlling VDI management software.

Enter up to 128 characters, including alphanumeric characters and symbols (ASCII characters 0x20 to 0x7e).

#### VM Management Software List

Specify the VM management software registered with VDI management software.

The list displays the names which were set when it was registered with Resource Orchestrator.



VM management software which is set for one VDI management software cannot be registered with another VDI management software.

#### Connection Information

Enter the connection information of the VDI management software to be specified by the VDI user when using virtual desktops.

Enter up to 1024 characters, including alphanumeric characters and symbols (ASCII characters 0x20 to 0x7e).

Up to three types of VDI management software can be specified.

During L-Platform deployment, notification of the connection information specified in the first input field is given using email.

If the input field is blank, notification about the first piece of not blank information in the input fields is given using email.

[Horizon View]

When using VMware Horizon View Client, specify the host name or IP address used for the virtual desktop user to connect to the VDI management software from View Client.



vmwareview.local

or

192.168.123.1



3. Click the [OK] button.

The VDI management software is registered with the entered information.

# Chapter 6 Changing Admin Server Settings

This chapter explains how to change the settings for the admin server.

## 6.1 Changing Admin IP Addresses

Use the following procedure to change the IP address used on the admin LAN by the admin server.

1. Log on to the admin server with OS administrative privileges.
2. Stop the manager.  
Stop the manager, referring to "2.1 Starting and Stopping Managers" in the "Operation Guide CE".
3. Change the SNMP trap destination set for the management blade and LAN switch blades.  
Set the SNMP trap destination to the new IP address of the admin server.

### Note

Depending on the LAN switch blade used, setting an SNMP trap destination may restrict SNMP access to the L2 switch. When specifying Converged Fabric mode of PY CB Eth Switch 10/40Gb 18/8+2 and the virtual domain representative IP address of the fabric, and registered LAN switch blades, SNMP traps cannot be received. When making LAN switch blades in a clustered manager configuration the target of management, set the physical IP addresses of both the primary and secondary nodes as SNMP trap destinations. If the LAN switch blade is set to only grant access from known IP addresses, be sure to give permissions to the physical IP addresses of both the primary and secondary cluster nodes, as is done with trap destination settings. For details, refer to the manual of the LAN switch blade to be used.

4. Change the IP address set within the operating system.  
Change the IP address following the instructions given in the operating system's manual. If the admin LAN has been made redundant, change the admin IP address set in the following tools or products.
  - PRIMECLUSTER GLS
  - BACS
  - Intel PROSet

Refer to the manual of each product for usage details.

In a clustered manager configuration, change the cluster IP address according to the instructions given in "[Changing the IP Address of a Clustered Manager](#)".

5. Change the IP address registered as the manager's admin IP address.

Use the `rcxadm mgrctl modify` command to set a new IP address.

[Windows Manager]

```
>"Installation_folde\SVROR\Manager\bin\rcxadm" mgrctl modify -ip IP_address <RETURN>
```

[Linux Manager]

```
# /opt/FJSVrcvmr/bin/rcxadm mgrctl modify -ip IP_address <RETURN>
```

In a clustered manager configuration, for details on how to change the admin IP address registered for the manager, refer to "[Settings for Clustered Manager Configurations](#)".

6. Log in to the managed server with an OS administrator account.

7. Change ServerView Agents settings on the managed server.

Change the SNMP trap destination of the ServerView Agents. Refer to the ServerView Agent manual for details on changing SNMP trap settings.

8. Stop the agents on managed servers. [Windows] [Hyper-V] [Linux] [Xen] [KVM]

Stop the agent referring to "2.2 Starting and Stopping Agents" in the "Operation Guide CE".

9. Change Agent settings. [Windows] [Hyper-V] [Linux] [Xen] [KVM]

Use the rcxadm agtctl modify command to set the new manager IP address.

[Windows] [Hyper-V]

```
>"Installation_folder\Agent\bin\rcxadm" agtctl modify -manager IP_address <RETURN>
```

[Linux] [Xen] [KVM]

```
# /opt/FJSVrcxat/bin/rcxadm agtctl modify -manager IP_address <RETURN>
```

10. Restart the agents on managed servers. [Windows] [Hyper-V] [Linux] [Xen] [KVM]

Start the agent referring to "2.2 Starting and Stopping Agents" in the "Operation Guide CE".

11. Restart the manager.

Start the manager referring to "2.1 Starting and Stopping Managers" in the "Operation Guide CE".

Repeat steps 6 - 11 for each managed server on which an agent is running.

12. Reconfigure the HBA address rename setup service.

When using the HBA address rename function, change the IP address of the admin server that is set for the HBA address rename setup service according to "Chapter 6 Settings for the HBA address rename Setup Service" in the "Setup Guide CE".

13. Back up managed servers.

If system image backups have already been collected from managed servers, it is recommended to update those images in order to reflect the changes made above. For details on system image backups, refer to "10.1.2 Offline Backup of the Admin Server" in the "Operation Guide CE".

System images backed up before changing the admin IP address of the admin server cannot be restored anymore after the change. It is recommended to delete all system images collected before change, unless those images are specifically needed.

14. Collect a cloning image. [Physical Servers]

If cloning images have already been collected from managed servers, it is recommended to update those images to reflect the change made above. For details on cloning image collection, refer to "12.2 Collecting".

Cloning images collected before changing the admin IP address of the admin server cannot be deployed anymore after the change. It is recommended to delete all cloning images collected before change, unless those images are specifically needed.

### Note

- IP addresses belonging to registered admin LAN subnets cannot be changed.
- When a managed server belongs to the same subnet as the admin server, either delete the managed server or manually change the admin IP address of the managed server. Without changing the IP address of the managed server, it is not possible to register the information of the subnet the managed server belongs to, or change the information of the subnet.

## Changing the IP Address of a Clustered Manager

In a clustered manager configuration, use the following procedure to change the IP address set within the operating system.

[Windows Manager]

Change the IP address using the [Failover Cluster Management] window.

[Linux Manager]

1. Stop the manager's cluster service.

Stop the manager's cluster service from the cluster administration view (Cluster Admin).

2. Log in to the admin server's primary node.

Log in to the operating system of the admin server's primary node with administration privileges.

3. Mount the shared disk on the primary node.

Mount the admin server's shared disk on the primary node.

4. Change takeover the logical IP address.

Release PRIMECLUSTER GLS virtual interface settings from the PRIMECLUSTER resource, then change the PRIMECLUSTER GLS configuration.

For details, refer to the PRIMECLUSTER Global Link Services manual.

5. Activate the takeover logical IP address.

Use the PRIMECLUSTER GLS command-line to activate the takeover logical IP address.

For details, refer to the PRIMECLUSTER Global Link Services manual.

## Settings for Clustered Manager Configurations

In a clustered manager configuration, use the following procedure to register an IP address as the manager's admin LAN IP address.

[Windows Manager]

1. Cancel registry replication settings.

On the primary node, bring online the shared disk and IP address, and take all other resources offline.

Next, remove the following registry key from the registry replication settings set for the [PXE Services] cluster resource.

- x64

SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard\DHCP

- x86

SOFTWARE\Fujitsu\SystemcastWizard\DHCP

Use the following procedure to remove the registry key.

- a. In the [Failover Cluster Management] window, right-click the [PXE Services] resource in [Summary of RC-manager]-[Other Resources], and select [Properties] from the popup menu.

The [PXE Services Properties] window will be displayed.

- b. In the [Registry Replication] tab, select the above registry key.

- c. Click [Remove].

The selected key is removed from the [Root registry key] list.

- d. After removing the registry key, click [Apply].

- e. Click [OK] to close the dialog.

2. Change the manager IP address on the primary node.

On the primary node, use the rcxadm mgrctl modify command to set the new IP address.

```
>"Installation_folde\SVROR\Manager\bin\rcxadm" mgrctl modify -ip IP_address <RETURN>
```

3. Restore registry replication settings.

Restore the registry key deleted in step 1 to the registry replication settings of the [PXE Services] resource.  
Use the following procedure to restore the registry key.

- a. In the [Failover Cluster Management] window, right-click the [PXE Services] resource in [Summary of RC-manager]-[Other Resources], and select [Properties] from the popup menu.  
The [PXE Services Properties] window will be displayed.
- b. Click the [Add] button on the [Registry Replication] tab.  
The [Registry Key] window will be displayed.
- c. Configure the above registry key in [Root registry key].
- d. Click the [OK] button.
- e. After configuration of the registry keys is complete, click the [Apply] button.
- f. Click [OK] to close the dialog.

4. Assign the manager's shared disk and IP address to the secondary node.

Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Move this service or application to another node]-[1 - Move to node *node\_name*] from the displayed menu.  
The name of the secondary node is displayed for *node\_name*.

5. Change the manager IP address on the secondary node.

On the secondary node, use the `rcxadm mgrctl modify` command to set the new IP address.  
Use the same IP address as the one set in step 2.

6. Assign the manager's shared disk and IP address to the primary node.

Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Move this service or application to another node]-[1 - Move to node *node\_name*] from the displayed menu.  
The name of the primary node is displayed for *node\_name*.

7. On the primary node, take the manager's shared disk and IP address offline.

[Linux Manager]

1. Change the IP address set for the admin LAN.

Set a new IP address on the primary node using the following command.

```
# /opt/FJSVrcvnr/bin/rcxadm mgrctl modify -ip IP_address <RETURN>
```

2. De-activate the admin server's takeover logical IP address.

Use the PRIMECLUSTER GLS command-line interface to de-activate the takeover logical IP address.

For details, refer to the PRIMECLUSTER Global Link Services manual.

3. Register the takeover logical IP address as a PRIMECLUSTER resource.

Use the PRIMECLUSTER GLS command-line interface to register the virtual interface as a PRIMECLUSTER resource.

For details, refer to the PRIMECLUSTER Global Link Services manual.

4. Mount the shared disk

Mount the shared disk for managers on the primary node.

5. Change the settings of the DHCP service (When registering the admin LAN subnet)

When registering an admin LAN subnet, change the file below and set the DHCP server for the takeover logical IP address.

- File name

- Red Hat Enterprise Linux 5

/etc/dhcpd.conf



- Red Hat Enterprise Linux 6

/etc/dhcp/dhcpd.conf

Change the takeover logical IP address in the following line to the new takeover logical IP address.

option dhcp-server-identifier *takeover logical IP address*;

## Example

When the takeover logical IP address is 192.168.4.100 before being changed

```
#
# DHCP Server Configuration file
# see /usr/share/doc/dhcp*/dhcpd.conf.sample
#
ddns-update-style none;
option vendor-class-identifier "PXEClient";
option dhcp-server-identifier 192.168.4.100; (*)
subnet 192.168.4.0 netmask 255.255.255.0 {
```

\* Note: Change the IP address in this line to the new takeover logical IP address.

### 6. Unmount the shared disk.

Un-mount the shared disk from the primary node.

### 7. Log in to the admin server's secondary node.

Log in to the operating system of the admin server's secondary node with administration privileges.

### 8. Change takeover the logical IP address.

Use the PRIMECLUSTER GLS command-line interface to remove virtual interface settings from the PRIMECLUSTER resource, register the resource, and change the PRIMECLUSTER GLS configuration.

For details, refer to the PRIMECLUSTER Global Link Services manual.

### 9. Change the cluster configuration.

Use the cluster RMS Wizard to change the GLS resource set in the cluster service of either one of the cluster nodes.

After completing the configuration, save it and execute the following operations.

- Configuration-Generate
- Configuration-Activate

### 10. Start the Manager's cluster service.

Use the cluster administration view (Cluster Admin) to start the Manager's cluster service.

## 6.2 Changing Port Numbers

---

This section explains how to change the ports used by the Manager services and related services of Resource Orchestrator.

Resource Orchestrator requires the following services to be running. When starting these services, ensure that the ports they are using do not conflict with the ports used by other applications or services. If necessary, change the ports used by Resource Orchestrator services.

[Windows Manager]

- Manager Services
  - Resource Coordinator Manager
  - Resource Coordinator Task Manager
  - Resource Coordinator Web Server(Apache)

- Resource Coordinator Sub Web Server(Mongrel)
- Resource Coordinator Sub Web Server(Mongrel2)
- Resource Coordinator Sub Web Server(Mongrel3) (\*1)
- Resource Coordinator Sub Web Server(Mongrel4) (\*1)
- Resource Coordinator Sub Web Server(Mongrel5) (\*1)
- Resource Coordinator DB Server (PostgreSQL)
- Related Services
  - Deployment Service
  - TFTP Service
  - PXE Services
  - DHCP Server (\*2)

[Linux Manager]

- Manager Services
  - rcxmanager
  - rcxtaskmgr
  - rcxmongrel1
  - rcxmongrel2
  - rcxmongrel3 (\*1)
  - rcxmongrel4 (\*1)
  - rcxmongrel5 (\*1)
  - rcxhttpd
  - rcxdb
- Related Services
  - scwdepsvd
  - scwpxesvd
  - scwtftpd
  - dhcpd (\*2)

\*1: In Basic mode, these services are not supported.

\*2: Necessary when managing a managed server in a separate subnet to the admin server.

Change the ports used by the above services if there is a possibility that they will conflict with other applications or services.

For Windows operating systems, an ephemeral port may conflict with a Resource Orchestrator service if the range allowed for ephemeral ports is changed. In this case, change the port number to a value not included in the range for ephemeral ports.

For details, refer to "2.1.1.4 Checking Used Port Numbers" in the "Setup Guide CE".

For information on how to change the ports used by ServerView Operations Manager, refer to the ServerView Operations Manager manual. The ports used for SNMP communication and server power control are defined by standard protocols and fixed at the hardware level, and thus cannot be changed.

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

When using a firewall on the network, firewall settings should be updated to match the new port definitions and allow communications for any modified port.

## Manager Services

Use the following procedure to change the admin server ports used by manager services:

1. Stop the manager.

Stop the manager, referring to "2.1 Starting and Stopping Managers" in the "Operation Guide CE".

2. Change the port numbers.

Use the rcxadm mgrctl modify command to set a new port number for a given service name.

[Windows Manager]

```
>"Installation_folde\SVROR\Manager\bin\rcxadm" mgrctl modify -port name=number  
<RETURN>
```

[Linux Manager]

```
# /opt/FJSVrcvmr/bin/rcxadm mgrctl modify -port name=number <RETURN>
```

In a clustered manager configuration, bring offline all cluster resources except for the manager's shared disk and IP address, move all cluster resources from the primary node to the secondary node, then execute the rcxadm mgrctl modify command on all the nodes that are hosting cluster resources.

3. Restart manager services.

Start the manager referring to "2.1 Starting and Stopping Managers" in the "Operation Guide CE".



### Note

- When changing the "nfagent" port, the following ports on managed servers should be set to the same value.

Set the "nfagent" port set on each managed server to the same value, according to the instructions given in "[7.1.6 Changing Port Numbers](#)".

The system image and cloning images collected before the change can no longer be used, and should be deleted.

If necessary, re-collect system images and cloning images.

## Related Services

Use the following procedure to change the port numbers used for the related services: However, the port numbers of the DHCP server and the dhcpd service cannot be changed.

[Windows Manager]

1. Change the port numbers.

- a. Open the Windows Registry Editor, and search for the following subkey:

- When using a 32-bit version of Windows:

Key name: HKEY\_LOCAL\_MACHINE\SOFTWARE\Fujitsu\SystemcastWizard\CLONE

- When using a 64-bit version of Windows:

Key name: HKEY\_LOCAL\_MACHINE\SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard\CLONE

- b. Select "PortBase" from the registry entries under this subkey.

- c. From the menu, select [Edit]-[Modify].

The [Edit DWORD Value] dialog is displayed.

- d. Select [Decimal] and then click [OK].

This port value will define the first port of the range used by deployment services.

However, because the related services can use up to 16 port numbers, ensure that all ports included between "PortBase" (defined here) and "PortBase+15" do not conflict with any other applications or services. Moreover, be sure to set a value lower than 65519 for "PortBase" so that the highest port number ("PortBase+15") does not exceed the largest valid port number (65534).

In a clustered manager configuration, change port numbers on both the primary and secondary node.

2. Restart the server on which the port number has been changed.

[Linux Manager]

1. Change the port numbers.

Edit the following file: `/etc/opt/FJSVscw-common/scwconf.reg`.

In PortBase (under HKEY\_LOCAL\_MACHINE\SOFTWARE\Fujitsu\SystemcastWizard\CLONE), set the first value of the port number to be used by deployment services. This value should be entered in hexadecimal format. To avoid conflicts with ephemeral ports, use a value not included in the ephemeral port range defined by "net.ipv4\_local\_port\_range".

However, as a maximum of 16 port numbers are used for image file creation and deployment, ensure that the port numbers for PortBase to PortBase +15 do not conflict with ephemeral or well-known ports.

This ensures that deployment services will use ports outside of the range defined by `net.ipv4.ip_local_port_range` for image operations.

Moreover, be sure to set a value lower than 65519 for "PortBase" so that the highest port number ("PortBase+15") does not exceed the largest valid port number (65534).

In a clustered manager configuration, change port numbers on both the primary and secondary node.

2. Restart the server on which the port number has been changed.

### Information

The related services allow managed servers to boot from the network using a dedicated module stored on the admin server during backup, restore or cloning.

Note that changing port numbers on the admin server alone is enough to support communication during the above image operations. Therefore, no additional configuration is required on the managed servers.

## 6.3 Changing the Maximum Number of System Image Versions

---

Use the following procedure to change the maximum number of system image versions.

1. Change the maximum number of system image versions.
2. Confirm the maximum number of system image versions.

For details of the methods for changing and checking the generations of system images, refer to "5.9 rcxadm imagemgr" in the "Reference Guide (Command/XML) CE".

### Note

If the specified limit is smaller than the number of existing system image versions, older versions will not be deleted automatically. In this case, backing up a new system image, will only delete the oldest version.

Delete unused versions of system images manually if they are no longer necessary. For details, refer to "[Deletion](#)".

If the ROR console has been already opened, refresh the Web browser after changing the maximum number of system image versions.

## 6.4 Changing the Maximum Number of Cloning Image Versions (Physical Servers)

---

Use the following procedure to change the maximum number of cloning image versions.

1. Change the maximum number of cloning image versions.
2. Check the maximum number of cloning image versions.

For details of the methods for changing and checking the generations of cloning images, refer to "5.9 rcxadm imagemgr" in the "Reference Guide (Command/XML) CE".

### Note

If the specified limit is smaller than the number of existing cloning image versions, older versions will not be deleted automatically. In this case, collecting a new cloning image version will require selecting a previous image version for deletion.

Delete unused image versions manually if they are no longer necessary. For details, refer to "[17.5.4 Deleting](#)".

If the ROR console has been already opened, refresh the Web browser after changing the maximum number of system image versions.

## 6.5 Changing the Maximum Number of Cloning Image Versions (Virtual Servers)

---

Use the following procedure to change the maximum number of cloning image versions.

1. Change the maximum number of cloning image versions.
2. Check the maximum number of cloning image versions.

For details of the methods for changing and checking the generations of cloning images, refer to "5.9 rcxadm imagemgr" in the "Reference Guide (Command/XML) CE".

### Note

If the specified limit is smaller than the number of existing cloning image versions, older versions will not be deleted automatically. In this case, collecting a new cloning image version will abort the operation.

When a new cloning image version, delete the old cloning versions beforehand. For details, refer to "[17.5.4 Deleting](#)".

If the ROR console has been already opened, refresh the Web browser after changing the maximum number of system image versions.

## 6.6 Changing the Maximum Number of Snapshot Image Versions

---

Use the following procedure to change the maximum number of snapshot versions.

1. Change the maximum number of snapshot versions.
2. Confirm the maximum number of snapshot versions.

For details of the methods for changing and checking the generations of snapshots, refer to "5.9 rcxadm imagemgr" in the "Reference Guide (Command/XML) CE".

### Note

If the specified limit is smaller than the number of existing snapshot versions, older versions will not be deleted automatically. In this case, collecting a new snapshot on the same server will only delete the oldest version.

Delete any old snapshot versions manually if they are no longer necessary. For details on the deletion procedure, refer to "[Deletion](#)" in "[17.6.1 Snapshot](#)".

If the ROR console has been already opened, refresh the Web browser after changing the maximum number of system image versions.

## 6.7 Changing the Image Folder Location

---

Use the following procedure to change the location (path) of the image files folder.

1. Select the [Image List] tab in the ROR console and confirm the current image list.
2. Log on to the admin server with OS administrative privileges.
3. Stop the manager.

Stop the manager, referring to "2.1 Starting and Stopping Managers" in the "Operation Guide CE".

4. Change the location of the image file storage folder.

Change the location of the image file storage folder according to the instructions given in "5.9 rcxadm imagemgr" in the "Reference Guide (Command/XML) CE".

Because image files are actually copied over to the new location, this step may take some time to complete.

In a clustered manager configuration, for details on how to change the image file storage folder location, refer to "[Settings for Clustered Manager Configurations](#)".

5. Restart the manager.

Start the manager referring to "2.1 Starting and Stopping Managers" in the "Operation Guide CE".

6. Select the [Image List] tab in the ROR console and confirm the image list is same as before.

### Settings for Clustered Manager Configurations

Settings differ depending on the operating system used for the manager.

[Windows Manager]

1. Cancel registry replication settings.

Bring the manager's shared disk online, and take all other resources offline.

Next, remove the following registry key from the registry replication settings set for the [Deployment Service] cluster resource.

- x64

SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard\ResourceDepot

- x86

SOFTWARE\Fujitsu\SystemcastWizard\ResourceDepot

Use the following procedure to remove the registry key.

- a. In the [Failover Cluster Management] window, right-click the [Deployment Service] resource in [Summary of RC-manager]-[Other Resources], and select [Properties] from the popup menu.  
The [Deployment Service Properties] window is displayed.
  - b. In the [Registry Replication] tab, select the above registry key.
  - c. Click [Remove].  
The selected key is removed from the "Root registry key" list.
  - d. After removing the registry key, click [Apply].
  - e. Click [OK] to close the dialog.
2. Change the location of the image file storage folder.

Change the location of the image file storage folder according to the instructions given in "5.9 rcxadm imagemgr" in the "Reference Guide (Command/XML) CE".

Because image files are actually copied over to the new location, this step may take some time to complete.

Run the rcxadm imagemgr command from either node of the cluster resource.

The new location should be a folder on the shared disk.

### 3. Restore registry replication settings.

Restore the registry key deleted in step 1 to the registry replication settings of the [Deployment Service] resource. Use the following procedure to restore the registry key.

- a. In the [Failover Cluster Management] window, right-click the [Deployment Service] resource in [Summary of RC-manager]-[Other Resources], and select [Properties] from the popup menu.  
The [Deployment Service Properties] window is displayed.
- b. Click the [Add] button on the [Registry Replication] tab.  
The [Registry Key] window will be displayed.
- c. Configure the above registry key in [Root registry key].
- d. Click the [OK] button.
- e. After configuration of the registry keys is complete, click the [Apply] button.
- f. Click [OK] to close the dialog.

[Linux Manager]

#### 1. Mount the shared disk on the primary node.

Log in to the primary node with OS administrator privileges and mount the admin server's shared disk.

#### 2. Change the location of the image file storage directory.

Change the location of the image file storage directory according to the instructions given in "5.9 rcxadm imagemgr" in the "Reference Guide (Command/XML) CE".

Because image files are actually copied over to the new location, this step may take some time to complete.

Run the rcxadm imagemgr command on the primary node.

Also, specify a directory on the shared disk for the new image file storage directory.

#### 3. Un-mount the shared disk from the primary node.

Un-mount the shared disk (for which settings were performed in step 1) from the primary node.

## 6.8 Changing the Password for the Resource Orchestrator Database

---

Use the following procedure to change the password for the Resource Orchestrator database:

#### 1. Log on to the admin server with OS administrative privileges.

#### 2. Stop the manager.

Stop the manager, referring to "2.1 Starting and Stopping Managers" in the "Operation Guide CE".

#### 3. Change the password for the Resource Orchestrator database.

Execute the rcxadm dbctl modify command.

Enter the new password interactively.

[Windows Manager]

```
>"Installation_folder\SVROR\Manager\bin\rcxadm" dbctl modify -passwd <RETURN>
```

[Linux Manager]

```
# /opt/FJSVrcvmr/bin/rcxadm dbctl modify -passwd <RETURN>
```

In a clustered manager configuration, bring offline all manager resources except for the shared disk, move all cluster resources from the primary node to the secondary node, then execute the rcxadm dbctl modify command on all the nodes that are hosting cluster resources.

4. Restart the manager.

Start the manager referring to "2.1 Starting and Stopping Managers" in the "Operation Guide CE".



# Chapter 7 Changing Resources

This chapter explains how to change settings for the admin server or resources registered on the admin server.

## 7.1 Changing Chassis and Managed Server Settings

This section explains how to change the settings for chassis and managed servers.

If collecting the system images and cloning images of managed servers, collect them after completing changes to managed server settings.

For details on backing up system images, refer to "16.2 Backup" in the "User's Guide VE".

For details on how to collect cloning images, refer to "[17.5.1 Collecting and Registering](#)".



### Note

- To change VM guest settings, use the management console of the server virtualization software used.
- A managed server that has already been registered cannot be moved to a different slot.  
To move a managed server to a different slot, first delete the managed server, then move it to the new slot and register it again.

### 7.1.1 Changing Chassis Names

This section explains how to change chassis names.

Use the following procedure to change the name of a registered chassis.

1. In the ROR console server resource tree, right-click the target chassis and select [Modify]-[Registration Settings] from the popup menu.

The [Modify Chassis Settings] dialog is displayed.

2. Modify the values for the following items:

#### Chassis name

Enter a character string beginning with an alphabetical character and containing up to 10 alphanumeric characters and hyphens ("-").

3. Click the [OK] button.

The chassis name is changed.

### 7.1.2 Changing Server Names

This section explains how to change physical server names.

Names of physical OSs, VM hosts, and VM guests can be changed by a user with administrative authority. Once changed, new names are automatically reflected in the ROR console.

Use the following procedure to change the name of a physical server.

1. In the ROR console server resource tree, right-click the target server, and select [Modify]-[Registration Settings] from the popup menu.

The [Modify Server Settings] dialog is displayed.

2. Modify the values for the following items:

#### Physical Server Name

Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters and hyphens ("-").

3. Click the [OK] button.

The server name is changed.

## 7.1.3 Changing Admin IP Addresses

---

This section explains how to change admin IP addresses.

To change the IP addresses of remote management controllers, refer to "[7.1.5 Changing Server Management Unit Configuration Settings](#)".

### Chassis

Use the following procedure to change the IP address of a chassis.

1. Change the IP address of the management blade.
2. In the ROR console server resource tree, right-click the target chassis and select [Modify]-[Registration Settings] from the popup menu.

The [Modify Chassis Settings] dialog is displayed.

3. Change "Admin LAN (IP address)".
4. Click the [OK] button.

The chassis admin IP address is changed.

### Managed Servers

Use the following procedure to change the IP address of a managed server.

However, it is still required when using the same address for both the admin and public IP address. This procedure is not required when changing only the public IP address of a server.

1. Log in to the managed server with an OS administrator account.
2. Change the IP address set within the operating system.

Change the IP address according to the OS manual.

If the admin LAN has been made redundant, change the admin IP address set in the following tools or products.

Refer to the manual of each product for usage details.

[Windows]

PRIMECLUSTER GLS

BACS

Intel PROSet

[Linux] [Solaris]

PRIMECLUSTER GLS: "NIC switching mode (Physical IP address takeover function)"



#### Note

When BladeLogic is being used for server management software, remove the managed servers that have been added to BladeLogic, and add them again. When adding managed servers, specify their admin IP address.

3. Restart the managed server.
4. In the ROR console server resource tree, right-click the target server, and select [Modify]-[Registration Settings] from the popup menu.

The [Modify Server Settings] dialog is displayed.

5. Change [Admin LAN (IP address)].
6. Click the [OK] button.

The admin IP address of the managed server is changed.

## Note

- It is not possible to change IP address settings of a managed server (primary server) with a spare server configured to a different subnet from the spare server.
- For VMware ESXi, register the servers again after changing the IP addresses.

### Guest Domain of Oracle VM for SPARC

When an Oracle VM for SPARC guest domain is registered as a VM host, use the following procedure to change its admin IP address. However, it is still required when using the same address for both the admin and public IP address. This procedure is not required when changing only the public IP address of a server.

1. Log in to the guest domain using an OS administrator account.
2. Change the IP address set within the operating system.

Change the IP address according to the OS manual.

If the admin LAN has been made redundant, change the admin IP address set in the "NIC switching mode (Physical IP address takeover function)" of PRIMECLUSTER GLS.

## Note

When BladeLogic is being used for server management software, remove the managed servers that have been added to BladeLogic, and add them again.

When adding managed servers, specify their admin IP address.

3. Restart the guest domain.
4. In the ROR console server resource tree, right-click the target server, and select [Modify]-[Registration Settings] from the popup menu.

The [Modify IP Address Settings] dialog is displayed.

5. Change [Admin LAN IP Address].
6. Click the [OK] button.

The admin IP address of the guest domain is changed.

## 7.1.4 Changing SNMP Communities

This section explains how to change SNMP community settings.

- For blade servers, PRIMEQUEST servers, or SPARC Enterprise M4000/M5000/M8000/M9000 servers, or servers in Fujitsu M10-4S

Use the following procedure to change SNMP community used by chassis and managed servers.

1. Change the SNMP community set on the management blade, management board, or XSCF.

The new SNMP community should have Read-Write permission.

For details on changing SNMP communities, refer to the manual of the management blade, management board, or XSCF.

2. Change the SNMP community set on the managed server.

Use the same name for the SNMP community of the managed server on the management blade, the management board, and the XSCF.

Follow the instructions in the ServerView Agents manual to change the SNMP community used by a managed server.

The new SNMP community should have Read-Write permission.

3. In the ROR console server resource tree, right-click the target chassis and select [Modify]-[Registration Settings] from the popup menu.

The [Modify Chassis Settings] dialog is displayed.

4. Change [SNMP Community].

5. Click the [OK] button.

The SNMP community is changed.

- For Rack Mount and Tower Servers

Use the following procedure to change the SNMP community used by PRIMERGY servers.

For servers other than PRIMERGY servers, changing SNMP communities does not require any configuration change in Resource Orchestrator.

1. Change the SNMP community set on the managed server.

Follow the instructions in the ServerView Agents manual to change the SNMP community used by a managed server.

2. In the ROR console server resource tree, right-click the target server, and select [Modify]-[Registration Settings] from the popup menu.

The [Modify Server Settings] dialog is displayed.

3. Change [SNMP Community].

4. Click the [OK] button.

The SNMP community is changed.

- For SPARC Enterprise M3000 or Fujitsu M10-1/M10-4

Use the following procedure to change the SNMP community used by the Remote Management Controller.

1. Change the SNMP community set on the remote management controller (XSCF).

For details on changing SNMP communities, refer to the XSCF manuals.

2. In the ROR console server resource tree, right-click the target chassis and select [Modify]-[Registration Settings] from the popup menu.

The [Modify Chassis Settings] dialog is displayed.

3. Change [SNMP Community].

4. Click the [OK] button.

The SNMP community is changed.

## 7.1.5 Changing Server Management Unit Configuration Settings

---

This section explains how to modify server management unit settings.

- For rack mount or tower servers

Use the following procedure to change remote management controller settings.

1. Change settings on the remote management controller.

If the user account is changed, it should still have administrator authority.

2. In the ROR console server resource tree, right-click the target server, and select [Modify]-[Registration Settings] from the popup menu.

The [Modify Server Settings] dialog is displayed.

3. Change the [Remote Management Controller IP address]. To modify user account information, select the [Modify remote management controller login account] checkbox, and change the [User ID] and [Password] of the [Remote management controller].

- For SPARC Enterprise M3000 or Fujitsu M10-1/M10-4

Use the following procedure to change remote management controller (XSCF) settings.

1. Change settings on the remote management controller (XSCF).  
If the user account is changed, it should still have administrator authority ("platadm" privileges).
2. In the ROR console server resource tree, right-click the target server, and select [Modify]-[Registration Settings] from the popup menu.  
The [Modify Server Settings] dialog is displayed.
3. Change the [Remote Management Controller IP address (ILOM/XSCF)].  
To modify user account settings, select the [Modify remote management controller login account] checkbox, and change the [User ID] and [Password] fields under [Remote management controller (ILOM/XSCF)].  
The user ID reserved for the system cannot be used. Create another user ID.  
For details, refer to the XSCF manuals.

- For SPARC Enterprise T series

Use the following procedure to change remote management controller settings (ILOM).

1. Change settings on the remote management controller (ILOM).  
If the user account is changed, it should still have administrator authority ("Admin" privileges).
2. In the ROR console server resource tree, right-click the target server, and select [Modify]-[Registration Settings] from the popup menu.  
The [Modify Server Settings] dialog is displayed.
3. Change the [Remote Management Controller IP address (ILOM/XSCF)].  
To modify user account settings, select the [Modify remote management controller login account] checkbox, and change the [User ID] and [Password] fields under [Remote management controller (ILOM/XSCF)].

- For PRIMEQUEST servers

Use the following procedure to change remote server management settings.

1. Change the remote server management settings.  
If the user account is changed, it should still have administrator authority.
2. In the ROR console server resource tree, right-click the target chassis and select [Modify]-[Registration Settings] from the popup menu.  
The [Modify Chassis Settings] dialog is displayed.
3. Select the [Modify remote server management login account] checkbox. Then, change the [User ID] and [Password] of [Remote Server Management].

- For SPARC Enterprise M4000/M5000/M8000/M9000 or Fujitsu M10-4S

Use the following procedure to change remote management controller (XSCF) settings.

1. Change settings on the remote management controller (XSCF).  
If the user account is changed, it should still have administrator authority ("platadm" privileges).
2. In the ROR console server resource tree, right-click the target chassis and select [Modify]-[Registration Settings] from the popup menu.  
The [Modify Chassis Settings] dialog is displayed.
3. Select the [Modify remote server management login account] checkbox. Then, change the [User ID] and [Password] of [Remote Server Management (XSCF)].  
The user ID reserved for the system cannot be used. Create another user ID.  
For details, refer to the XSCF manuals.

## 7.1.6 Changing Port Numbers

---

This section explains how to change port numbers.

When changing port numbers of the agent, the "nfagent" port of the manager must also be changed. Change this according to information in "6.2 Changing Port Numbers".

For details on port numbers, refer to "Appendix A Port List" in the "Design Guide CE".

Use the following procedure to change the port numbers for managed servers:

1. Change the port numbers.

[Windows] [Hyper-V]

Use a text editor (such as Notepad) to change the following line in the *Windows\_system\_folder\system32\drivers\etc\services* file.

```
# service name port number/protocol name
nfagent          23458/tcp
```

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

Use a command such as vi to change the following line in the */etc/services* file.

```
# service name port number/protocol name
nfagent          23458/tcp
```

[Solaris]

Use a command such as vi to change the following line in the */etc/services* file.

```
# service name port number/protocol name
rcvat           23458/tcp
```

2. Restart the server on which the port number has been changed.

## 7.1.7 Changing VM Host Login Account Information

---

This section explains how to change VM host login account information.

If the login account information (user ID and password) of the VM host entered when the VM host was registered is changed, change the login account information of the VM host that was registered in Resource Orchestrator.

The method for changing the VM host login account is shown below.

1. In the ROR console server resource tree, right-click the target VM host, and select [Modify]-[VM Host Login Account] from the popup menu.

The [Change Login Information] dialog is displayed.

2. Enter the new login account information that was changed on the VM host.

User ID

Enter the user ID to log in to the VM host. Specify a user ID that has VM host administrator authority.

[Hyper-V]

Users of the Hyper-V Administrators group can be specified.

Password

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

3. Click the [OK] button.

VM host login information is changed.

## 7.1.8 Changing the VLAN Settings of LAN Switch Blades

---

This section explains how to change VLAN settings of LAN switch blades.

The VLAN settings of the LAN switch blade ports connected to the physical servers can be reconfigured normally within Resource Orchestrator.

Refer to "[5.4.4.2 Configuring VLANs on Internal Connection Ports](#)" for details on how to configure these settings.

## 7.1.9 Changing HBA address rename Settings

---

This section explains how to change the HBA address rename settings.

The WWNs and HBA ports that are set by HBA address rename can be reconfigured normally within Resource Orchestrator.

Refer to "[5.5.2 HBA address rename Settings](#)" for details on how to configure these settings.

## 7.1.10 Changing Boot Options

---

This section explains how to change boot option settings.

The boot options configured for PRIMEQUEST servers can be changed by reconfiguring them.

Use the following procedure to configure the boot option settings.

1. In the ROR console server resource tree, right-click the target server, and select [Modify]-[Registration Settings] from the popup menu.

The [Modify Server Settings] dialog is displayed.

2. Perform the following settings:

Boot option

- For UEFI

Select [UEFI].

- For Legacy Boot

Select [Legacy boot].



### Note

Changing the boot option changes the information registered with Resource Orchestrator.

As the actual boot option will not be changed, it is necessary to change the BIOS settings when performing the change.

## 7.1.11 Changing Admin LAN Subnets

---

Use the following procedure to change an admin LAN subnet.

1. From the ROR console menu, select [Settings]-[Admin LAN Subnet].

The [Admin LAN Subnet] dialog is displayed.

2. Select the subnet to change.

The [Change Admin LAN Subnet] dialog is displayed.

3. In the [Change Admin LAN Subnet] dialog, set the following items.

Subnet name

Enter a character string beginning with an alphabetic character and containing up to 16 alphanumeric characters, underscores ("\_"), hyphens ("-"), and periods ("").

Network address

Enter valid values for the network address.

#### Subnet mask

Enter valid values for the subnet mask.

#### Gateway

Enter the settings for the gateway used for communication with the admin server on the admin LAN.

4. Click the [Change] button.
5. Click the [OK] button.



When changing the information for a subnet other than the one the admin server belongs to, if there is even 1 managed server belonging to the target subnet, the "Network address" and "Subnet mask" cannot be changed.

When changing the "Network address" or "Subnet mask", refer to the "[Modification Procedure when there Are Managed Servers Belonging to Different Subnets](#)".

### **Modification Procedure when there Are Managed Servers Belonging to Different Subnets**

When there are managed servers in the target subnet, change the network address or the subnet mask using the following procedure.

1. Register the subnet information using the new network address or subnet mask.
2. Use the following procedure to change the admin LAN IP addresses of all managed servers belonging to the subnet before modification.  
For details on how to configure these settings, refer to "[7.1.3 Changing Admin IP Addresses](#)".
3. Delete the subnet used before modification.

## **7.1.12 Modifying the Public LAN (MAC Address) Information Settings**

This section explains how to modify the public LAN (MAC address) information settings of rack mount servers and tower servers.

The public LAN (MAC Address) information can be modified by performing reconfiguration.

For details on how to configure these settings, refer to "[5.5.3 Registering the Public LAN \(MAC Address\) Information](#)".

## **7.2 Changing Settings for the HBA address rename Setup Service**

This section explains how to change settings for the HBA address rename setup service. Such settings include the admin server IP address, the port used to communicate with the admin server, and the IP address of the HBA address rename server.

### **7.2.1 Changing the IP Address of the Admin Server**

This section explains how to change the IP address of the admin server.

When this setting is changed, the HBA address rename setup service automatically checks whether it can communicate with the new admin server IP address.

Changing this setting also requires changing the port on the admin server side beforehand.

Change the IP address of the admin server according to "[6.1 Changing Admin IP Addresses](#)", and change the admin IP address for the HBA address rename setup service according to step 12.

### **7.2.2 Changing the IP Address of the HBA address rename Server**

This section explains how to change the IP address of the HBA address rename server.

Use the following procedure to change the IP address of the HBA address rename server.

1. Log in to the HBA address rename server with administrator authority.



2. Stop the HBA address rename setup service.

Stop the HBA address rename setup service according to "Chapter 6 Settings for the HBA address rename Setup Service" in the "Setup Guide CE".

3. Change the IP address set within the operating system.

Change the IP address according to the OS manual.

4. Restart the HBA address rename setup service.

Start the HBA address rename setup service according to "Chapter 6 Settings for the HBA address rename Setup Service" in the "Setup Guide CE".

## 7.3 Changing VIOM Registration Settings

---

Use the following procedure to perform setting changes for management software (VIOM).

1. In the ROR console management software tree, right-click the management software (VIOM), and select [Modify]-[Registration Settings] from the popup menu.

The [Modify Management Software(VIOM) Settings] dialog is displayed.

2. Perform the following settings:

### User ID

Enter the ID of a VIOM user account.

### Password

Enter the password of the above VIOM user account.

3. Click the [OK] button.

To change registered VIOM server profiles, follow the procedure described in "[5.1.1 Registering VIOM Server Profiles](#)" to open the Web interface of ServerView Virtual-IO Manager and change the settings. Changes made inside Virtual-IO Manager are automatically reflected in Resource Orchestrator.

## 7.4 Changing Settings of LAN Switch Blades and LAN Switches (L2 Switches)

---

This section explains how to change the settings of LAN switch blades and LAN switches (L2 switches).

### 7.4.1 Changing Basic Settings of LAN Switch Blades and LAN Switches (L2 Switches)

---

This section explains how to change LAN switch blade or LAN switch (L2 switch) basic settings.

The following settings can be changed.

- LAN switch name or Network device name (Node name for management)
- Management port (only when using the Converged Fabric mode of LAN switch blade PY CB Eth Switch 10/40Gb 18/8+2)
- Admin LAN (IP address)
- User ID (LAN switch blade only)
- Password (LAN switch blade only)
- Privileged password (LAN switch blade only)
- Connection method (LAN switch blade only)
- SNMP community name

To modify settings other than those listed above, use the methods explained in "[7.6 Changing Network Device Settings](#)".

## Note

When changing LAN switch settings as follows due to a configuration change, delete the registered LAN switch blade and register it again.

- For a LAN switch blade PY CB DCB SW 10Gb 18/6+6
  - When changing from VCS to another mode, or vice versa
  - Changing VCS ID or RBridge ID
- For a LAN switch blade PY CB Eth Switch 10/40Gb 18/8+2
  - Changing Fabric ID, Domain ID or Switch ID
  - When changing the mode

For a LAN switch blade PY CB 10Gb FEX Nexus B22, only the LAN switch name or the network device name can be configured.

For a LAN switch (L2 switch), "LAN switch name" is displayed as "Network device name".

Complete the changes to the settings on the target LAN switch blade or LAN switch (L2 switch) before performing this procedure.

Use the following procedure to change LAN switch blade or LAN switch (L2 switch) settings:

1. In the ROR console server resource tree or network resource device tree, right-click the target LAN switch (L2 switch) name and select [Modify]-[Registration Settings] from the popup menu.  
The [Modify LAN Switch] dialog or the [Modify Network Device] dialog is displayed.
2. Make changes to the values as needed.
3. Click the [OK] button.  
The settings for the LAN switch (L2 switch) are changed with the entered information.

## Note

- It is possible to set the IP address of the target LAN switch (L2 switch) to another unregistered LAN switch (L2 switch). However, this will result in the Resource Orchestrator configuration being inconsistent with the actual network configuration. If the IP address of the target LAN switch (L2 switch) is unintentionally set to the same address as that of another device, change back the IP address of the target LAN switch (L2 switch) to its original value according to the instructions given in this section.  
If there are more than one LAN switch (L2 switch) with inconsistent IP address configurations, delete all registered LAN switches (L2 switches) according to "[9.4.2 Deleting Network Devices](#)" first, then perform discovery and registration of network devices again according to "[5.13 Registering LAN Switches \(L2 Switches\)](#)".
- SSH connection (SSH version 2) can be selected for the following LAN switch blades.
  - LAN switch blade PY CB Eth Switch/IBP 10Gb 18/8 (1.00 or later version)
  - LAN switch blade PY CB Eth Switch 10/40Gb 18/8+2 (1.00 or later version)
  - LAN switch blade PY CB Eth Switch/IBP 1Gb 36/8+2 (4.16 or later version)
  - LAN switch blade PY CB Eth Switch/IBP 1Gb 36/12 (3.12 or later version)
  - LAN switch blade PY CB Eth Switch/IBP 1Gb 18/6 (3.12 or later version)
  - LAN switch blade PY CB DCB SW 10Gb 18/6/6 (2.1.1\_fuj or later version)
- The dialog name of the dialog for modifying LAN switches (L2 switches) is displayed as "Modify Network Device".

## 7.4.2 Changing VLANs Set for External Connection Ports of LAN Switch Blades

VLAN types and IDs set on the external connection ports of a managed LAN switch blade can be changed.

## Note

- VLANs cannot be changed on PRIMERGY BX900/BX400 LAN switch blades operating in IBP mode or Converged Fabric mode.
- VLANs cannot be configured on PY CB 10Gb FEX Nexus B22 LAN switch blades.
- If the port VLAN ID is unspecified or 1, a tagged VLAN ID cannot be set to 1.
- When using end host mode for the following LAN switch blades, it is not possible to modify the port VLAN ID, or remove a tag vlan for the external ports which meet the following conditions.

When performing the operation, inactivate the target external port, or change the VLAN ID for internal ports which have the same VLAN ID as the target external port.

### LAN switch blade

- PY CB Eth Switch/IBP 1Gb 36/8+2
- PY CB Eth Switch/IBP 1Gb 36/12
- PY CB Eth Switch/IBP 1Gb 18/6

### Conditions

- The port is selected as Selected Port
- The port is activated
- More than one internal port has the same VLAN.

## Changing VLAN IDs

This section explains how to change VLAN IDs set on the external ports of a LAN switch.

- With Port VLANs

Use the following procedure to change VLAN IDs:

1. In the ROR console server resource tree, right-click the target LAN switch blade and select [Modify]-[Network Settings] from the popup menu.

The [VLAN Settings] dialog is displayed.

2. Perform the following settings:

#### VLAN

Select "Change" and select the VLAN ID that has been changed.

#### Physical Port, Link Aggregation

Select [Untagged] from the VLAN type of the port number to configure or link aggregation group name.

3. Click the [OK] button.

The VLAN ID is changed.

- With Tagged VLANs

First delete the VLAN ID was set on the desired LAN switch blade port before setting the new VLAN ID.

Use the following procedure to change VLAN IDs:

1. In the ROR console server resource tree, right-click the target LAN switch blade and select [Modify]-[Network Settings] from the popup menu.

The [VLAN Settings] dialog is displayed.

2. Perform the following settings:

#### VLAN

Select "Change" and select the VLAN ID that has been changed.

#### Physical Port, Link Aggregation

Select [None] from the VLAN type of the port number to configure or link aggregation group name.

3. Click the [OK] button.

The VLAN ID set for the selected LAN switch blade port is released.

4. Repeat step 1 and set the new VLAN ID in the [VLAN Settings] dialog.

#### VLAN

Select "Create new" or "Change" in the VLAN information and select the VLAN ID to be changed.

#### Physical Port, Link Aggregation

Select [Tagged] from the VLAN type of the port number to configure or link aggregation group name.

5. Click the [OK] button.

The VLAN ID is changed.

## Changing VLAN Types

This section explains how to change the types of VLAN (port or tagged VLAN) set on the external ports of a LAN switch.

Use the following procedure to change VLAN types:

1. In the ROR console server resource tree, right-click the target LAN switch blade and select [Modify]-[Network Settings] from the popup menu.

The [VLAN Settings] dialog is displayed.

2. Perform the following settings:

#### VLAN

Select "Change" and select the VLAN ID that has been changed.

#### Physical Port, Link Aggregation

Change the VLAN type (Untagged) or [Tagged]) of the port number to configure or link aggregation group name.

3. Click the [OK] button.

The VLAN type is changed.

## Deleting VLAN IDs

This section explains how to delete VLAN IDs.

- Deleting VLAN IDs from LAN switch blades

Use the following procedure to delete VLAN IDs:

1. In the ROR console server resource tree, right-click the target LAN switch blade and select [Modify]-[Network Settings] from the popup menu.

The [VLAN Settings] dialog is displayed.

2. Perform the following settings:

#### VLAN

Select "Change" and select the VLAN ID that has been changed.

3. Click the [Delete] button.

The VLAN ID is deleted.

- Deleting VLAN IDs from LAN switch ports

Use the following procedure to delete VLAN IDs:

1. In the ROR console server resource tree, right-click the target LAN switch blade and select [Modify]-[Network Settings] from the popup menu.

The [VLAN Settings] dialog is displayed.

2. Perform the following settings:

VLAN

Select "Change" and select the VLAN ID that has been changed.

Physical Port, Link Aggregation

Select [None] from the VLAN type of the port number to delete VLANs or link aggregation group name.

3. Click the [OK] button.

The VLAN ID is deleted.

### 7.4.3 Re-discovering LAN Switches (L2 Switches)

Newly added LAN switches (L2 switches) can be discovered by re-executing LAN switch (L2 switch) discovery.

For details on LAN switch (L2 switch) discovery, refer to "Discovery" in "5.13 Registering LAN Switches (L2 Switches)".



#### Note

When using the "auto-configuration for network device" function on a LAN switch (L2 switch), register it as a network device using the method described in "5.7 Registering Network Devices" instead of re-executing LAN switch (L2 switch) discovery.

## 7.5 Modifying Network Resource Specifications

This section explains how to modify specifications of network resources.

The availability of modification for each item depending on the network resource type is shown below:

Table 7.1 Modification Availability Range List

Category	Item	Admin LAN Network Resources Directly Connecting with Manager	Network Resources of Additionally Created Admin LAN	Network Resources of iSCSI or Public LAN
General Area	Network resource name	Yes	Yes	Yes
	Label	Yes	Yes	Yes
	Comment	Yes	Yes	Yes
Connection Information	VLAN ID	No	No	No
	External Connection Ports	Yes (*1)	Yes (*1)	Yes (*1)
	Automatic configuration	No	No	No
	physical LAN segment	Yes (*2)	Yes (*2)	Yes (*2)
	Auto-configuration of VLAN on external ports	No	No	No
Subnet information	Subnet address/subnet mask	Yes (*3, *4)	Yes (*3)	Yes

Category	Item	Admin LAN Network Resources Directly Connecting with Manager	Network Resources of Additionally Created Admin LAN	Network Resources of iSCSI or Public LAN
	IP address to exclude	Yes	Yes	Yes
	Default gateway	Yes (*4)	Yes	Yes
Network resource type	-	No	No	No
Auto-configuration of network devices (L2 switches) (*5)	VLAN IDs, connection ports, etc.	No	No	Yes

Yes: Modification is possible

No: Modification is not possible

\*1: Even after changing external connection ports, virtual switches, port groups, and virtual bridges that have been deployed can be used as is. New information on the external connection ports will be reflected on the configuration of virtual switches, port groups, and virtual bridges deployed after modification of the network resource. When modifying the deployed network according to the external connection port, server virtualization software must be operated directly to do so.

\*2: Even after changing physical LAN segments, virtual switches, port groups, and virtual bridges that have been deployed can be used as is. New information on the physical LAN segments will be reflected on the configuration of virtual switches, port groups, and virtual bridges deployed after modification of the network resource. When modifying the deployed network according to the physical LAN segment, server virtualization software must be operated directly to do so.

\*3: The subnet address and subnet mask of admin LAN can be changed, when there are no physical servers or L-Servers using the network resources of the target of modification.

\*4: Modification can be performed by executing the `rxadm mgretl modify` command.

\*5: Possible when the network resource has been created specifying `auto="true"` for the `<SwitchConfiguration>` element in the XML definition file.

Use the following procedure to change network resource specifications.

1. Right-click the target network resource in the orchestration tree, and select [Change Settings]-[Modify Specification] from the popup menu.

The [Modify a network resource] dialog is displayed.

2. Change the items you want to modify.

3. Click the [OK] button.

The network resource is changed.



## Note

- The default gateway address of an admin LAN resource that is the same subnet address as that of the manager cannot be changed.
- The IP address of the L-Server is managed using an index from the start address of the network resources.

Therefore, when modifying the subnet, the IP address of the L-Server is allocated as follows:

- When the start address of the network resource remains the same even after the subnet is changed

The IP address of the L-Server is not changed.

- When the start address of the network resource changes after the subnet is changed

The IP address of the L-Server is changed automatically.

After a subnet address of a network resource (segment) included in an L-Platform is changed, when the IP address of an L-Server on the L-Platform is changed, it is necessary to have the L-Platform recognize the changed IP address of the L-Server. For this reason, release the L-Server from the L-Platform before importing the L-Server back into the L-Platform.

If the IP address exceeds the end address of the network resource due to expansion of the subnet mask, the corresponding IP address of the L-Server will be "Unallocated".

Before modifying the subnet, change the IP address of the L-Server to one within the index of the changed end address, or set the IP address as unallocated.

- When the IP address of an L-Server on an L-Platform is changed, it is necessary to have the L-Platform recognize the changed IP address of the L-Server. For this reason, release the L-Server from the L-Platform before importing the L-Server back into the L-Platform.
  - When the subnet is changed, the OS configuration is not changed.
  - Manually change the OS configuration to match the detailed information of the L-Server.
- Making the following change to the network resource for which automatic configuration of VLAN on the external connection port is specified may cause a network loop.
- Adding another external connection port on a LAN switch blade which has been already specified as an external connection port
- In this case, take action to prevent a network loop first, such as disconnecting the cable for the external connection port to be added, before making changes to the network resource.
- 

## 7.6 Changing Network Device Settings

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This section explains how to change settings of network devices.

### 7.6.1 Changing Network Device Basic Information

---

This section explains how to change the basic information of network devices.

The following settings can be changed.

- Network Device Name
- Admin LAN (IP Address)
- SNMP Community

Can only be changed when using SNMP monitoring.

To modify settings other than those listed above, use the methods explained in "[7.6.2 Changing Network Device Settings](#)".

Complete setting modifications on the target network device before performing this procedure.

Use the following procedure to configure a network device.

1. In the ROR console network device tree, right-click the target network device and select [Modify] [Basic Information] from the popup menu.  
The [Modify Network Device] dialog is displayed.
2. Make changes to the values as needed.
3. Click the [OK] button.

The settings of the network device are modified.

### 7.6.2 Changing Network Device Settings

---

This section explains how to change settings of network devices.

Use the following procedure to change the settings of a registered network device:

1. Create network configuration information for the target network device.
2. Change the network device settings based on the network configuration information created in step 1.

## 7.6.2.1 Creating the Network Configuration Information (XML Definition)

Create the network configuration information necessary for changing the registered network device settings.

In the following cases, it is possible to create network configuration information that can be used as input information for changes based on its original network configuration information.

- When the network configuration information used for registering the network device exists
- When the network configuration information retrieved from Resource Orchestrator using the `rcxadm netconfig export` command exists



- For how to create network configuration information (XML definitions), refer to "9.4.8 When Managing Network Devices as Resources" in the "Design Guide CE".
- For details on the `rcxadm netconfig` command, refer to "3.7 `rcxadm netconfig`" in the "Reference Guide (Command/XML) CE".

## 7.6.2.2 Changing Network Device Settings

This section explains how to change settings of a network device.

Network device settings can be changed using the following methods:

- When modifying network devices individually  
Use the `rcxadm netdevice modify` command.
- When modifying multiple network devices at one time  
Use the `rcxadm netconfig import` command.



When modifying links between VFABs and tenants in Converged Fabric, modify the linking information of the port profiles and the MAC addresses by performing either of the following operations. However, it is not necessary to perform the following operations, when VFABs linked with tenants after modification meet the conditions of VFAB auto-configuration.

- When changing links of tenants with VFABs to VFABs with the different external connection ports, delete the link information from before modification.
- When changing links of tenants with VFABs to VFABs with the same external connection ports, add the linking information from after modification.
- When adding new tenants when linking with VFABs, modification is not required.

The conditions of VFAB auto-configuration are as follow:

- The network configuration information (XML definition) for Converged Fabric is configured as below.
  1. The `AutoConfigure` element is omitted, or "true" is configured, and
  2. The `portprofile` attribute of the `Netdevice` element is omitted, or "enable" is configured, and
  3. The `vfabauto` attribute of the `Vfab` element is configured as "true".



- For details on the `rcxadm netdevice` command, refer to "3.8 `rcxadm netdevice`" in the "Reference Guide (Command/XML) CE".
- For details on the `rcxadm netconfig` command, refer to "3.7 `rcxadm netconfig`" in the "Reference Guide (Command/XML) CE".
- For details on the information that can be changed, refer to "15.7.2 Modification" in the "Reference Guide (Command/XML) CE".



## 7.7 Changing VM Management Software Settings

---

This section explains how to change VM management software settings.

The following settings can be changed.

- Location
- IP address
- User ID
- Password

Here the method for changing settings registered with Resource Orchestrator is explained.

Complete reconfiguration within the VM management software admin console before performing this procedure.

Use the following procedure to change VM management software settings:

1. In the ROR console management software tree, right-click the target management software, and select [Modify]-[Basic Information] from the popup menu.

The [Modify Management Software(*name*) Settings] dialog is displayed.

The name of the selected VM management software is displayed in *name*.

2. Enter the following items:

### Location

Select the location of the VM management software registration to change.

- If VM management software is installed on the admin server

Select [Admin Server].

- In other cases

Select [Other Server].

### IP address

If [Other Server] was selected, enter the IP address of the server on which VM management software is installed.

### User ID

Enter the user ID to use to control VM management software.

### Password

Enter the password for VM management software.

3. Click the [OK] button.

VM management software settings are changed.

## 7.8 Changing Power Monitoring Environment Settings

---

This section explains how to change power monitoring environment settings.

Power environment settings include environmental data settings, collection cancel settings, and power monitoring device settings.

### 7.8.1 Changing Environmental Data Settings

---

Use the following procedure to change environmental data settings:

1. Select [Tools]-[Options] from the ROR console menu.

The [Options] dialog is displayed.

2. Click the [Environmental Data] category title, and input the following items in the displayed area.

#### Data to collect

Select the [Power] checkbox to start collecting power consumption data.

#### Polling interval (in minutes)

Enter the time interval of the data collection (1-6 or 10).

The number of devices that can be monitored simultaneously depends on the value of this polling interval and the load put on the admin server. The following values are guidelines.

**Table 7.2 Polling Interval**

Polling Interval	Number of Devices that can be Monitored Simultaneously
5 minutes	Up to 40 devices
10 minutes	Up to 60 devices

Use a polling interval of 5 minutes or longer when monitoring chassis and servers. Use a polling interval of 10 minutes if monitoring more than 40 devices.

#### Data storage period

Enter storage periods for each collection rate. Data older than the configured storage period will be deleted every day.

Enlarging data storage periods reduces the number of devices that can be monitored simultaneously.

Use the default storage period values when monitoring chassis and servers.

3. Click the [Apply] button.

The new settings are applied.



#### Note

If the [Power] checkbox under [Data to collect] is cleared, the collection of power consumption data (including the calculation of hourly, daily, and other summarized data) will not be performed anymore.

## 7.8.2 Canceling Collection Settings for Power Monitoring Environments

---

This section explains how to cancel the collection of power consumption data.

Use the following procedure to cancel the collection of power consumption data.

1. Select [Tools]-[Options] from the ROR console menu.

The [Options] dialog is displayed.

2. Click the [Environmental Data] category title, and modify the values for the following items in the displayed area.

#### Data to collect

Clear the [Power] checkbox.

3. Click the [Apply] button.

Collection of environmental data is canceled.

## 7.8.3 Changing Power Monitoring Devices

---

This section explains how to change power monitoring device settings.

The following settings can be changed.

- Device name
- Admin LAN (IP address)
- SNMP community name

- Voltage
- Comment

Complete setting modifications on the actual power monitoring device before performing this procedure.

Use the following procedure to change power monitoring device settings:

1. From the ROR console, right-click the power monitoring device tree, then select [Modify]-[Registration Settings] from the popup menu.  
The [Modify Power Monitoring Device] dialog is displayed.
2. Make changes to the values as needed.
3. Click the [OK] button.  
The power monitoring device settings will be changed with the entered information.

## 7.9 Changing Monitoring Information Settings

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This section explains how to change and cancel monitoring information settings.

### 7.9.1 Changing Monitoring Information Settings

---

This section explains how to change monitoring information settings.

The following settings can be changed.

- Enabling or disabling of ping monitoring
- Time-out
- Recovery method
- Number of reboots

Use the following procedure to change settings:

1. In the ROR console server resource tree, right-click the target physical OS and the VM hosts, and select [Modify]-[Monitoring Settings] from the popup menu.  
The [Configuring monitoring settings] dialog is displayed.
2. Make changes to the values as needed.
3. Click the [OK] button.  
The settings for the monitoring information are changed to the entered settings.

### 7.9.2 Canceling Monitoring Information Settings

---

This section explains how to cancel monitoring information settings.

Use the following procedure to cancel the monitoring information settings:

1. In the ROR console server resource tree, right-click the target physical OS and the VM hosts, and select [Modify]-[Monitoring Settings] from the popup menu.  
The [Configuring monitoring settings] dialog is displayed.
2. Uncheck the [Enable ping monitoring] checkbox.
3. Click the [OK] button.  
The settings for the monitoring information are canceled.

## 7.10 Changing Storage

---

This section explains how to change storage settings.

## 7.10.1 Changing Storage Management Software Basic Information

---

This section explains how to change the basic settings of storage management software.

The following settings can be changed.

- Label
- Comment

Use the following procedure to change the basic settings of storage management software:

1. In the ROR console storage tree, right-click the target storage management software, and select [Modify]-[Registration Settings] from the displayed menu.  
The [Resource Change Setting] dialog is displayed.
2. Modify the values for the following items:  
Label  
Enter up to 32 alphanumeric characters or symbols.  
Comment  
Enter up to 256 alphanumeric characters or symbols.
3. Click the [OK] button.  
Basic information for the storage management software is modified.

## 7.10.2 Changing Storage Unit Basic Information

---

This section explains how to change the basic information of storage units.

The following settings can be changed.

- Label
- Comment

Use the following procedure to change the basic information of storage units:

1. In the ROR console storage tree, right-click the target storage unit, and select [Modify]-[Registration Settings] from the displayed menu.  
The [Resource Change Setting] dialog is displayed.
2. Modify the values for the following items:  
Label  
Enter up to 32 alphanumeric characters or symbols.  
Comment  
Enter up to 256 alphanumeric characters or symbols.
3. Click the [OK] button.  
Basic information for the storage unit is modified.

## 7.10.3 Changing Virtual Storage Resource Basic Information

---

This section explains how to change the basic settings of virtual storage resources.

The following settings can be changed.

- Label
- Comment

Use the following procedure to modify the basic information for virtual storage resources:

1. In the ROR console storage tree, right-click the target virtual storage resource, and select [Modify]-[Registration Settings] from the popup menu.

The [Resource Change Setting] dialog is displayed.

2. Modify the values for the following items:

Label

Enter up to 32 alphanumeric characters or symbols.

Comment

Enter up to 256 alphanumeric characters or symbols.

3. Click the [OK] button.

The basic information of the virtual storage resource is modified.

## 7.10.4 Changing Disk Resource Basic Information

---

This section explains how to modify the basic information for disk resources.

The following settings can be changed.

- Label
- Comment

Use the following procedure to modify the basic information for disk resources

1. Select the target virtual storage in the ROR console storage tree.

The disk resource list is displayed in the [Resource List] tab.

2. From the disk resource list, right-click the target disk resource, and select [Modify]-[Registration Settings] from the displayed menu.

The [Resource Change Setting] dialog is displayed.

3. Modify the values for the following items:

Label

Enter up to 32 alphanumeric characters or symbols.

Comment

Enter up to 256 alphanumeric characters or symbols.

4. Click the [OK] button.

The basic information for disk resources is modified.

## 7.11 Changing BMC BladeLogic Server Automation Settings

---

This section explains how to change BMC BladeLogic Server Automation settings.

The following settings can be changed.

- Label
- Comment

Use the following procedure to perform setting changes for BMC BladeLogic Server Automation:

1. In the ROR console management software tree, right-click the target management software(BladeLogic), and select [Modify]-[Registration Setting] from the popup menu.

The [Modify Management Software(BladeLogic)] dialog is displayed.

2. Set the following items:

#### Label

Enter the Label of the Management software.

Enter up to 32 alphanumeric characters or symbols.

#### Comment

Enter the Comment of the Management software.

Enter up to 256 alphanumeric characters or symbols.

3. Click the [OK] button.

The target BMC BladeLogic Server Automation settings are changed.

## 7.12 Changing Server Roles

---

This section explains how to change server role settings.

### 7.12.1 Server Role Setting Modification

---

This section explains how to change server role settings.

Set the "Manager" server role for the VM guest on which the ROR manager is running.

This enables restriction of the following operations and functions stopped by the ROR manager, and prevents erroneous operations.

- Operations for ROR manager (VM guest)
  - Power operations
  - Migration between servers
    - VM hosts which have been configured as a server registered to the server pool, cannot be specified as a destination VM host.
- Operations for the VM host on which the ROR Manager (VM host) is running
  - Power operations
  - Backup and restore
  - Server switchover (\*1)
  - Ping monitoring (\*2)
  - HBA address rename setting
  - Deletion of servers (when using HBA address rename)

\*1: Auto-recovery does not operate. Spare servers will be excluded from the switchover destination.

\*2: Recovery cannot be performed even if settings have been completed.

For VM guests with the "Manager" server role, "[Manager]" is displayed after the name in the resource tree.

The server role of "Manager" cannot be specified for the following VM guests.

- VM guests linked to virtual L-Servers
- VM guests on a VM host linked to a physical L-Server

VM hosts with running VM guests that have been configured with the "Manager" server role cannot be registered to the server pool of the orchestration tree.

VM guests which have been configured with the "Manager" server role cannot be linked to virtual L-Servers.

The "Manager" server role can only be configured for one VM guest on a system.

Use the following procedure to change settings:

1. In the ROR console server resource tree, right-click the target server, and select [Modify]-[Server Role] from the popup menu.

2. Select [Manager].
3. Click the [OK] button.

The settings of the server role are changed.

Or use the following procedure to change the settings from the menu bar:

1. In the ROR console server resource tree, select the target server, and select [Set]-[Modify]-[Server Role] from the menu bar.
2. Select [Manager].
3. Click the [OK] button.

The settings of the server role are changed.



## Note

When powering off servers in the event of a power failure or something similar, write down the server name of the VM host on which the manager is running.

After power is restored, start the VM host server first and then other servers can be started from ROR.

## 7.12.2 Releasing Server Role Settings

---

This section explains how to release server role settings.

Use the following procedure to release the settings:

1. In the ROR console server resource tree, right-click the target server, and select [Modify]-[Server Role] from the popup menu.
2. Select [None].
3. Click the [OK] button.

The settings of the server role are changed.

Or use the following procedure to change the settings from the menu bar:

1. In the ROR console server resource tree, select the target server, and select [Set]-[Modify]-[Server Role] from the menu bar.
2. Select [None].
3. Click the [OK] button.

The settings of the server role are changed.

## 7.13 Changing VDI Management Software Settings

---

This section explains how to change VDI management software settings.

The following settings can be changed.

- IP address
- User ID
- Password
- VM Management Software List
- Connection Information

Here the method for changing settings registered with Resource Orchestrator is explained.

Use the following procedure to change VDI management software settings:

Complete reconfiguration within the VM management software admin console before performing this procedure.

1. In the ROR console management software tree, right-click the target management software, and select [Modify]-[Registration Settings] from the popup menu.

The [Modify Management Software(*name*) Settings] dialog is displayed.

The name of the VDI management software is displayed in *name*.

Enter the following items:

#### IP Address

Enter the IP address of VDI management software.

#### User ID

Enter the user ID to use to control VDI management software.

Enter up to 84 characters, including alphanumeric characters and symbols (ASCII characters 0x20 to 0x7e).

Specify a user ID with administrative privileges.

For details, refer to "K.1.1 VDI Coordination Function" in the "Design Guide CE".

[Horizon View]

Enter using the format "*NetBIOS domain name*\User ID".

#### Password

Enter the password for controlling VDI management software.

#### VM Management Software List

Specify the VM management software registered with VDI management software.

The list displays the names which were set when it was registered with Resource Orchestrator.



VM management software which is set for one VDI management software cannot be registered with another VDI management software.

#### Connection Information

Enter the connection information of the VDI management software to be specified by the VDI user when using virtual desktops.

Enter up to 1024 characters, including alphanumeric characters and symbols (ASCII characters 0x20 to 0x7e).

Up to three types of VDI management software can be specified.

During L-Platform deployment, notification of the connection information specified in the first input field is given using email.

If the input field is blank, notification about the first piece of not blank information in the input fields is given using email.

[Horizon View]

When using VMware Horizon View Client, specify the host name or IP address used for the virtual desktop user to connect to the VDI management software from View Client.



vmwareview.local

or

192.168.123.1

2. Click the [OK] button.

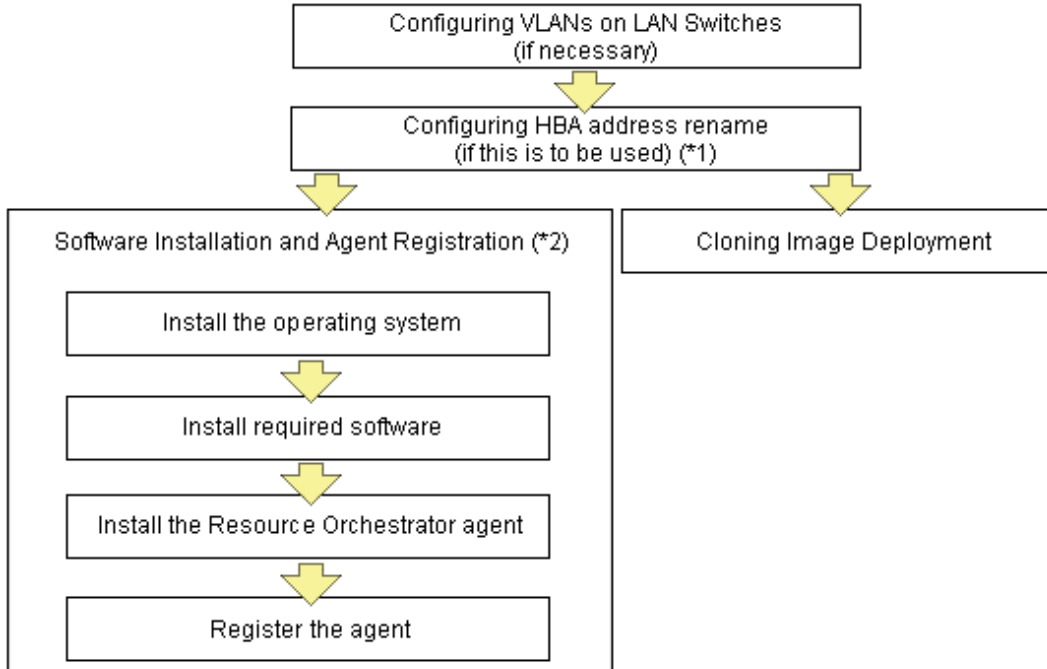
Settings of VDI management software registered with Resource Orchestrator are changed.



# Chapter 8 Configuring the Operating Environments of Managed Servers

This chapter explains how to install software to the registered managed servers and set up their operating environment.

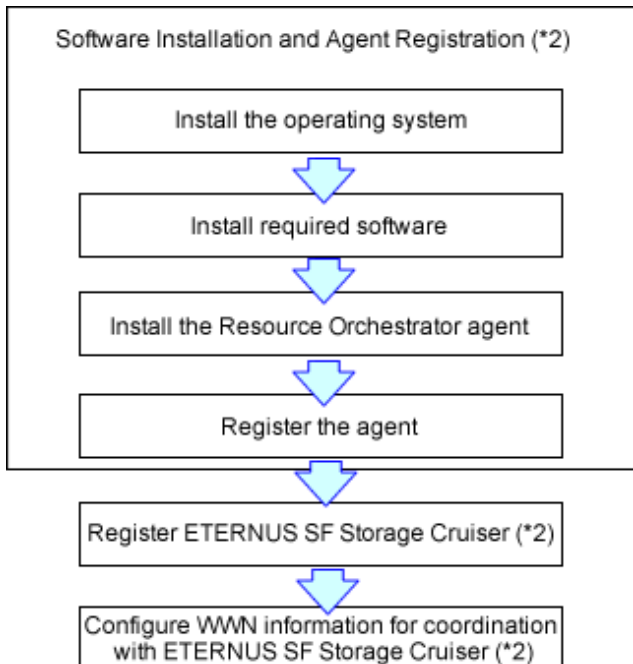
Figure 8.1 Procedure for Setting up Operating Environments (for Blade Servers and Rack Mount Servers)



\*1: HBA address rename and VIOM cannot be used together within the same chassis. I/O virtualization settings for all the servers mounted in one chassis must be made using either HBA address rename or VIOM.

\*2: These settings can be omitted for resources that have already been installed or registered.

Figure 8.2 Procedure for Setting up Operating Environments (for Fujitsu M10/Enterprise)



- \*1: These settings can be omitted for resources that have already been installed or registered.
- \*2: Necessary when performing server switchover using the storage affinity method.

- Configuring VLANs on LAN Switch Blades  
Refer to "[5.4.4 Configuring VLANs on LAN Switch Blades](#)".
- HBA address rename Settings  
Refer to "[5.5.2 HBA address rename Settings](#)".
- Installing Software and Registering Agents  
Refer to "[8.2 Installing Software and Registering Agents on VM Hosts](#)".
- Deploying Cloning Images  
Refer to "[Chapter 12 Cloning \[Physical Servers\]](#)".
- Registering ETERNUS SF Storage Cruiser  
Refer to "5.13 rcxadm storagemgr" in the "Reference Guide (Command) VE".
- Configuring WWN Settings for ETERNUS SF Storage Cruiser Integration  
Refer to "[8.1 Configuring WWN Settings for ETERNUS SF Storage Cruiser Integration](#)".

## 8.1 Configuring WWN Settings for ETERNUS SF Storage Cruiser Integration

---

This section explains how to configure WWN settings for integration with ETERNUS SF Storage Cruiser.

Specifying HBA WWNs, storage WWNs, and AffinityGroup for ETERNUS SE Storage Cruiser enables configuration of the zoning settings of Fibre Channel switches and storage unit host affinity. When performing switchover on managed servers, using the WWN settings enables the admin server to automatically change settings of storage devices.

Use of this function requires registration of specific settings for ETERNUS SF Storage Cruiser in advance. Fibre Channel Switches and storage units connected to managed servers must be registered on ESC.



### Note

- WWN settings for servers and HBAs are not performed by this function.
- Configuration cannot be performed for managed servers that are configured as spare servers or are used as spare servers. Therefore, perform this configuration before configuring spare servers.

Use the following procedure to configure the WWN settings.

When changing the current WWN information, configure the new WWN information after deleting Fibre Channel Switch zoning and storage unit host affinity in the currently configured WWN information.

1. In the ROR console server resource tree, right-click the target physical server, and select [Modify]-[WWN Settings] from the popup menu.  
The [WWN Settings] dialog is displayed.
2. Perform the following settings:
  - HBA ports
    - Select the following values according to the system configuration.
    - Procedures for Single-path Configurations
      - Specify "1" for HBA ports.

- Procedures for Multi-path Configurations

Select the number of multi-paths for HBA ports.

However, it is necessary to select "1" during installation of the operating system. Select the number of paths and reconfigure HBA address rename settings after setting up the multi-path driver.

[OVM for SPARC]

When using an IO domain in an OVM for SPARC environment, select the numbers of the HBA ports used in the control domain and the IO domain. If the primary server and the spare server share disks, exclude the numbers of HBA ports for the shared disks.

#### Portn WWPN

Enter or select the WWPN of an HBA collected from physical servers.

When using a multi-path configuration, enter the values of the HBAs and the corresponding CAs of servers in the same order, based on the values in "8.1.6 Settings when Switching Over Fujitsu M10/SPARC Enterprise Servers" in the "Design Guide CE".

If the primary server and the spare server share disks, do not enter the HBA ports for the shared disks.

#### Target CA

Select WWPNs of storage CA and AffinityGroup.

Select hyphens ("-") to keep spare servers inactive.

Also, select a hyphen ("-") when deleting Fibre Channel Switch zoning and storage unit host affinity in the configured WWN information.

When using a server on which an agent is registered as a spare server, the server must meet all of the following conditions:

- When the WWPN of the target CA is the same value as that of the primary server
- When the AffinityGroup value is different from the value of the primary server
- When agents are not registered on ETERNUS SF Storage Cruiser



When using the storage affinity switchover method, if a hyphen ("-") is selected, the storage path settings will be deleted.

### 3. Click the [OK] button.

Perform configuration or deletion of Fibre Channel Switch zoning and storage unit host affinity based on the configured WWN information. When the target operation server is registered on ESC, the status should be as below:

- Configuration

The server should be turned on

- Deletion

The server should be turned off

When configuration and deletion of Fibre Channel Switch zoning and storage unit host affinity have been already executed, no operations will be performed on the devices.



- For WWPN value specification, check that the value does not overlap with the WWPN used for HBA address rename or VIOM. If the same WWPN is used, there is a chance data on storage units will be damaged.
- When configuration or deletion of Fibre Channel switches or storage units performed, a warning dialog is displayed. Make sure that there are no problems in the settings, then click the [OK] button.
- If the target CA is not displayed, confirm the status of the following settings:
  - ESC is correctly registered on Resource Orchestrator.
  - Fibre Channel switches and storage units are correctly registered.

- Only one access path is configured on ESC for each CA of an HBA.

---

## 8.2 Installing Software and Registering Agents on VM Hosts

---

This section 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.

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

- Install the operating system on the managed server.
- 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" 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" 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", 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.x] [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 the OS is Solaris 11 and the user account was created during installation, root is registered as a role. 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 "6.1.2.4 Required Software" in the "Overview".

 **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" in the "Setup Guide CE".

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 "Appendix G Definition Files" in the "Setup Guide CE".

- 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.
- 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 the OS is Solaris 11 and the user account was created during installation, root is registered as a role. 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 the [OK] button.

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 to its server virtualization software. For details, refer to "9.2.2 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 "2.2 Starting and Stopping Agents" 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.
- 

## 8.3 Deploying Cloning Images

---

For the second and subsequent servers, operating systems are created using the cloning image collected from the first server.

For details on cloning, refer to "[Chapter 12 Cloning \[Physical Servers\]](#)".

## Chapter 9 Deleting Resources

This chapter explains how to delete resources.

It is possible to register and delete a managed server and LAN switch (L2 switch) as a single resource when they are in the same chassis.

Note that operation of a server cannot be performed while the LAN switch (L2 switch) is being registered or removed.

If the operation is performed simultaneously for multiple resources, one of the following messages is displayed.

In this case, wait until the current operation is completed before executing the desired operation again.

```
FJSVrcx:ERROR:67210: LAN_switch_name(LAN switch):is busy
```

or

```
FJSVrcx:ERROR:67210: Managed_server_name (physical server):is busy
```

### 9.1 Deleting Chassis

This section explains how to delete chassis.

Use the following procedure to delete the chassis.

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

The [Delete Resource] dialog is displayed.

2. Click the [OK] button.

The target chassis is deleted from the server resource tree.



#### Note

If server blades and partitions within the chassis were already registered, delete these server blades and partitions before deleting the chassis.

If LAN switch blades have been registered, delete all LAN switch blades before deleting the chassis.

### 9.2 Deleting Managed Servers

This section explains how to delete managed servers.

Use the following procedure to delete managed servers.

1. In the ROR console server resource tree, right-click the target server (or the physical OS or the VM host on the server) and select [Delete] from the popup menu.

The [Delete Resource] dialog is displayed.

If a VM host is running on the server to be deleted, any VM guests running on that host are also deleted from the server resource tree at the same time. The VM guests to be deleted appear in the [Delete Resource] dialog, so check that it is safe to delete them.

2. Click the [OK] button.

- If a physical OS or VM host exists on the target server and HBA address rename is set

The server will be powered off and the target server will be unregistered when the resource is deleted. Resource Orchestrator does not delete the host affinity settings of storage units or the zoning settings of Fibre Channel switches.

- If WWN information is set for the target server

The host affinity settings of storage units and the zoning settings of Fibre Channel switches will be deleted when the Fujitsu M10/SPARC Enterprise is deleted.

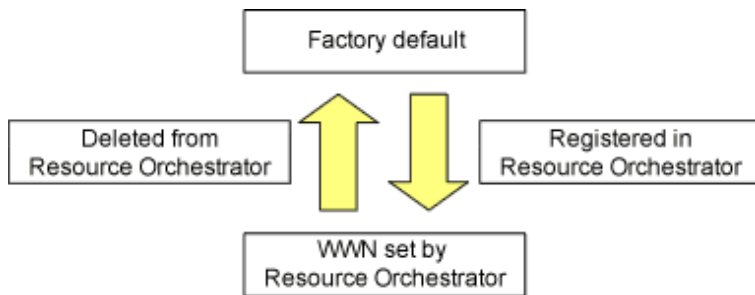


- If the deleted server is a PRIMERGY BX series, a PRIMEQUEST, a SPARC Enterprise M4000/M5000/M8000/M9000, or a Fujitsu M10-4S

The target server will be unregistered and remain in the server resource tree.

## Information

- If HBA address rename has already been set up on the managed server, the HBA WWN is reset to the factory default. When this occurs, the managed server is turned on temporarily, after the power is forcibly turned off once. When the operating system is running on a managed server, it is recommended to shut it down before deleting the server.



- VM guests can be deleted using the management console of the server virtualization software used. Doing so will automatically delete those VM guests from Resource Orchestrator as well.
- If the same storage device volume is to be used to operate the target server after the server has been deleted, use storage management software such as ETERNUS SF Storage Cruiser to reset the storage host affinity and fibre channel switch zoning with the factory default WWN.
- Any system images backed up from the target server are also deleted automatically.
- Settings for target disks of image operations are also deleted. To re-register the server that was deleted, configure the target disks of image operations if necessary.
- After the server has been deleted, the maintenance LED is switched OFF automatically.
- Deleting a server on which both the HBA address rename function and a VM high-availability feature (provided by the server virtualization software used) are enabled will produce the following behavior. The server will be powered off, causing the high-availability feature to trigger its VM recovery process. To avoid interruption of hosted applications during server deletion, it is recommended to move VM guests to another server beforehand. For more details on the high-availability features available for each server virtualization software, refer to "9.2.1 Configuration Requirements" in the "Design Guide VE".
- When a managed PRIMEQUEST 2000 series server is deleted, the result varies depending on the partition status, as follows:
  - When an Extended Partition configured on a PPAR with Extended Partitioning Mode set to "Disable" or on a PPAR partition with Extended Partitioning Mode set to "Enable" is deleted  
The target server will remain unregistered in the resource tree.
  - When an Extended Partition configured on a PPAR with Extended Partitioning Mode set to "Enable" or on a PPAR partition with Extended Partitioning Mode set to "Disable" is deleted  
The target server disappears from the server resource tree.

## Note

When registering resources, directories and files that are necessary for performance monitoring are created on the server where the resources are registered. This directory is not automatically deleted when resources are deleted. Delete it manually.

Refer to "8.6.9 Advisory Notes for RHEL-KVM Usage" in the "Setup Guide CE" for details.

## 9.3 Canceling VIOM Integration

---

This section explains how to cancel VIOM integration.

Use the following procedure to cancel VIOM integration:

1. In the ROR console management software tree, right-click the target management software (VIOM), and select [Delete] from the popup menu.  
The [Delete Resource] dialog is displayed.
2. Click the [OK] button.  
The target management software (VIOM) is deleted.

To delete registered VIOM server profiles, follow the procedure described in "[5.1.1 Registering VIOM Server Profiles](#)" to open the Web interface of ServerView Virtual-IO Manager and delete the desired profiles from there.



### Note

---

Integration with VIOM cannot be canceled in the following cases.

- When there are spare server settings involving the VIOM server profile exchange method
  - When there are servers using the VIOM server profile exchange method that are in the following states
    - Being switched over
    - Have been switched over (prior to failback)
    - Being failed back
  - Server blades that are managed using VIOM, and are currently the target of operations by Resource Orchestrator (power control, image-related processes, etc.)
  - Physical L-Servers have been deployed for rack mount servers that are managed using VIOM, and VIOM server profiles have been allocated
- 

## 9.4 Deleting LAN Switch Blades and Network Devices

---

This section explains how to delete LAN switch blades and network devices.

### 9.4.1 Deleting LAN Switch Blades

---

This section explains how to delete LAN switch blades.

Use the following procedure to delete LAN switch blades.

1. In the ROR console server resource tree, right-click the target LAN switch blade and select [Delete] from the popup menu.  
The [Delete Resource] dialog is displayed.
2. Click the [OK] button.  
The target LAN switch blade is unregistered.

### 9.4.2 Deleting Network Devices

---

This section explains how to delete network devices.

Use the following procedure to delete a network device.

- The Procedure Using the ROR Console

1. In the ROR console network device tree, right-click the target network device and select [Delete] from the popup menu.  
The [Delete Resource] dialog is displayed.

2. Click the [OK] button.

The target network device is deleted from the network device tree.

- The Procedure From the Command Line

Use the rcxadm netdevice delete command.



See

For details on the rcxadm netdevice command, refer to "3.8 rcxadm netdevice" in the "Reference Guide (Command/XML) CE".



Note

- The network devices already deployed to an L-Platform cannot be deleted.

When no information is displayed in the line of "AllocatedResources[XXX]:" after executing the rcxadm netdevice show command, it shows that the network device has not been deployed to the L-Platform.

For details on the rcxadm netdevice show command, refer to "3.8 rcxadm netdevice" in the "Reference Guide (Command/XML) CE".

- Ethernet Fabrics (Converged Fabric) that have more virtual fabrics than the limit (100) registered cannot be deleted.

Execute the rcxadm netdevice show command, and if *num* in "VFAB[*num*]:" is 99 or less, it can be determined that less virtual fabrics than the limit (100) are registered with the relevant Ethernet Fabric (Converged Fabric).

As a result of check, if the number of registered virtual fabrics exceeds the limit (100), specify "delete" for registration mode of VFAB in the network configuration information (XML definition), and use the rcxadm netdevice modify command to delete VFABs.

Confirm that the number of registered virtual fabrics is under the limit (100), and then delete the Ethernet Fabric (Converged Fabric) again.

## 9.5 Deleting Network Resources

---

This section explains how to delete network resources.

### When VLANs for External Connection Ports of LAN Switch Blades have not been Configured

Use the following procedure to delete a network resource.

1. In the ROR console orchestration tree, right-click the target network resource in a network pool, and select [Delete] from the popup menu.

The [Delete Resource] dialog is displayed.

2. Click the [OK] button.

### When VLANs for External Connection Ports of LAN Switch Blades have been Configured

Use the following procedure to delete a network resource.

1. Refer to the instructions given in "When VLANs for External Connection Ports of LAN Switch Blades Have not been Configured" to delete a target network resource.
2. If the VLAN configured for the external connection port of the LAN switch blade is not necessary, follow the procedure from step 3 to delete a target network resource.

3. In the ROR console server resource tree, right-click the target LAN switch blade and select [Modify]-[Network Settings] from the popup menu.

The [VLAN Settings] dialog is displayed.

4. Perform the following settings:

- Under VLAN, select "Change".
- Select a VLAN ID.
- Select "None" as the VLAN type to delete.  
For details, refer to "[7.4.2 Changing VLANs Set for External Connection Ports of LAN Switch Blades](#)".

5. Click the [OK] button.

6. Confirm that the VLAN has been deleted.

In the ROR console server tree, click the LAN switch blade that includes the port specified as the external connection port of the network resource. In the switch details displayed, confirm that no VLAN is configured for the specified port.



## Note

- Deleting a network resource with a VLAN configured for an external connection port of a LAN switch blade does not delete that VLAN.
- When an admin LAN resource linked with an admin LAN subnet is deleted, the admin LAN subnet is also deleted. Prior to deleting admin LAN resources, delete all managed servers that have admin IP addresses within the subnet scope of the admin LAN resource, from the server tool of the ROR console.

## 9.6 Deleting VM Management Software

---

This section explains how to delete VM management software.

Use the following procedure to delete VM management software.

1. In the ROR console management software tree, right-click the target management software, and select [Delete] from the popup menu.

The [Delete Resource] dialog is displayed.

2. Click the [OK] button.

The target management software is deleted.

## 9.7 Clearing the Power Monitoring Environment

---

This section explains how to clear the power monitoring environment.

Clearing the power monitoring environment is done by deleting power monitoring targets.

For details on how to release collection settings, refer to "[7.8.2 Canceling Collection Settings for Power Monitoring Environments](#)".

### 9.7.1 Deleting Power Monitoring Devices

---

This section explains how to delete power monitoring devices.

Use the following procedure to delete power monitoring devices:

1. In the ROR console power monitoring devices tree, right-click the target power monitoring device and select [Delete] from the popup menu.

The [Delete Resource] dialog is displayed.

2. Click the [OK] button.

The target power monitoring devices are deleted from the tree view.

## 9.8 Deleting Admin LAN Subnets

---

This section explains how to delete admin LAN subnets.

Use the following procedure to delete an admin LAN subnet.

1. From the ROR console menu, select [Settings]-[Admin LAN Subnet].

The [Admin LAN Subnet] dialog is displayed.

2. Select the subnet to delete.

3. Click the [Delete] button.

The [Delete Admin LAN Subnet] dialog is displayed.

4. Click the [OK] button.

The target subnet information is deleted.



### Information

When an admin LAN subnet is deleted, the simplified DHCP service for Resource Orchestrator will be disabled.

In this case, either use the OS standard DHCP service that was enabled when the admin LAN subnet was registered, or perform re-installation after uninstalling the manager.



### Note

It is not possible to delete the information of subnets that have managed servers registered.

Before deleting subnet information, delete all managed servers that have been registered on the relevant subnet.

## 9.9 Deleting BMC BladeLogic Server Automation

---

This section explains how to delete the registered BMC BladeLogic Server Automation.

Use the following procedure to delete the registered BMC BladeLogic Server Automation.

1. In the ROR console management software tree, right-click the target management software (BladeLogic), and select [Delete] from the popup menu.

The [Delete management software(BladeLogic)] dialog is displayed.

2. Click the [OK] button.

The target BMC BladeLogic Server Automation is deleted.

## 9.10 VM Host Unregistration

---

This section explains unregistration of VM hosts in guest domains on Oracle VM for SPARC.

Use the following procedure to unregister a VM Host.

1. In the ROR console server resource tree, right-click the guest domain which is registered on the VM Host, and select [Unregister] from the popup menu.

The [VM Host unregistration] dialog is displayed.

2. Click the [OK] button.

When VM hosts are unregistered, they are converted back into VM guests.

## 9.11 Deleting Converged Fabric Management Software

---

This section explains how to delete Converged Fabric management software.

Use the following procedure to delete Converged Fabric management software.

1. In the ROR console management software tree, right-click the target management software, and select [Delete] from the popup menu.

The [Delete Resource] dialog is displayed.

2. Click the [OK] button.

The target management software is deleted.

## 9.12 Deleting VDI Management Software

---

This section explains how to delete VDI management software.

Use the following procedure to delete VDI management software.

1. In the ROR console management software tree, right-click the target VDI management software, and select [Delete] from the popup menu.

The [Delete Resource] dialog is displayed.

2. Click the [OK] button.

The target VDI management software is deleted.



### Note

- Deletion of VDI management software is possible even when there are related L-Servers.
- After VDI management software is deleted, deletion of the L-Servers related to the deleted VDI management software will fail.  
For this reason, delete all L-Servers related to VDI management software before deleting that VDI management software.
- If you have deleted VDI management software by mistake before deleting related L-Servers, it can be restored by registering the VDI management software with the same name as the one used when it was registered previously.

## 9.13 Deleting the Public LAN (MAC Address) Information

---

This section explains how to delete the public LAN (MAC address) information of a rack mount server or a tower server.

1. In the ROR console server resource tree, right-click the target server, and select [Modify]-[Public LAN (MAC Address) Information] from the popup menu.

The MAC addresses of the NICs for the admin LAN and the public LAN that have been configured in the [Public LAN (MAC Address) Information] dialog are displayed.

2. Select the NIC to delete using the radio button.
3. Click [Delete].

Use the dialog to check that the target MAC address has been deleted.

Repeat steps 2 and 3 as many times as there are MAC addresses to delete.

4. Click the [OK] button.

5. Edit the definition file.

This step is only necessary when performing management using VIOM.

Delete the definition of the PCI bus number corresponding to the detached NIC.

For details on the definition file, refer to "[5.1.2 When Managing Rack Mount or Tower Servers Using VIOM](#)".

# Chapter 10 Pre-configuration for Resource Registration and Modification

This chapter provides an overview of the pre-configuration function and explains how to use system configuration files.

## 10.1 Overview

Using the Pre-configuration function, it is possible to create system definition files that can be later used to setup a Resource Orchestrator environment. Importing system configuration files makes it easy to perform various registration settings in one operation. This prevents the operating mistakes induced by sequences of individual, manual configuration steps.

The pre-configuration function can be used in the following situations.

### - New Installation

From a traditional work office (or another off-site location), define the various parameters required for Resource Orchestrator and record them in a system configuration file. Next, send this definition file to your actual system location (machine room), and import the file into Resource Orchestrator using the import functionality of the ROR console. This single operation automates the registration of all the servers defined in the system configuration file.

### - Backing up a System Configuration

Using the export function of the ROR console, the current Resource Orchestrator configuration can be exported to a system configuration file.

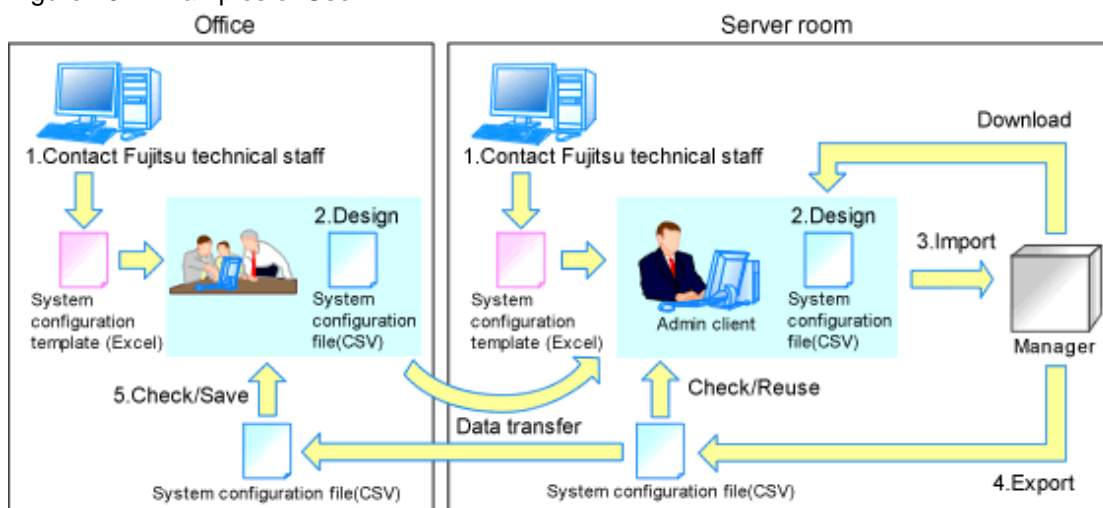
### - Batch Reconfiguration

The registration settings of already registered resources can be modified easily by exporting the current configuration to a system configuration file and editing the desired configuration items before re-importing that configuration file. The actual reconfiguration is then performed as a single import operation.

### - Re-use of Existing Configurations

Once a system has been fully setup, its configuration can be exported and re-used as a basis for the design of other systems. This makes it easy to design various systems located in different sites.

Figure 10.1 Examples of Use



Only system configuration files in CSV format can be imported or exported. For details on the system configuration file's format, refer to "[Appendix B Format of CSV System Configuration Files](#)".

Resource Orchestrator provides a sample in CSV format. To obtain a copy of the Excel template (hereinafter system configuration template), contact Fujitsu technical staff. This system configuration template makes it easy to create system configuration files in CSV format.

- When loading a system configuration template from a CSV file, or importing a system configuration file from the ROR console  
Use the format described in "[B.2 File Format](#)" for the system configuration file.
- When saving a file in CSV format from the system configuration template, or exporting a system configuration file from the ROR console  
Export will be performed using the latest file format given in "[B.2 File Format](#)".

The following operations, usually performed from the ROR console, can be equally performed using the pre-configuration function.

- Registration
  - "[5.1 Registering VIOM Coordination](#)"
  - "[5.4 When Using Blade Servers](#)"
  - "[5.13 Registering LAN Switches \(L2 Switches\)](#)"
  - "[5.2 Registering VM Management Software](#)"
  - "[5.10 Registering Power Monitoring Devices](#)" (\*1)
  - "[5.11 Registering Admin LAN Subnets](#)"
  - "[5.4.4 Configuring VLANs on LAN Switch Blades](#)"
  - "[5.5.2 HBA address rename Settings](#)" (\*2)
  - "Chapter 8 Configuring Monitoring Information" in the "Setup Guide VE"
  - "Chapter 18 Settings for Server Switchover" in the "User's Guide VE"
- Modification
  - "[6.1 Changing Admin IP Addresses](#)" (\*3)
  - "[7.1.11 Changing Admin LAN Subnets](#)"
  - "[7.1.2 Changing Server Names](#)"
  - "[7.1.3 Changing Admin IP Addresses](#)" (\*3)
  - "[7.1.4 Changing SNMP Communities](#)"
  - "[7.1.5 Changing Server Management Unit Configuration Settings](#)"
  - "[7.1.7 Changing VM Host Login Account Information](#)"
  - "[7.1.8 Changing the VLAN Settings of LAN Switch Blades](#)"
  - "[7.1.9 Changing HBA address rename Settings](#)" (\*2)
  - "[7.1.10 Changing Boot Options](#)"
  - "[7.3 Changing VIOM Registration Settings](#)"
  - "[7.4 Changing Settings of LAN Switch Blades and LAN Switches \(L2 Switches\)](#)"
  - "[7.7 Changing VM Management Software Settings](#)"
  - "[7.8 Changing Power Monitoring Environment Settings](#)"
  - "[7.9 Changing Monitoring Information Settings](#)"
  - "[18.3 Changing Server Switchover Settings](#)" in the "User's Guide VE"

\*1: To start collecting environment data, the collection settings should be manually set from the ROR console's option dialog.

\*2: Restart all the managed servers that were either registered or modified following an import operation.

\*3: The pre-configuration's scope of configuration is the same as that of the ROR console.

Moreover, the pre-configuration function can perform the same labels and comments settings as those available in BladeViewer. Those settings are described in "[Chapter 4 BladeViewer](#)" and "[4.5.1 Listing and Editing of Labels and Comments](#)".



## Note

- The following operations cannot be performed by the pre-configuration function, and should be performed from the ROR console.
  - Deleting registered resources from Resource Orchestrator
  - Changing the name of a registered chassis, physical server (only for servers other than PRIMERGY BX servers) or a power monitoring device
  - Deleting registered admin LAN subnets
  - Discovering, registering, or changing registration settings of a LAN switch (L2 switch)
  - Detecting physical link information from a LAN switch (L2 switch)
  - Canceling VIOM Integration
  - Registration and deletion of SNMP trap destinations
  - Configuration and change of WWN information using ETERNUS SF Storage Cruiser integration
  - Agent registration of Oracle VM for SPARC guest domains
- The following operations cannot be performed by the pre-configuration function, and should be performed using commands.
  - Registration and deletion of ETERNUS SF Storage Cruiser integration
- Make sure that less than 200 resources are specified for registration or changing in the system configuration file specified for import. If it is necessary to specify more than 200 resources for registration or changing, do by importing multiple system configuration files.
- When using ServerView Deployment Manager on the admin LAN, the following settings cannot be defined using the pre-configuration function. For details on co-existence with ServerView Deployment Manager, refer to "I.2 Co-Existence with ServerView Deployment Manager" in the "Setup Guide CE".
  - Spare server settings (using the backup and restore or HBA address rename method)
  - HBA address rename Settings

## 10.2 Importing the System Configuration File

This section explains how to import a system configuration definition file (saved in CSV format) from the ROR console.

Use the following procedure to import a system configuration definition file.

1. Prepare a system configuration file in CSV format.

### Point

- System configuration templates in Excel format cannot be directly imported into Resource Orchestrator. Use the template's save to CSV function to produce a system configuration file in CSV format before importing.
- Only system configuration files conforming to the format described in "[B.2 File Format](#)" can be imported. For details on the file format, refer to "[Appendix B Format of CSV System Configuration Files](#)".
- Make sure that less than 200 resources are specified for registration or changing in the system configuration file. If it is necessary to specify more than 200 resources for registration or changing, do by importing multiple system configuration files.
- When changing resources in different sections, perform import of the configuration definition files for each section.
- When importing system configuration files which begins with "RCXCSV,V1.0" in the first line, the agent cannot automatically be registered. Moreover, the registration fails in cases where a spare server is defined to a VM host in the system configuration file.

2. Open and log in to the ROR console according to "Chapter 2 Login and Logout" in the "User's Guide for Infrastructure Administrators CE".
3. In the ROR console, select [File]-[System Configuration File]-[Import] from the menu.  
The [Import System Configuration File] dialog is displayed.
4. Specify a configuration file prepared in step 1.
5. Click [OK].

The import process starts. The system configuration file is verified first, and then resources are imported one by one, following the order defined by the system configuration file.

The processing of resource registration or change is executed after the verification.

The process status can be checked in the Recent Operations area of the ROR console.

Clicking [Cancel] in the Recent Operations area displays a confirmation dialog and stops the import process. The [Cancel] button interrupts the import process after completing the current process. Note that the processing performed up to the error point is effective in the system.

## Point

- The "SpareServer", "ServerAgent" and "ServerVMHost" sections must meet the conditions below when performing pre-configuration.

- a. Spare server section ("SpareServer")

### **In cases where the specified spare server has no operating system installed**

The physical server which is defined as a spare server must not be defined in "ServerWWNN", "ServerAgent", or "ServerVMHost" sections.

### **When configuring a server using I/O virtualization as a spare server**

The server must meet one of the following conditions:

- HBA address rename information must already be configured on the physical server in which a spare server is defined
- A VIOM server profile must already be configured on the physical server in which a spare server is defined

### **In cases where the specified spare server is a VM host**

The physical server which is defined as a spare server must already be registered for the Resource Orchestrator agent.

### **When configuring a server with WWN information set using storage affinity switchover as a spare server**

WWN information must already be configured on the primary server and the spare server.

If the above conditions are not met, divide the section as different CSV files, and import them one by one.

- b. Agent section ("ServerAgent" or "ServerVMHost")

To register an agent, it must fulfill all of the following conditions. Please import agents only if they meet all these conditions.

The agent of Resource Orchestrator must already be installed on the managed server.

An OS must be running on the managed server.

The agent of the target physical server must be registered, or the agent registration section defined in the system configuration file.

- In the "Server" section, when registering or changing managed servers in different subnets than the admin server, one of the following conditions must be fulfilled:
  - The target subnet information is registered.
  - The target subnet's information is defined in the "Subnet" section of the CSV format system configuration file.

## Note

- When registering a new server with the registered primary server, and configuring it as a spare server, import the "Server" section and "SpareServer" section separately.
- When changing physical server names during pre-configuration, it cannot be performed at the same time as other pre-configuration operations. Import the "Server" section separately from other sections.

6. When the import is completed successfully, a message is displayed in the Recent Operations area.

## Point

- Error handling

The processing of resource registration or change is executed after the verification of the system configuration file during import.

If an error occurs during the verification process, which means an invalid value exists in the system configuration file, an error message is displayed only in the event log. Correct the system configuration file, and import it again.

Invalid content also includes invalid section headers.

If there is an error message displayed, but the values in the specified line are all correct, check whether the section header is correct or not.

If an error occurs during registration and change process, an error message is displayed in both the recent operations area and the event log. In this case, the process is finished up to the previous line setting, that is, before the system configuration file line number which message is displayed. Correct the system configuration file and rectify the problem, then import it again. The process will resume from the position where it stopped.

- Import log file

The import log is saved in the following location on the manager.

In cases where an error occurs in the verification step, which means the processing of registration or changing the resource has not started yet, no log file is created.

[Windows Manager]

*Installation\_folder*\SVROR\Manager\var\log\config.log

[Linux Manager]

/var/opt/FJSVrcvmr/log/config.log

- Backing up the manager prior to import automatically

When importing is performed by a user, exporting is also automatically executed. The export file is saved as the backup of the manager configuration. Use this file to return to the previous values if there is an input error in the system configuration file. Note that the backup can store the latest five versions.

The system configuration file backup can be stored in the following folder on the manager.

[Windows Manager]

Folder

*Installation\_folder*\SVROR\Manager\var\config\_backup

File name

rcxconf-*YYYYMMDDHHMMSS*.csv (the date and time are shown in *YYYYMMDDHHMMSS*)

[Linux Manager]

Directory

/opt/FJSVrcvmr/var/config\_backup

File name

rcxconf-*YYYYMMDDHHMMSS*.csv (the date and time are shown in *YYYYMMDDHHMMSS*)

7. Perform post-setting operations.

If the import is completed successfully, perform the following procedures if required.

- If HBA address rename is set, then restart the relevant managed server.
- If the agent is registered, perform either one of the following to enable further backup or cloning operations.
  - Restart the managed server.
  - Restart the Related Service described in "2.2 Starting and Stopping Agents" in the "Operation Guide CE".

## 10.3 Exporting the System Configuration File

---

This section explains the method for exporting a system configuration file containing the current system settings.

Use the following procedure to export the system configuration file in CSV format from the ROR console.

1. Open and log in to the ROR console according to "Chapter 2 Login and Logout" in the "User's Guide for Infrastructure Administrators CE".
2. In the ROR console, select [File]-[System Configuration File]-[Export] from the menu.
3. The export process starts automatically.
4. When the process complete successfully, the [File Download] dialog is displayed.

Click one of the following.

- When clicking [Save]

As the [Save As] dialog is displayed, specify the destination folder and file name, and then save the file. Note that the system configuration file can be exported only in the CSV format.

- When clicking [Open]

Open the file using an application (such as Excel) associated to CSV files.

- When clicking [Cancel]

Export operations will be canceled.



- If any server is in switchover state, the server name is enclosed in parentheses, such as "(name)".
- The admin server subnet information is not output in the "Subnet" section.
- For a LAN switch blade PY CB DCB SW 10Gb 18/6/6, the VLAN settings of external ports are not exported.
- For the following LAN switch blades, VLAN settings are not exported.
  - PRIMERGY BX 900 and BX 400 LAN switch blades operating in IBP mode or Converged Fabric mode.
  - PY CB 10Gb FEX Nexus B22 LAN switch blades



### **Error handling**

If an error occurs during the export, an error message is displayed. Follow the message diagnostic to resolve the problem.

# Chapter 11 NetworkViewer

This chapter provides an overview of NetworkViewer and describes its features.

## 11.1 Overview

This section provides an overview of NetworkViewer.

NetworkViewer is a GUI which can display the connections of a physical network consisting of servers, LAN switch blades, and network devices, and the connection information of logical resources such as L-Platforms and L-Servers. NetworkViewer can display the physical and logical network configurations.

Figure 11.1 NetworkViewer (Physical Network Configuration)

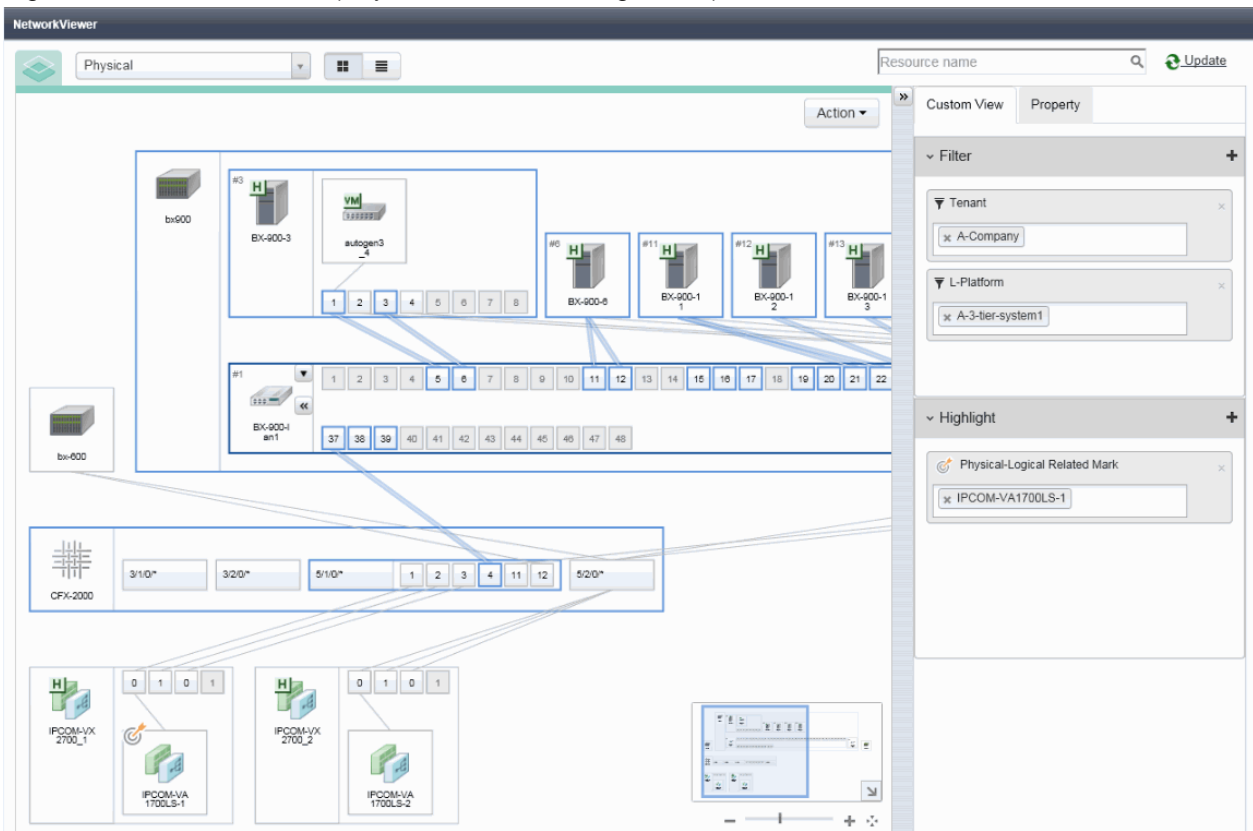
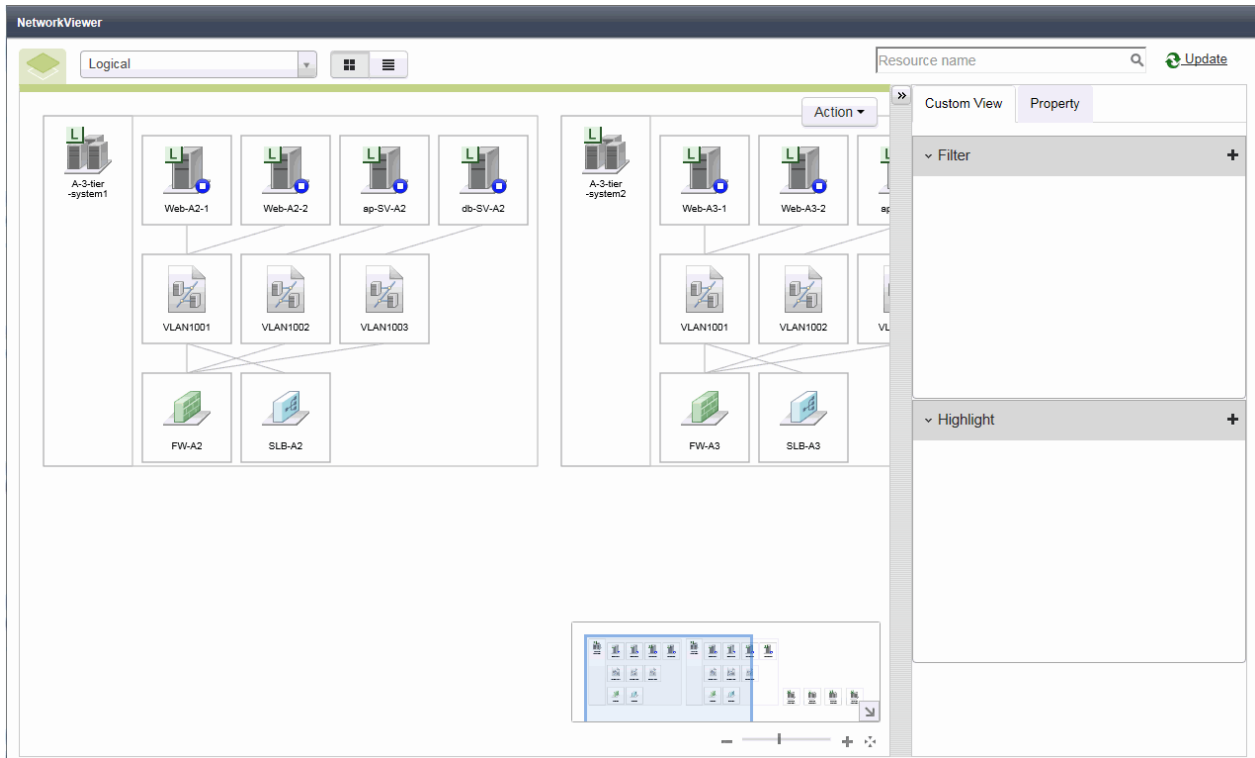


Figure 11.2 NetworkViewer (Logical Network Configuration)



The operations which can be performed using NetworkViewer are shown below.

- Display of network configurations

The following network configurations managed by Resource Orchestrator are displayed.

- Network configuration of physical and virtual servers (including virtual switches and VM guests)
- Network configuration in L-Platforms
- Network configuration of L-Servers
- Monitoring of resource statuses

The following information for resources managed in Resource Orchestrator is displayed.

- Statuses of network links between all resources
- VLAN configuration affecting each physical and virtual server
- Relationships between physical resources, deployed L-Platforms, L-Servers, and network resources
- Resource information

### Information

- The NetworkViewer uses the Web browser's standard fonts and is designed to be viewed in a window of 1200 by 800 pixels or larger. When using a monitor with a higher resolution than this, it is recommended to enlarge the screen size. If the Web browser is resized by a significant amount, the display quality may deteriorate.
- NetworkViewer is updated automatically every ten seconds. To update Network links manually, click the update button.
- When the Ethernet Fabric switch (Converged Fabric) that contains registered LAN switch blade PY CB Eth Switch 10/40Gb 18/8+2 in the hardware component is registered, the name of the switch blade is changed to the port name which corresponds to the Ethernet Fabric switch (Converged Fabric). Moreover, when either port is selected, the port which corresponds to the other L2 switch is selected.

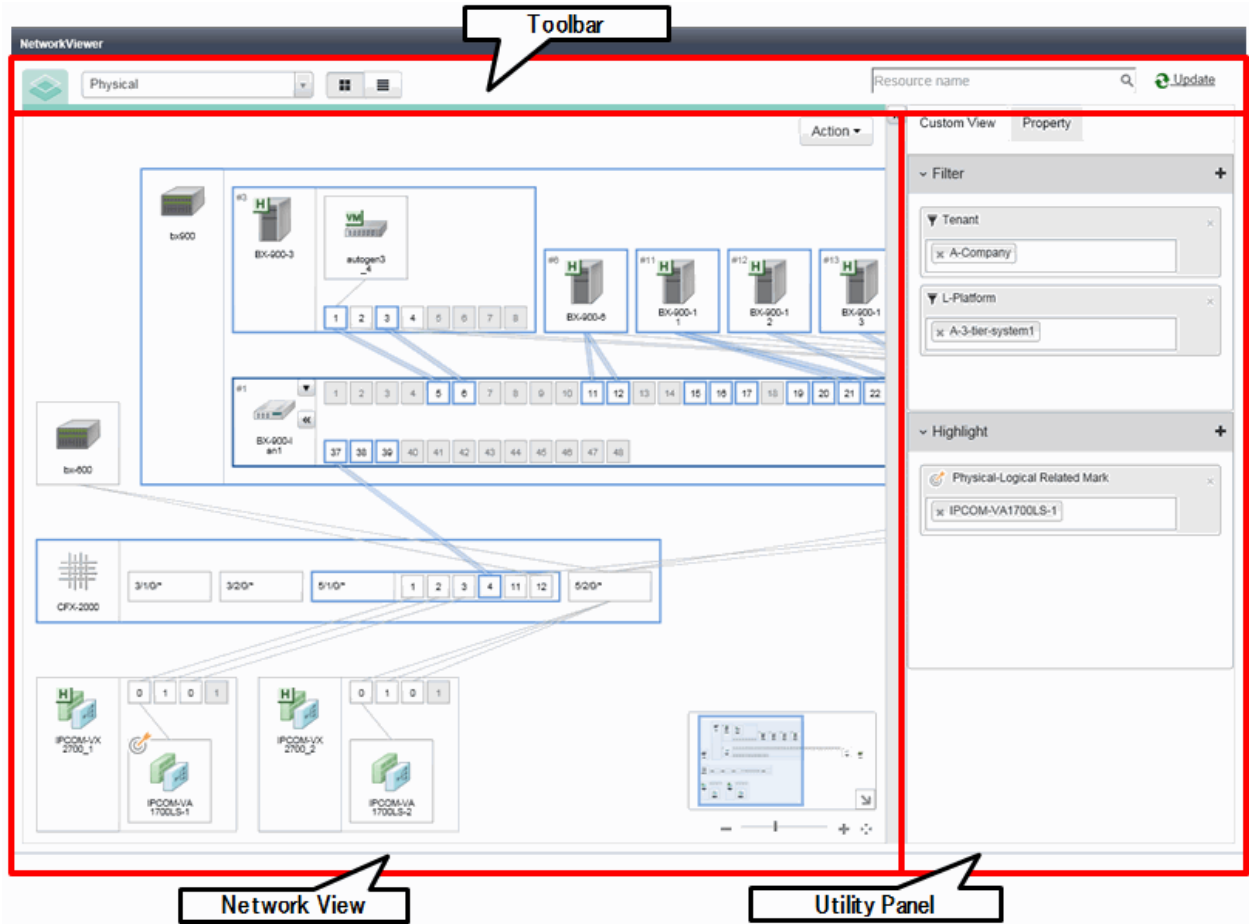
## 11.2 Screen Layout

This section explains NetworkViewer's layout.

### 11.2.1 Layout

The NetworkViewer window consists of the tool bar, the network view, and the utility panel.

Figure 11.3 NetworkViewer Layout



#### 11.2.1.1 Toolbar

The tool bar can be used to operate the network view.

Figure 11.4 Toolbar



This section explains the layout of the tool bar.

#### View Pointer

It is possible to switch between the physical view and the logical view.

#### [Map] Button

Switches from the network view to the map view.

#### [List] Button

Switches from the network view to the list view.

For details on the list view, refer to "[11.2.4 Network View \(Physical List\)](#)" and "[Network View \(Logical List\)](#)"[11.2.5 Network View \(Logical List\)](#)".

#### Resource Search

The area retrieved by the resource name.

#### [Update] Button

Update NetworkViewer to show the latest status.

### 11.2.1.2 Network View

A view to display network configurations or resource lists.

The network view can be displayed in a map view or a list view.

Both the map format view and the list format view have two views: physical view and logical view.

#### - Physical Map

Shows the statuses of registered resources and the network links between them.

For details, refer to "[11.2.2 Network View \(Physical Map\)](#)".

#### - Logical Map

Shows the statuses of logical systems and the network links between them.

For details, refer to "[11.2.3 Network View \(Logical Map\)](#)".

#### - Physical List

Shows the statuses of registered resources and parent resources in a list format.

For details, refer to "[11.2.4 Network View \(Physical List\)](#)".

#### - Logical List

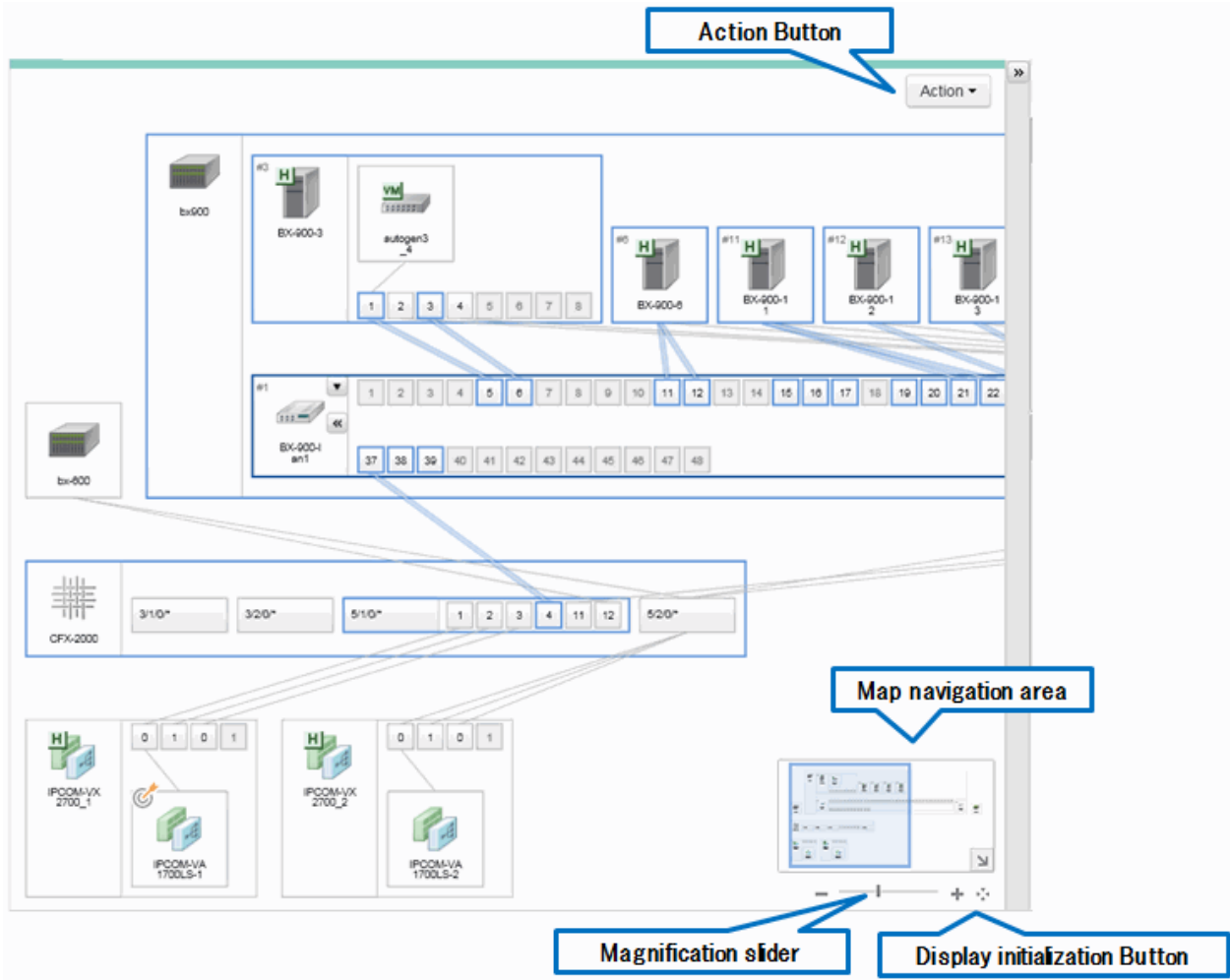
Shows the statuses and types of registered resources in a list format.

For details, refer to "[11.2.5 Network View \(Logical List\)](#)".

For the map view, the window display location can be scrolled by dragging and dropping.



Figure 11.5 Network View



This section explains the Network view's layout.

**[Action] Button**

- Export View Information

This button outputs the network view information as a CSV file.

- Contact List

Displays the tenants to which the target resources belong and the contact information of the users who belong to those tenants.

**Map navigation area**

All areas are displayed, including those that cannot be displayed by the network view.

The arrow button located in the lower right of the map navigation area enables opening and closing of the map navigation area.

By dropping and dragging the display frame in the map navigation area, the display location of the network view can be scrolled in coordination with the frame.

**Magnification Slider**

Maximizes or minimizes the network view.

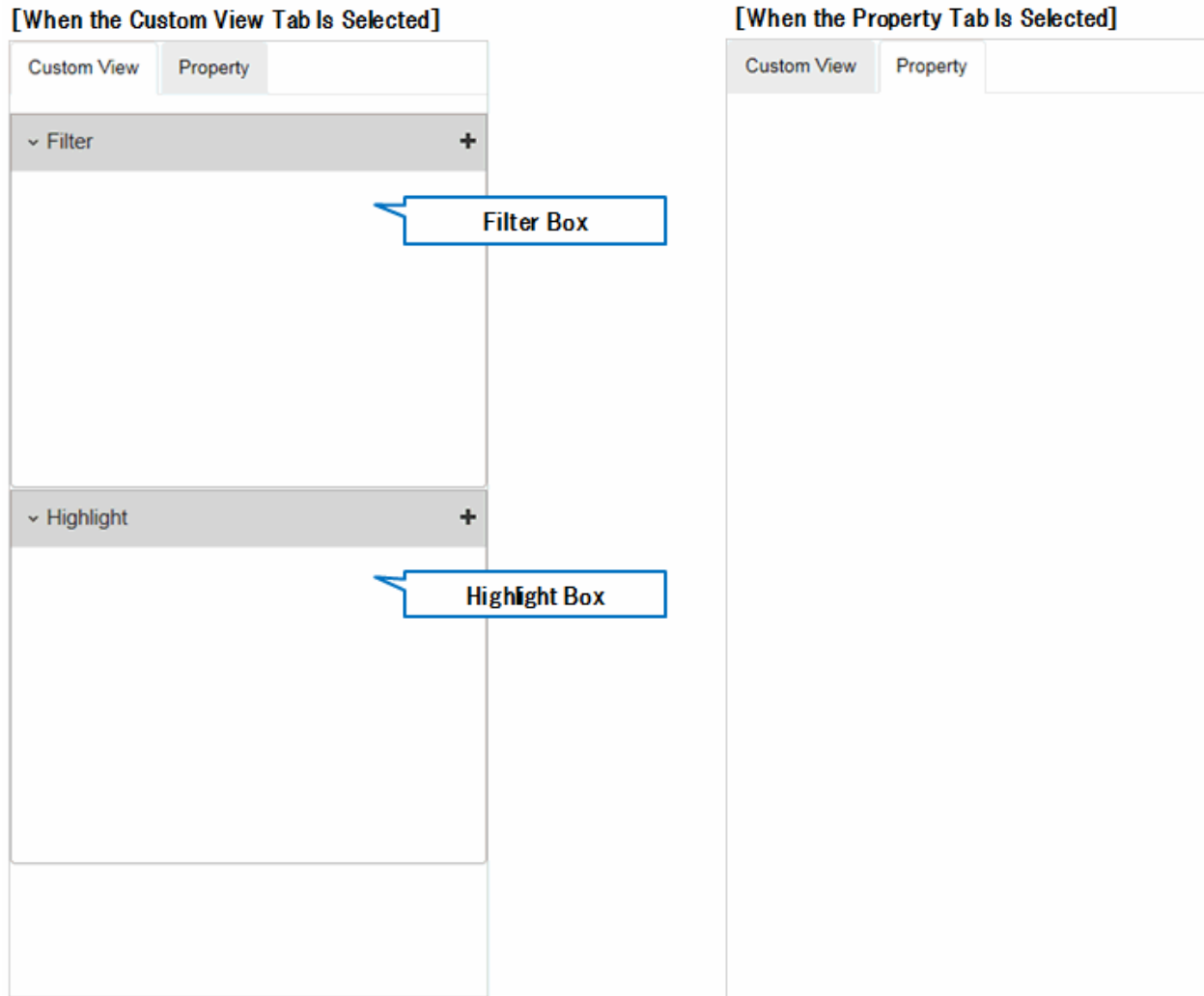
**[Display Initialization] Button**

The button that returns a window that has been moved to its default position.

**11.2.1.3 Utility Panel**

This view is the window to display the detailed information of the condition settings of network view display or resources.

Figure 11.6 Utility Panel



#### Custom View

Use the custom view to filter and highlight resources.  
For details, refer to "[11.2.6 Utility Panel \(Custom View\)](#)".

#### Property

Resource details are displayed.  
For details, refer to "[11.2.7 Utility Panel \(Property\)](#)".

## 11.2.2 Network View (Physical Map)

---

This section describes the information that is displayed in a physical map of the network view.

Initially the following resources managed by Resource Orchestrator and connections between the resources are displayed:

- Chassis
- Servers
- L2 switches
- Network devices

Selecting a resource displays a blue frame around that resource. Adjacent resources are indicated by light blue frames.

When a selected resource is expanded, information about links with other resources and the relations of links with resources in the expanded resource is displayed.

Figure 11.7 Display Example of Network View (Physical Map)

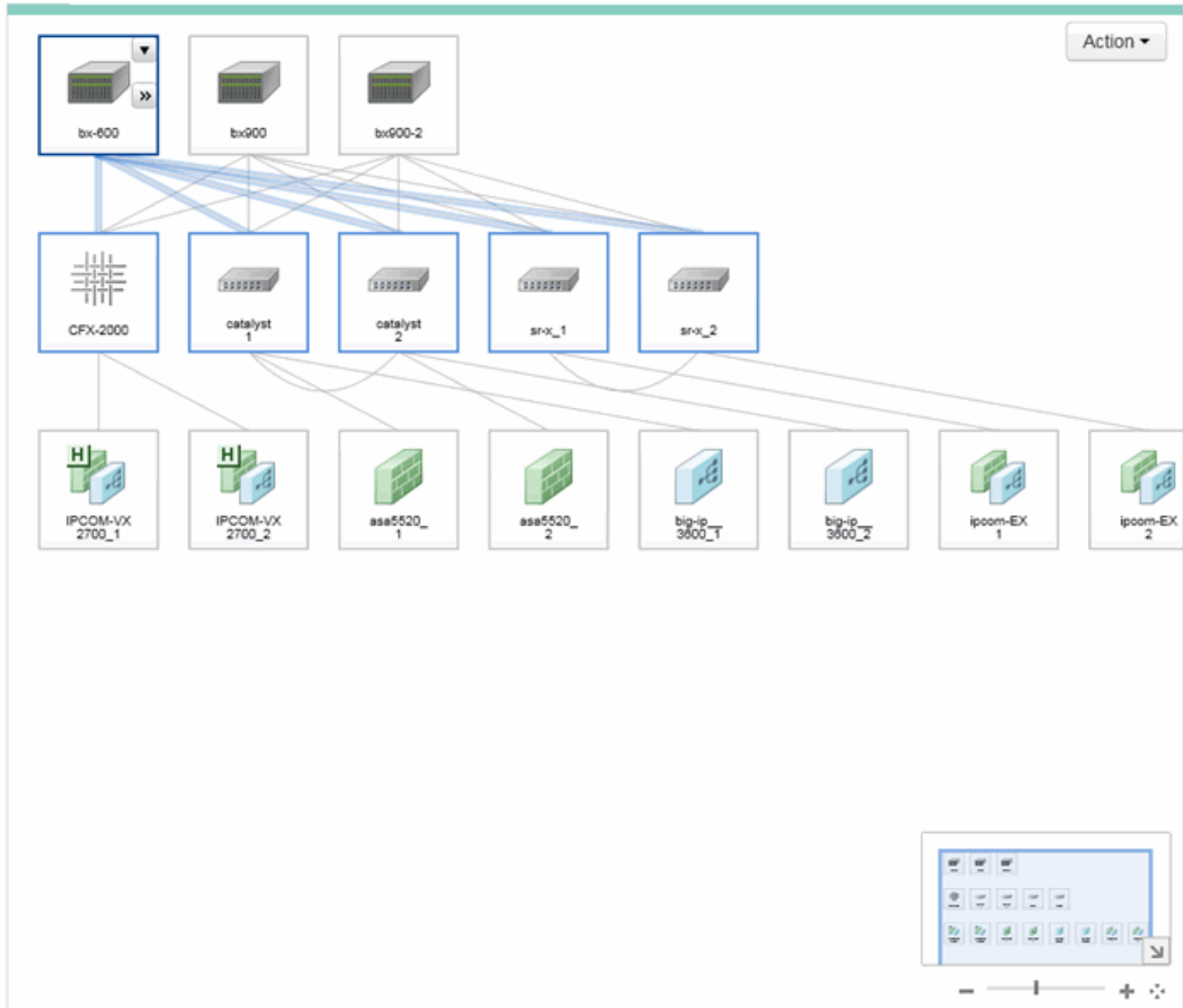
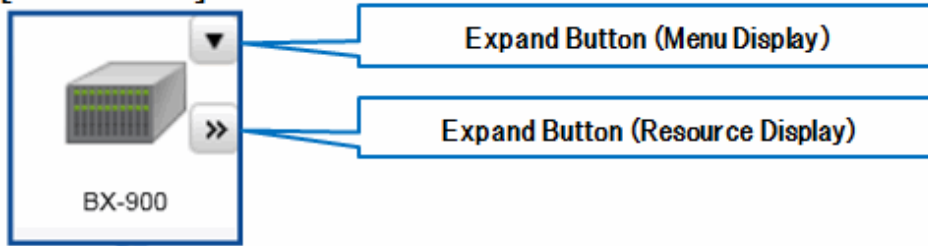
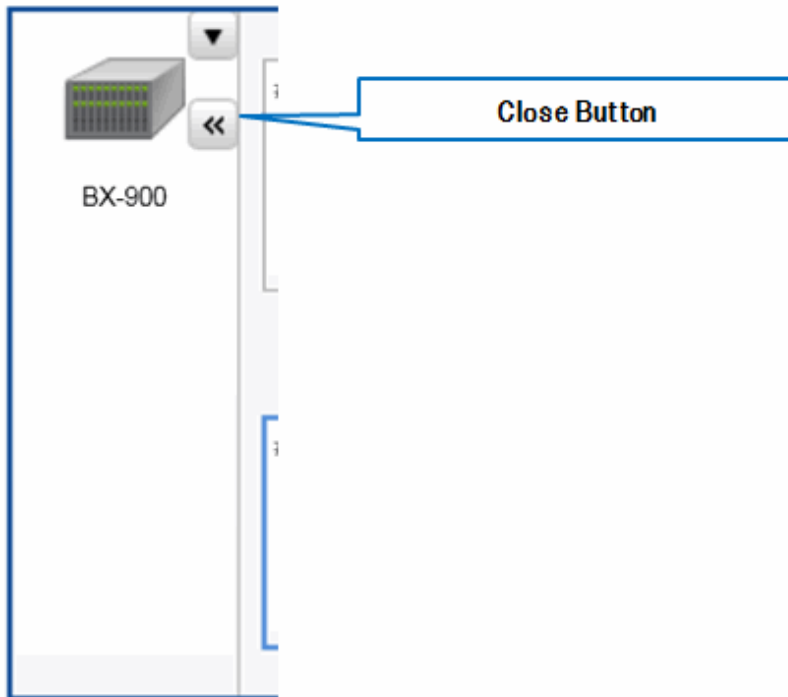


Figure 11.8 Display Example of Resources

**[When Selected]**



**[After Expansion]**



**[Expand] Button**

When the following is selected, the button is displayed on the upper right and to the right of the icon.

When the upper right button ("▼") is clicked, or the icon is right-clicked, the menu is displayed.

When the button on the middle right (">>") is clicked, the content of the resource is expanded.

- Chassis
- Rack mount servers
- Server blades
- LAN switch blades
- VM hosts
- VM guests
- Virtual Switches
- L2 Switches
- Management Hosts (IPCOM VX)
- SLB
- Firewalls

- Integrated network devices
- Ethernet Fabric devices
- Ports in Ethernet Fabric devices

#### [Close] Button

When the button on the middle right ("<<") displayed in the icon of the expanded resource is clicked, the expander of each resource is closed.

### Information

The display format of the network devices displayed in the physical map of the network view may differ depending on the settings specified for network configuration information during resource registration.

- NS Appliances
  - When the admin host IP address (ManagementHost) is specified (The admin IP address of the physical server is specified)  
The NS Appliance is displayed as a child resource of the physical server.
  - When specification of the admin host IP address (ManagementHost) is omitted  
IPCOM VA is displayed as a single network device.
- IPCOM VA
  - When the admin host IP address (ManagementHost) is specified (The admin IP address of the IPCOM VX is specified)  
IPCOM VA is displayed as a child resource of IPCOM VX.
  - When specification of the admin host IP address (ManagementHost) is omitted  
IPCOM VA is displayed as a single network device.

For details on network configuration information, refer to "15.7 Network Configuration Information" in the "Reference Guide (Command/XML) CE".

## 11.2.3 Network View (Logical Map)

---

This section describes the information that is displayed in a logical map of the network view.

The logical map can be displayed using the view pointer.

The logical resources such as L-Platforms and L-Servers that are deployed using the functions of Resource Orchestrator and the information of connections between those logical resources are displayed.

Selecting a resource displays a blue frame around that resource.

Adjacent L-Servers and network resources are indicated by light blue frames.

When a selected resource is expanded, information about links between resources in the expanded resource is displayed.

Figure 11.9 Display Example of Network View (Logical Map)

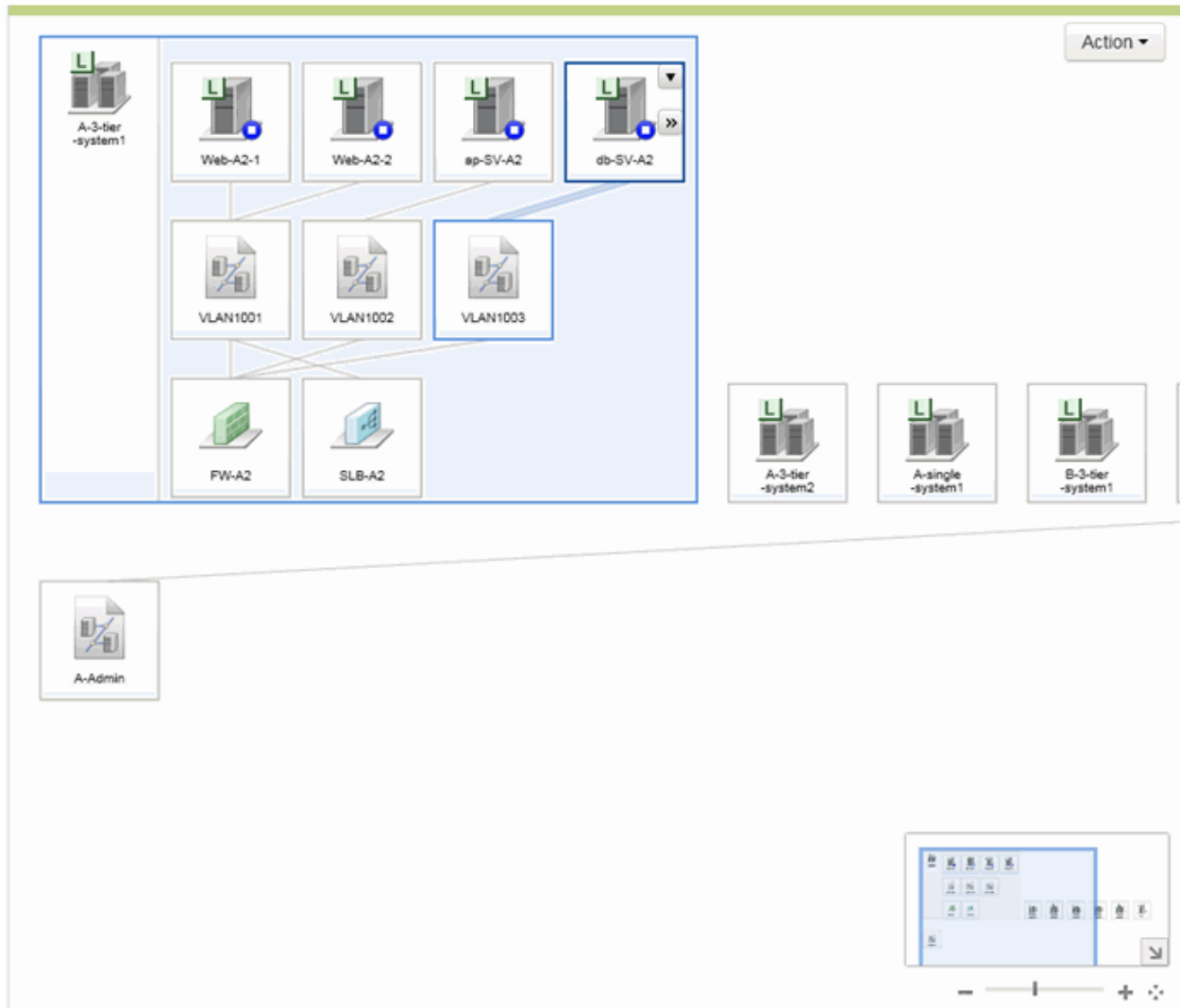
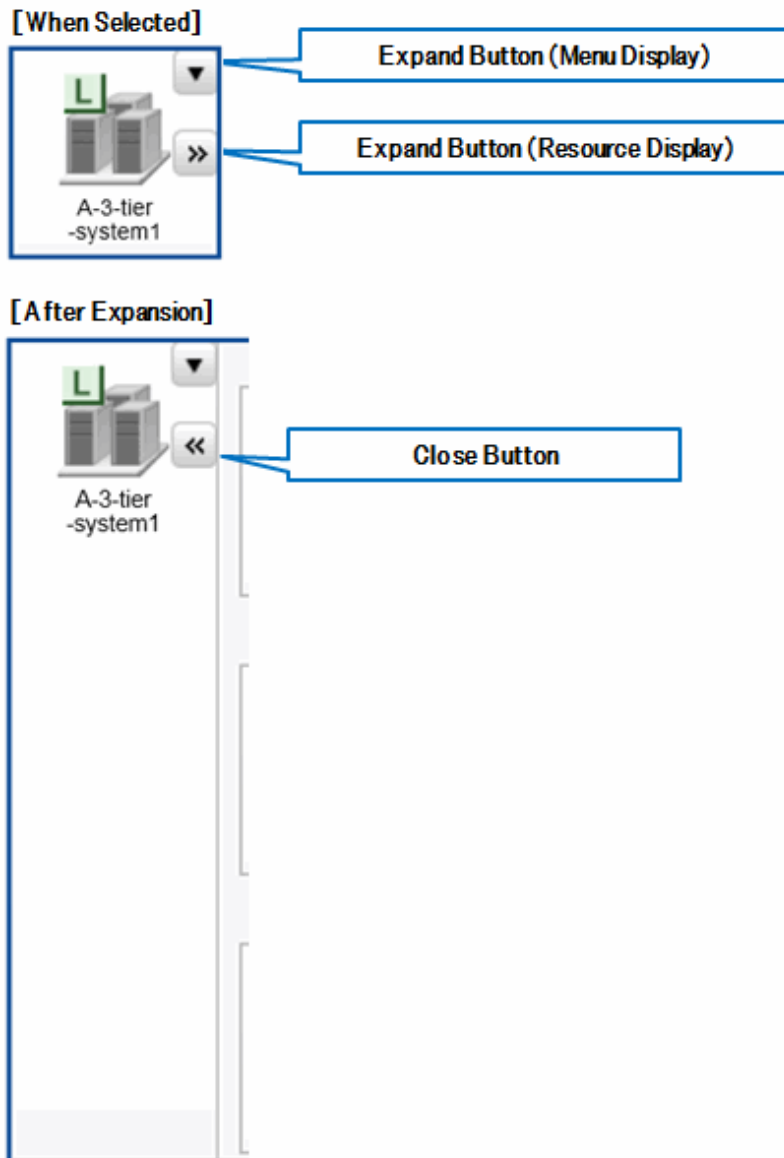


Figure 11.10 Display Example of Resources



**[Expand] Button**

When one of the following resources is selected, two buttons are displayed: one on the upper-right and one on the center-right of the icon.

When the upper right button ("▼") is clicked, or the icon is right-clicked, the menu is displayed.

When the button on the middle right (">>") is clicked, the content of the resource is expanded.

- L-Platforms
- L-Servers

**[Close] Button**

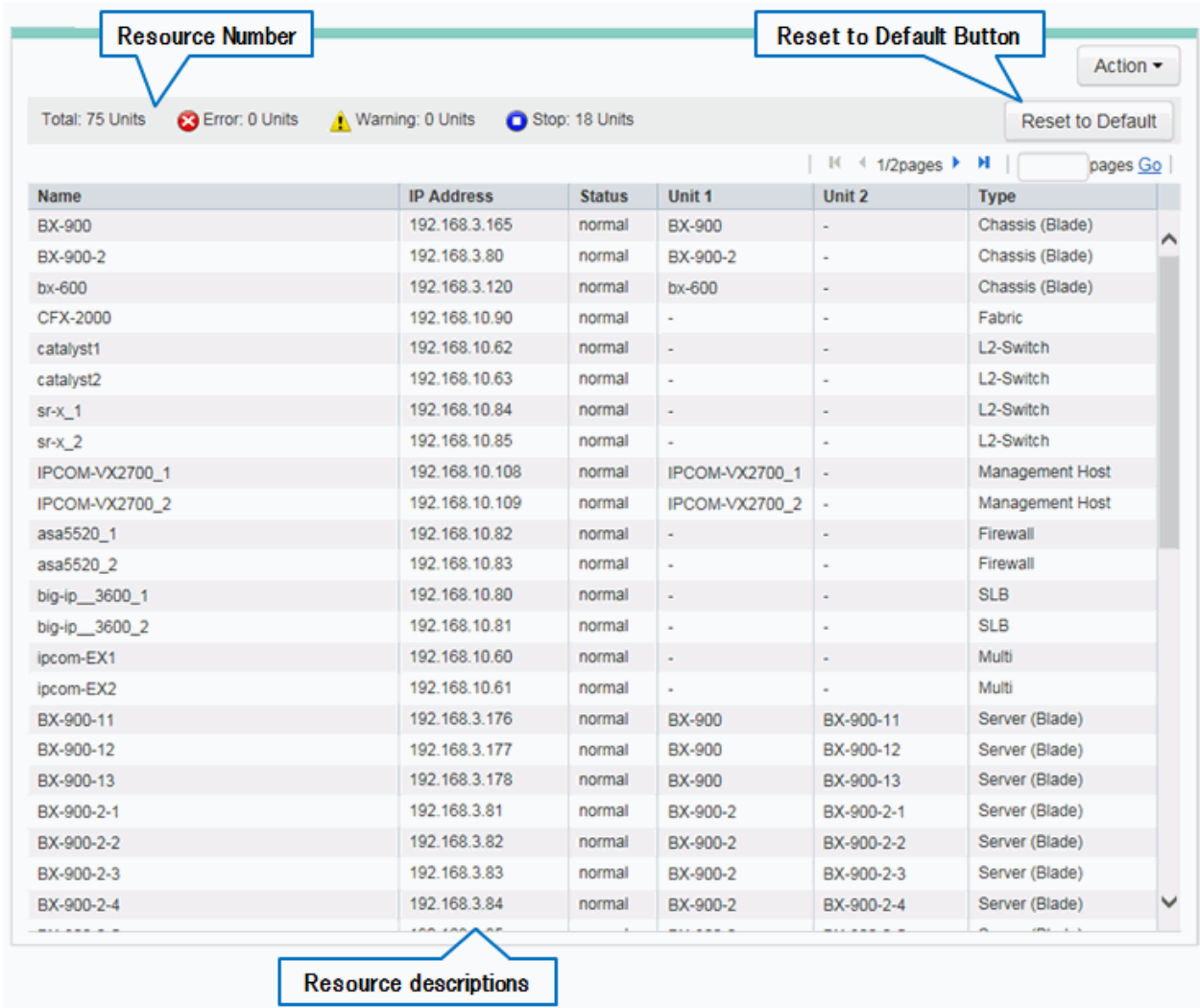
When the button on the middle right ("<<") displayed in the icon of the expanded resource is clicked, the expander of each resource is closed.

## 11.2.4 Network View (Physical List)

---

This section describes the information that is displayed in a physical map of the network view.

Figure 11.11 Display Example of Network View (Physical List)



**Resource Number**

Displays the total number of resources displayed in a physical list as well as the number of each status (Error/Warning/Stop).

**Resource Descriptions**

Displays the resource information in a table format.  
 An explanation of the items in the displayed table is given below.

Table 11.1 Items Displayed in the Network View (Physical List)

Display Item	Description	Example
Name (*1)	The name of the resource is displayed.	bx600-1
IP address	The admin LAN IP address of the resource is displayed. When the resource does not have an admin LAN IP address, "-" is displayed.	192.168.3.121
Device status	The status of the resource is displayed.	normal
Unit 1 (*2)	The name of the unit in which the resource is stored is displayed. When the resource is a standalone physical device, "-" is displayed.	bx600
Unit 2 (*2)	The name of the unit in which the resource is stored is displayed. Displayed for indicating the chassis that exists in [Unit1]. When the resource is a standalone physical device or when the resource is stored in [Unit1], "-" is displayed.	bx600-1
Category	One of the following is displayed as the resource type:	Server (Blade)



Display Item	Description	Example
	<ul style="list-style-type: none"> <li>- For chassis Chassis (Blade)</li> <li>- For blade servers Server (Blade)</li> <li>- For LAN switch blades L2-Switch (Blade)</li> <li>- For VM guests VM Guest</li> <li>- For virtual switches VM Switch</li> <li>- For rack mount servers Server (Rack)</li> <li>- For chassis (PRIMEQUEST) Chassis (Partition)</li> <li>- For servers (PRIMEQUEST) Server (Partition)</li> <li>- For L2 switches L2-Switch</li> <li>- For firewalls Firewall</li> <li>- For SLBs SLB</li> <li>- For integrated network devices Multi</li> <li>- For Ethernet fabric devices Fabric</li> <li>- For management hosts (IPCOM VX) Management Host</li> <li>- For firewalls (virtual appliances) Firewall (Virtual)</li> <li>- For server load balancers (virtual appliances) SLB (Virtual)</li> <li>- For integrated network devices (virtual appliances) Multi(Virtual)</li> </ul>	

\*1: When the resource status is "Error", "Warning", or "Stop", or when a "physical-logical relationship icon" is displayed for the resource, the corresponding status icon or the physical-logical relationship icon is displayed for that resource.

\*2: For the resources that form a three-tier system (Unit1->Unit2->Resource), corresponding resource name is displayed in the "Name", "Unit1", and "Unit2" fields. For the resources that form a two-tier system (Unit1->Resource), corresponding name is displayed in the "Name" and "Unit1" fields and "-" is displayed in the "Unit2" field.



## Example

- When displaying a VM guest (in a three-tier system)

The VM guest name, chassis name, and the VM host name are displayed in the "Name", "Unit1", and "Unit2" fields, respectively.

- When displaying IPCOM VA (in a two-tier system)

The name of the IPCOM VA, the name of the admin host (IPCOM VX), and "-" are displayed in the "Name", "Unit1", and "Unit2" fields, respectively.

### Information

Clicking a column label in the physical list will sort the displayed resources in ascending or descending order.

However, the lines of the resources for which "-" is displayed under the clicked column label are always displayed in the lower part of the list.

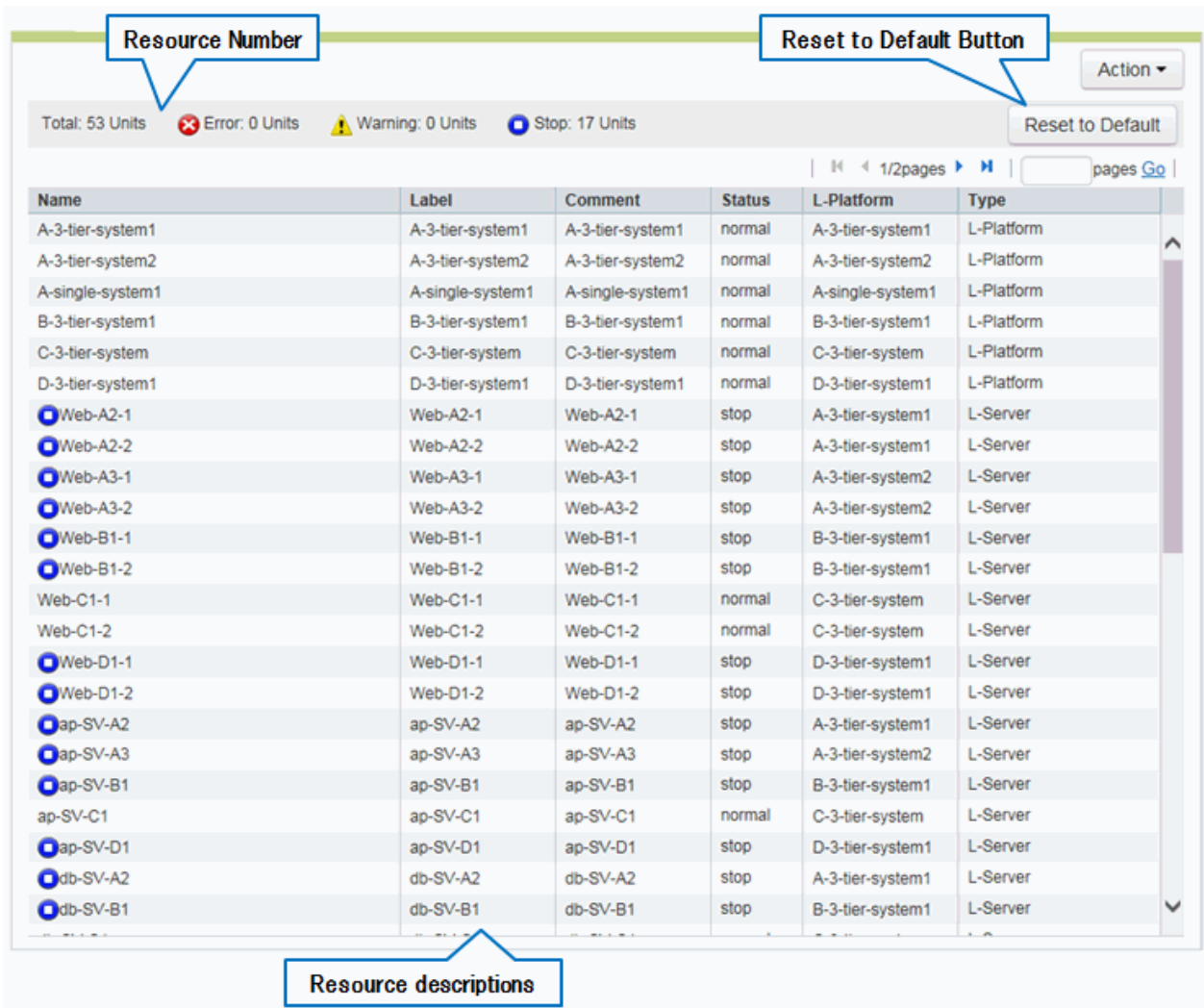
#### [Reset to Default] Button

Returns the displayed physical list to its initial state.

## 11.2.5 Network View (Logical List)

This section describes the information that is displayed in a logical list of the network view.

Figure 11.12 Display Example of Network View (Logical List)



**Resource Number**

**Reset to Default Button**

Name	Label	Comment	Status	L-Platform	Type
A-3-tier-system1	A-3-tier-system1	A-3-tier-system1	normal	A-3-tier-system 1	L-Platform
A-3-tier-system2	A-3-tier-system2	A-3-tier-system2	normal	A-3-tier-system2	L-Platform
A-single-system1	A-single-system 1	A-single-system1	normal	A-single-system1	L-Platform
B-3-tier-system1	B-3-tier-system1	B-3-tier-system1	normal	B-3-tier-system 1	L-Platform
C-3-tier-system	C-3-tier-system	C-3-tier-system	normal	C-3-tier-system	L-Platform
D-3-tier-system1	D-3-tier-system1	D-3-tier-system1	normal	D-3-tier-system 1	L-Platform
Web-A2-1	Web-A2-1	Web-A2-1	stop	A-3-tier-system 1	L-Server
Web-A2-2	Web-A2-2	Web-A2-2	stop	A-3-tier-system 1	L-Server
Web-A3-1	Web-A3-1	Web-A3-1	stop	A-3-tier-system2	L-Server
Web-A3-2	Web-A3-2	Web-A3-2	stop	A-3-tier-system2	L-Server
Web-B1-1	Web-B1-1	Web-B1-1	stop	B-3-tier-system 1	L-Server
Web-B1-2	Web-B1-2	Web-B1-2	stop	B-3-tier-system 1	L-Server
Web-C1-1	Web-C1-1	Web-C1-1	normal	C-3-tier-system	L-Server
Web-C1-2	Web-C1-2	Web-C1-2	normal	C-3-tier-system	L-Server
Web-D1-1	Web-D1-1	Web-D1-1	stop	D-3-tier-system 1	L-Server
Web-D1-2	Web-D1-2	Web-D1-2	stop	D-3-tier-system 1	L-Server
ap-SV-A2	ap-SV-A2	ap-SV-A2	stop	A-3-tier-system 1	L-Server
ap-SV-A3	ap-SV-A3	ap-SV-A3	stop	A-3-tier-system2	L-Server
ap-SV-B1	ap-SV-B1	ap-SV-B1	stop	B-3-tier-system 1	L-Server
ap-SV-C1	ap-SV-C1	ap-SV-C1	normal	C-3-tier-system	L-Server
ap-SV-D1	ap-SV-D1	ap-SV-D1	stop	D-3-tier-system 1	L-Server
db-SV-A2	db-SV-A2	db-SV-A2	stop	A-3-tier-system 1	L-Server
db-SV-B1	db-SV-B1	db-SV-B1	stop	B-3-tier-system 1	L-Server

**Resource descriptions**

#### Resource Number

Displays the total number of resources displayed in a logical list as well as the number of each status (Error/Warning/Stop).

## Resource Descriptions

Displays the resource information in a table format.  
 An explanation of the items in the displayed table is given below.

**Table 11.2 Items Displayed in the Network View (Logical List)**

Display Item	Description	Example
Name (*1)	The name of the resource is displayed.	Web-A2-1
Label	The label displayed on the [Resource] tab of the ROR console is displayed. When the label is not configured, "-" is displayed.	Web1-1
Comment	The comment displayed on the [Resource] tab of the ROR console is displayed. When the comment is not configured, "-" is displayed.	Web1-1
Device status	The status of the resource is displayed.	stop
L-Platform	The name of the L-Platform on which the resource is deployed is displayed.	A-3tier-system1
Category	One of the following is displayed as the resource type:  - For L-Platforms L-Platform  - For L-Servers L-Server  - For network resources Network Resource  - For firewalls Firewall  - For SLBs SLB	L-Server

\*1: When the resource status is "Error", "Warning", or "Stop", or when a "physical-logical relationship icon" is displayed for the resource, the corresponding status icon or the physical-logical relationship icon is displayed for that resource.

### Information

Clicking a column label in the logical list will sort the displayed resources in ascending or descending order.

However, the lines of the resources for which "-" is displayed under the clicked column label are always displayed in the lower part of the list.

### [Reset to Default] Button

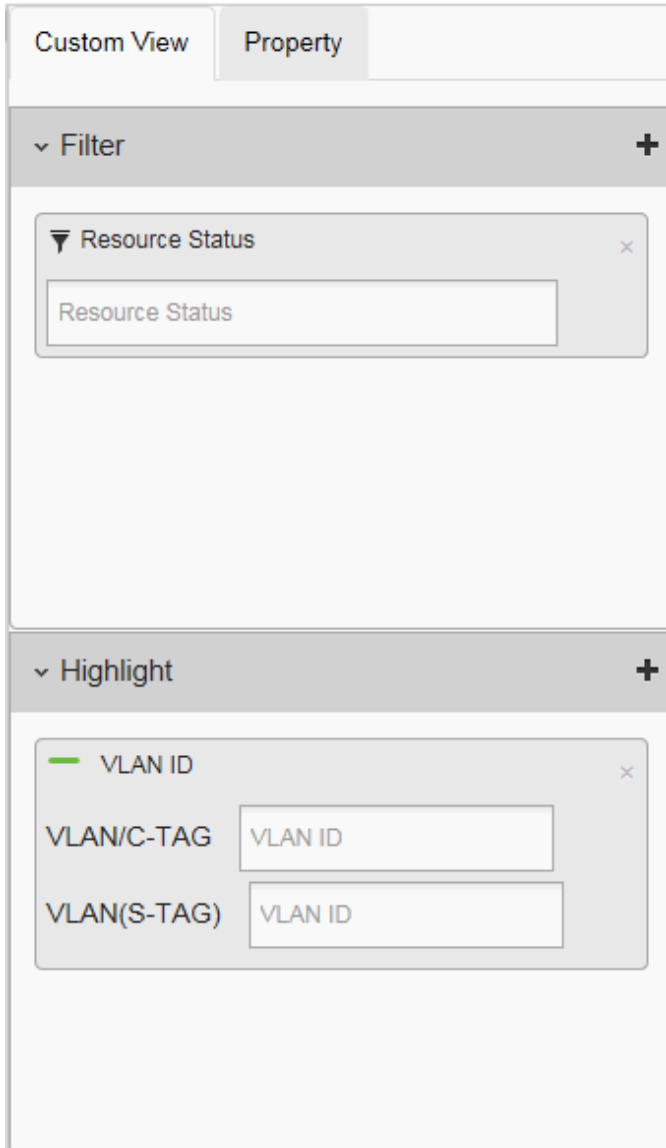
Returns the displayed logical list to its initial state.

## 11.2.6 Utility Panel (Custom View)

This section explains the custom view of the utility panel.

Initially two boxes are displayed: Filter and Highlight.

Figure 11.13 Display Example of Utility Panel (Custom View)



#### Filter

Only the resources that meet the specified conditions can be displayed.

#### Highlight

Only the resources that meet the specified conditions can be highlighted.

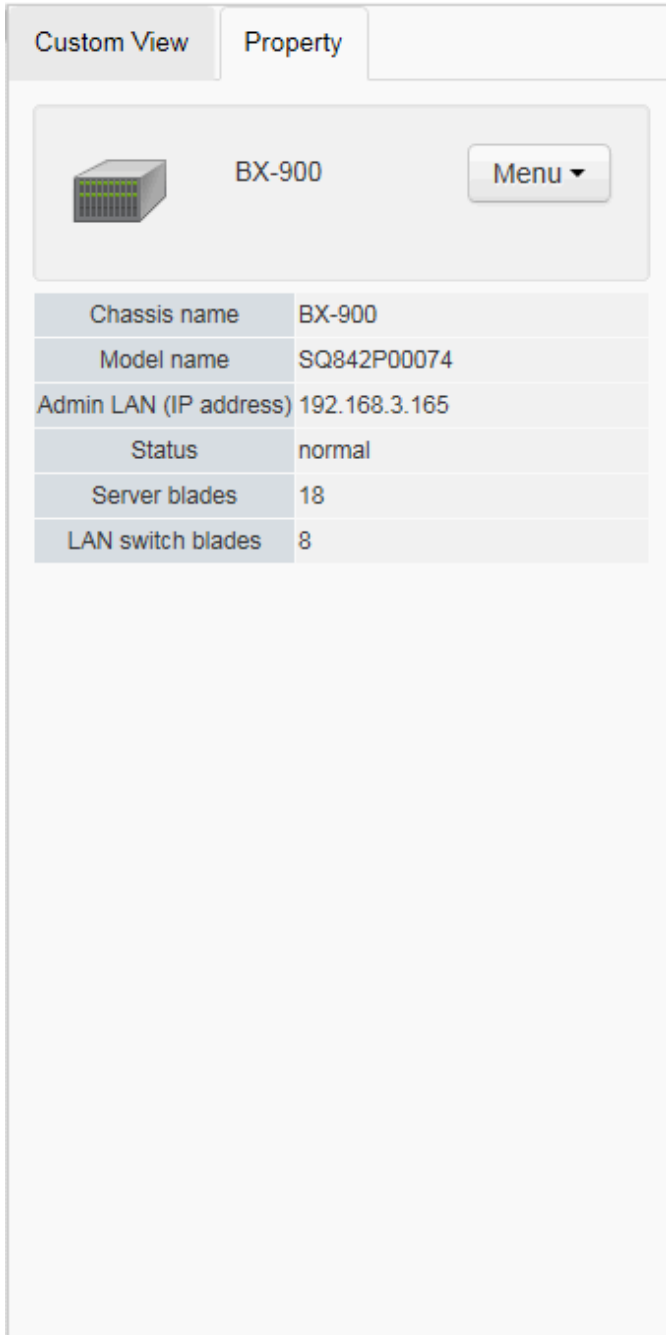
### 11.2.7 Utility Panel (Property)

---

This section explains the properties of the utility panel.

When the resources displayed in the network view are clicked, the detailed information of those resources is displayed.

Figure 11.14 Display Example of Utility Panel (Property)



#### Menu

An operation menu for resources with the detailed information displayed.

#### Open/Close Configuration

When the resource is closed, the content of the resource is expanded.

When the resource is expanded, the resource is closed.

#### Route from here

Represents a resource as the starting point of a point-to-point route search.

#### Route to here

Represents a resource as the end point of a point-to-point route search.

### Route Search

Searches the route between two points from the starting point to the end point.

### Physical-Logical Relationship Icon

The displayed resource is linked with other resources.

### Cancel of Physical-Logical Relationship Icon

Cancels linking of the displayed resource with other resources.

### Contact List (Selected Resource)

The contact information of the logical resource related to the displayed resource is displayed.

The physical view displays information on the following resources:

- Chassis
- Servers
- LAN switch blades
- VM hosts
- VM guests
- L2 switches
- Management hosts (IPCOM VX)
- Firewalls
- SLB
- Ethernet Fabric devices
- Ports of network devices
- Ports of LAN switch blades
- L2 switch ports
- Server NICs (including VM Hosts)
- Integrated network devices

The logical view displays information on the following resources:

- L-Platforms
- L-Servers
- Network resources
- Firewalls
- SLB

Depending on the selected resources, it is possible to search the following:

- When a LAN switch blade in IBP mode is selected  
Port Groups
  - When an Ethernet fabric switch (Converged Fabric) is selected  
Virtual Fabrics
  - When an SLB deployed to an L-Platform is selected  
Load balancing target servers
- Note that the target of this function is limited to SLBs which use IPCOM EX series as physical resources and for which an L-Platform has been deployed using the sample script for IPCOM EX series without modification.














## 11.2.8 Resource Icons

This section describes the icons used to represent resource statuses on NetworkViewer.

### 11.2.8.1 Resource Display

The following table details the resource statuses associated with each icon.

Table 11.3 Resource Icons

Icon	Meaning
	Chassis
	Server
	LAN switch blade
	LAN switch blade in IBP mode
	LAN switch blade in VCS mode
	LAN switch blade in Converged Fabric mode
	VM host
	VM guest
	Virtual switch
	L2 switch
	Management host (IPCOM VX)
	SLB (Server Load Balancer)
	Firewall












Icon	Meaning
	Integrated network device
	Ethernet Fabric device
	L-Platform
	L-Server
	Network resource connected to L-Servers
	Firewall resource
	SLB resource

Table 11.4 Resource Status Icons

Icon	Status	Meaning
	normal	No new errors, warnings, or stops were detected.
	warning	A warning was detected.
	unknown	The status could not be obtained.
	error	An error was detected.
	fatal	A fatal error was detected, the resource is now unusable.
	stop	The resource was detected to have been powered off.



- For the logical resources related to multiple physical resources (network, firewall, and SLB resources), the highest priority status of the corresponding physical resources is displayed.

Priority levels of status are as shown below:

(High Priority) fatal > error > unknown > warning > stop > normal (Low Priority)

- For virtual switches, the status of the VM host to which they belong is displayed.

Table 11.5 Physical-Logical Relationship Icon


Icon	Meaning
	Visualization target of physical resources and logical resources

Table 11.6 Search Target Icon


Icon	Meaning
	Represents the target for searches of resources.

Table 11.7 Point-to-Point Route Search Icon



Icon	Meaning
	Represents the resource as the starting point of a route search.
	Represents the resource as the end point of a route search.

Table 11.8 Port Icons






Icon	Meaning
	Connected port
	Not connected port

Table 11.9 Port Status Icons

Icon	Status	Meaning
	normal	No ports with "error" or "disabled" status were detected. The state of the port is always displayed as normal status for LAN switch blades that operate in Converged Fabric mode or LAN switch blade PY CB 10Gb FEX Nexus B22.
	error	An error was detected from the port (e.g. the opposite port of the NIC, L2 switch, or Ethernet Fabric was disabled, or the cable between this link and its opposite port or NIC was disconnected). When ports of a network device other than a LAN switch blade are disabled, the state of the port is displayed as error.
	disabled	The port was detected to have been disabled (offline).

For the ports of the following resources, the status of the resource to which they belong is displayed.


- Servers
- VM guests
- Virtual switches
- L-Servers



## 11.2.8.2 Other Icons

The following tables detail the icons displayed in the NetworkViewer.

Table 11.10 Admin Server Icon

Icon	Status	Meaning
	Admin server	Indicates the server used as the admin server.

## 11.2.9 Network Links

This section explains the network links displayed in the NetworkViewer.

### 11.2.9.1 Link Display (Physical Map)

The following table details the physical and virtual links displayed between resources.

The color of links changes depending on resource status, VLAN search status, and the selection state of resources.

Table 11.11 Links related to Unselected Resources









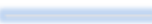







Status	Default/VLAN	Link	Meaning
normal	Default		Represents a physical or virtual link.
	Selecting VLAN		
error	Default		Represents a link with an error status (e.g. an error occurred in the LAN switch blade or L2 switch port, or the cable between this link and its opposite port or NIC is disconnected).
	Selecting VLAN		
warning	Default		When error status is found in some links among multiple links connecting resources, the warning status is shown.
	Selecting VLAN		
disabled	Default		Represents a disabled port.
	Selecting VLAN		

Table 11.12 Links related to the Selected Resource

Status	Default/VLAN	Link	Meaning
normal	Default		Represents a physical or virtual link.
	Selecting VLAN		
error	Default		Represents a link with an error status (e.g. an error occurred in the LAN switch blade or L2 switch port, or the cable between this link and its opposite port or NIC is disconnected).
	Selecting VLAN		

Status	Default/VLAN	Link	Meaning
warning	Default		When error status is found in some links among multiple links connecting resources, the warning status is shown.
	Selecting VLAN		
disabled	Default		Represents a disabled port.
	Selecting VLAN		

### 11.2.9.2 Link Display (Logical Map)

The connection relationships (topology) between resources are displayed as shown below.

The color of links changes depending on the VLAN search status and the selection states of resources.

In the logical view, the link status does not change depending on the resource status.

Table 11.13 Links related to Unselected Resources



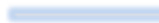

Default/VLAN	Link	Meaning
Default		Represents the connection relationship between resources.
Selecting VLAN		

Table 11.14 Links related to the Selected Resource

Default/VLAN	Link	Meaning
Default		Represents the connection relationship between resources.
Selecting VLAN		

## 11.3 Operations

This section explains operation of NetworkViewer.

### 11.3.1 Starting NetworkViewer

The procedure to start the NetworkViewer is as given below.

1. Start the ROR console.
2. Click the [NetworkViewer] button displayed in the upper right of the [Resource] tab of the ROR console. NetworkViewer is displayed in another window.  
When starting the network view, the physical map is displayed in the network view.

Initially the physical map displays the following resources and the connections between them:

- Chassis
- Servers
- L2 switches
- Network devices

### 11.3.2 Display Switchover of Network View (Map View and List View)

The network view can be switched by clicking the [Map] button or the [List] button in the NetworkViewer tool bar.

- When switching from the map view to the list view.  
Click the [List] button.
- When switching from the list view to the map view  
Click the [Map] button.

When starting NetworkViewer, the physical map is displayed in the network view.

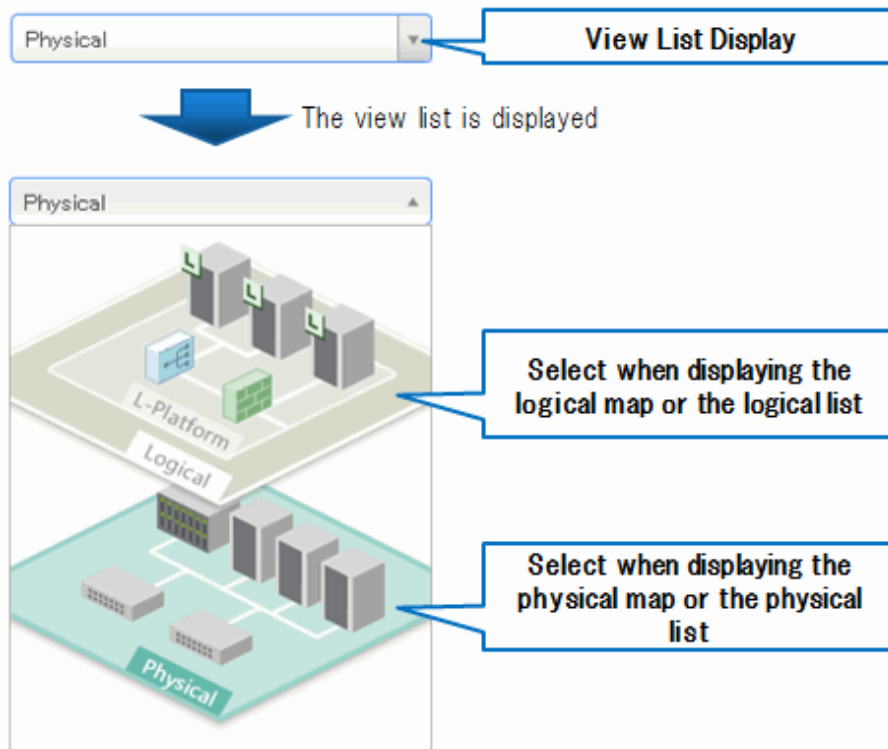
### 11.3.3 Display Switchover of Network View (Physical View and Logical View)

The network view can be switched using the view pointer in the NetworkViewer tool bar.

The procedure to switch over the physical and logical views is as given below.

1. Click the view list display ("▼") of the view pointer to display the view list.
2. Select the view to display.
  - To display the physical map or the physical list  
Select "Physical".
  - To display the logical map or the logical list  
Select "Logical".

Figure 11.15 Switchover Operations Using View Pointer



Initially the logical map displays the following resources and the information of links between them:

- L-Platforms
- L-Servers
- Network resources

#### How to Disable the Animation Function

To disable view pointer animation and the animation performed when switching views, it is necessary to add a definition to the definition file.

### Location of the Definition File

[Windows Manager]  
*Installation\_folder*\SVROR\Manager\etc\customize\_data

[Linux Manager]  
/etc/opt/FJSVrcvnr/customize\_data

### Definition File Name

network\_viewer.rcxprop

When the definition file does not exist, create one.

### Format of the Definition File

Specify the definition file in the following format:

```
view_pointer_animation=usage of animation
```

#### *Usage of Animation*

on

Specify this to enable animation.

off

Specify this to disable animation.

When omitted, it is set to "on".



### Example

```
view_pointer_animation=on
```

## 11.3.4 Resource Search

---

Resources can be searched using the [Resource Search] box in the NetworkViewer tool bar.



### Point

Resource search enables you to easily check the resources related to specific resources or the network configurations centering on specific resources.

The procedures to search resources are as given below.

- When the user knows the resource name to search for
  1. Enter the target resource name in the [Resource Search] box.
  2. Clicking the [Enter] key displays the network view with the target resource located in the center of the window.  
The resource to search is displayed with the search target icon.
- When the user does not know the resource name to search for
  1. Entering characters in the [Resource Search] box displays a list of the resources managed by Resource Orchestrator that have names partially matching the entered characters.

2. Select the target resource name from the displayed list.  
The network view is displayed with the selected resource in the center of the window.  
The resource to search is displayed with the search target icon.

Figure 11.16 Example of a Search Resources Partially Matched Operation

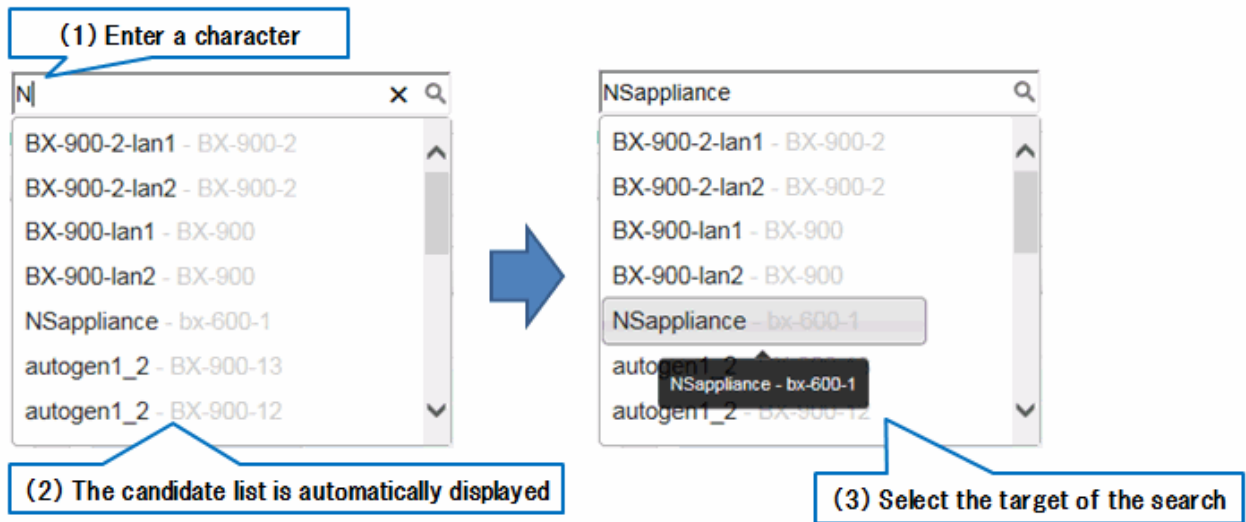
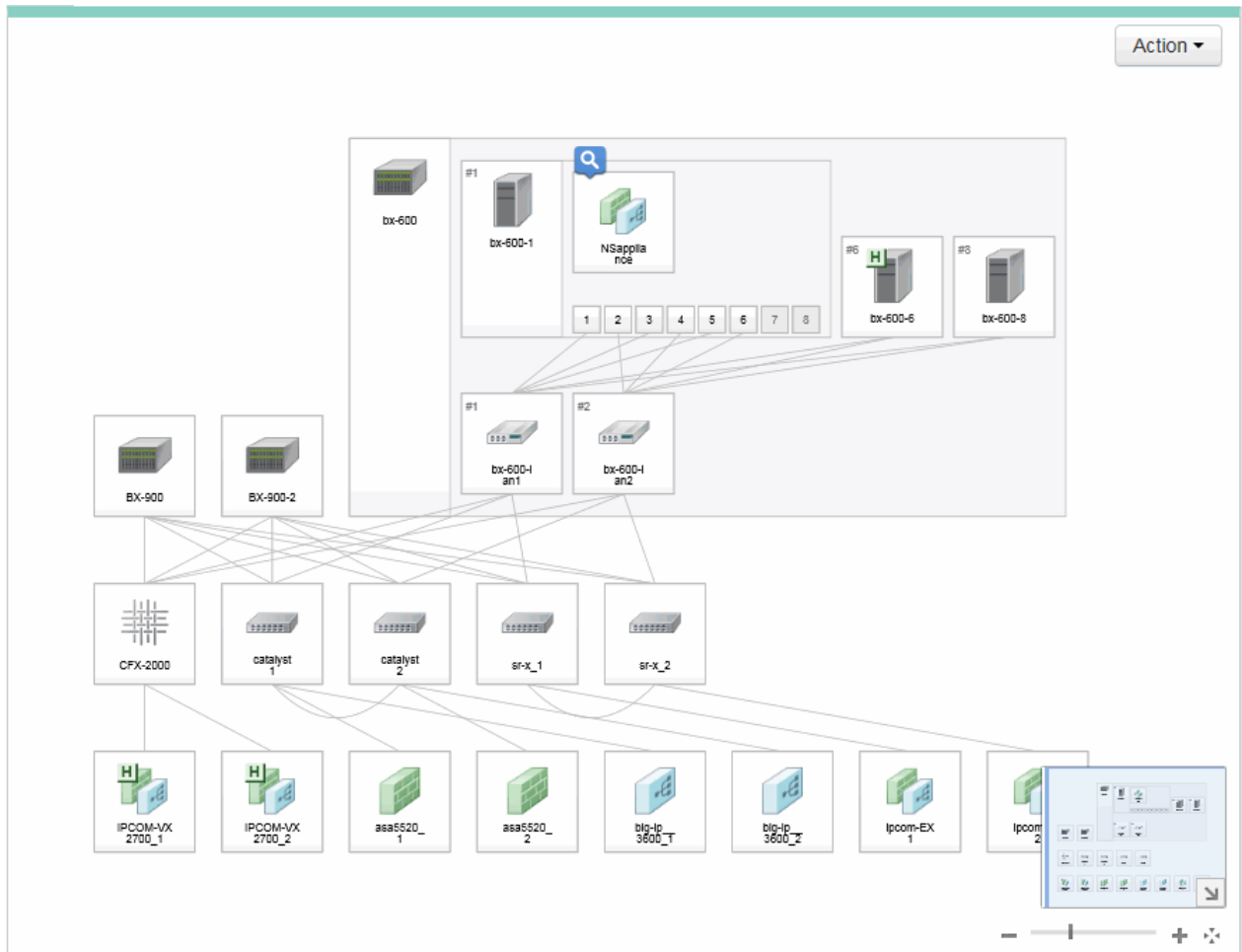


Figure 11.17 Example of Network View Display after Resource Search



### 11.3.5 Filtering Resources to Display

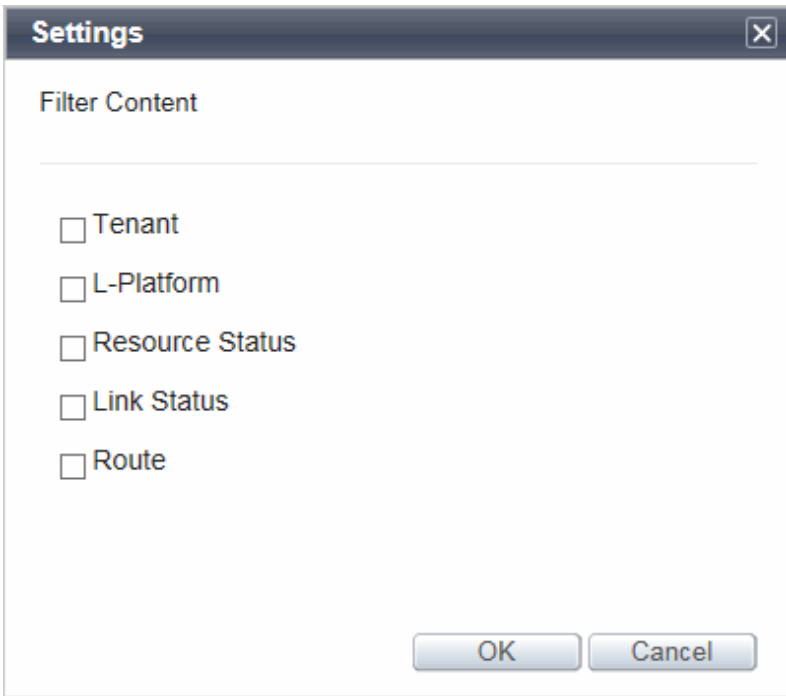
Filtering of the utility panel (custom view) of the NetworkViewer enables display of only the resources that meet the specified conditions.

Even if there are a large number of managed resources, the time to check during operations can be shortened, as the resources to display can be filtered.

The procedure to filter displayed resources is given below.

1. The settings window is displayed by clicking the [+] button in the upper right of the label in the filter box.

Figure 11.18 Filter Settings Window



2. Check the items to configure as the filtering conditions.
3. Click the [OK] button.
4. The input field for the item for filtering checked in the filter box in step 2 is displayed.
5. Clicking the input field displays a pull-down list.  
Select a filtering condition from the pull-down list to display only the resources that meet that condition.

Physical resources that are not allocated to the L-Platform or L-Server are not displayed in the pull-down list for Related Resources.

Resources can be filtered using the following conditions:

- Tenant  
Only the resources that belong to the specified tenant are displayed.
- L-Platform  
Only the resources that belong to the specified L-Platform are displayed.
- Resource Status  
Only the resources that match the specified resource status are displayed.
- Link Status  
Only the links that match the specified link status are displayed.

- Route Search

Enables you to search for routes between two resources.  
For details, refer to "[11.3.10 Point-to-Point Route Search](#)".

## Information

---

- When multiple conditions are specified in the item for filtering, resources meeting any of the conditions are displayed.
- When multiple items for filtering are checked, the resources meeting all conditions of items for filtering are displayed.
- For resources with parent-child relationships, when the child resource meets the conditions, the parent resource is displayed regardless of the conditions.

## Example

---

Example of resource statuses

- When the status of the VM host is "normal"
- When the status of the VM guest is "error"

In the above status, when "error" is configured as one of conditions for the resource status, both the VM guest and the VM host are displayed.

---

- Correlations between the tenant and the L-Platform
  - When the tenant and the L-Platform are specified as the items for filtering.  
Priority is given to the conditions specified for the tenant.  
Therefore, L-Platforms which do not belong to the tenant are not displayed.
  - When only the L-Platform is specified as the item for filtering

The tenant to which the L-Platform specified as the tenant condition of the item for filtering belongs to is automatically added.

---

## 11.3.6 Highlight Display of Resources

---

Using highlighting from the utility panel (custom view) in the NetworkViewer enables highlighting of only the resources that meet the specified conditions.

## Point

---

In a complicated network configuration, since the related routes can be visibly checked by highlighting, the time taken for check operations can be shortened.

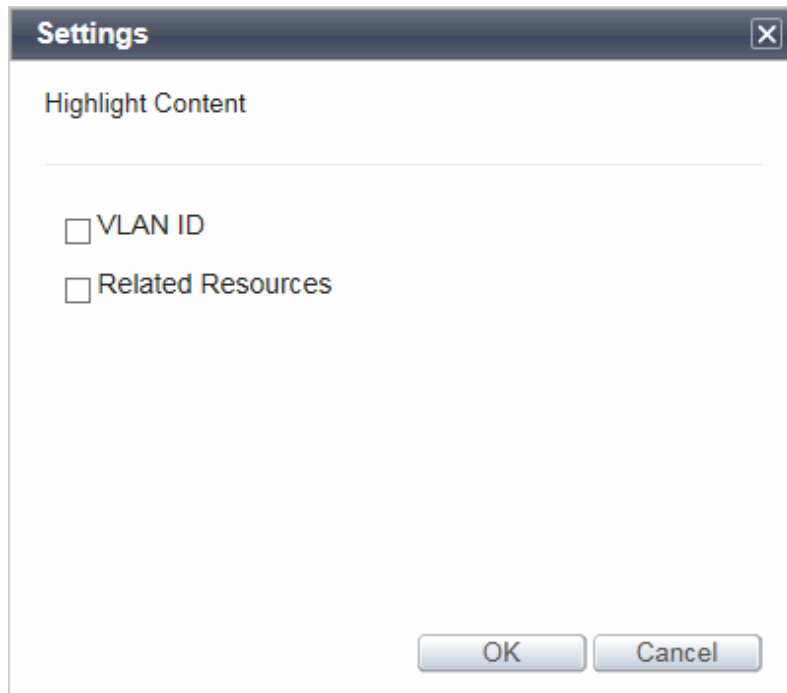
---

The procedure to highlight resources is given below.



1. Clicking [+] in the upper right of the highlight box displays the configuration window.

Figure 11.19 Window for Setting Highlighting



2. Check the items to configure as the conditions for highlighting.
3. Click the [OK] button.
4. The input field for the item to highlight checked in step 2 in the highlight box is displayed.
5. Clicking the input field displays a pull-down list.  
Select a condition from the pull-down list to highlight only the resources that meet that condition.

Physical resources that are not allocated to the L-Platform or L-Server are not displayed in the pull-down list for Related Resources.

The following conditions can be specified for highlighting certain resources:

- VLAN ID

Only highlights the resources that match the specified VLAN ID.

- For Ethernet Fabric devices (Converged Fabric)

Conditions for both "VLAN/C-TAG" and "VLAN(S-TAG)" can be configured in the VLAN ID input field.

When both conditions are configured, resources meeting both conditions are the targets of display.

- For devices other than Ethernet Fabric devices (Converged Fabric)

Only the condition "VLAN/C-TAG" in the VLAN ID input field has a meaning.

Even if the condition "VLAN(S-TAG)" is configured, it is ignored, and resources meeting the conditions of "VLAN/C-TAG" are displayed.

The icons displayed when a VLAN is displayed are those from "[11.2.8.1 Resource Display](#)" enclosed with a green frame.

If a problem occurs on a resource, a status icon indicating the problem is shown on top of the resource's own icon.

For details on status icons, refer to "[11.2.8.1 Resource Display](#)".

- Related Resources

Displays specified resources with the physical-logical relationship icon.

When the "physical-logical relationship icon" is displayed with the resources, switching the view using the view pointer shows the relationship between the physical resources and logical resources.

## 11.3.7 Network View Information Output during Display

The information displayed in the network view in the NetworkViewer can be output as a CSV file.

### Point

The current resource list and the latest link information can be easily checked.

The procedure for outputting the view information is as given below.

1. Click the [Action] button in the network view.  
A list of actions is displayed.
2. Select "Export View Information" from the list of actions.  
The current network view information can be output in CSV format.

The CSV file is output in the following format.

- When the physical map or the physical list is displayed

```
[Node]
resource_name,resource_ip,resource_status,unit1,unit2,type
:
[Link]
resource_name_1,resource_ip_1,port_name_1,port_status_1,resource_name2,resource_ip_2,port_name_2,
port_status_2
:
```

Table 11.15 Column List of the Node Area

Column	Description	Output Example
resource_name	The name of the resource is output.	vm_guest_1
resource_ip	The admin LAN IP address of the resource is output. When the resource does not have an admin LAN IP address, "-" is output.	192.168.10.60
resource_status	The status of the resource is output.	normal
unit1	The name of the chassis in which the resource is stored is output. When the resource is a standalone physical device, "-" is output.	chassis_1
unit2	The name of the chassis in which the resource is stored is output. Output for indicating the chassis that exists in [unit1]. When the resource is a standalone physical device or when the resource is stored in [unit1], "-" is output.	vm_host_1
type	The type of the resource is output. <ul style="list-style-type: none"> <li>- For chassis Chassis (Blade)</li> <li>- For blade servers Server (Blade)</li> <li>- For LAN switch blades L2-Switch (Blade)</li> <li>- For VM guests VM Guest</li> <li>- For virtual switches VM Switch</li> <li>- For rack mount servers Server (Rack)</li> </ul>	VM Guest

Column	Description	Output Example
	<ul style="list-style-type: none"> <li>- For chassis (PRIMEQUEST) Chassis (Partition)</li> <li>- For servers (PRIMEQUEST) Server (Partition)</li> <li>- For L2 switches L2-Switch</li> <li>- For firewalls Firewall</li> <li>- For SLBs SLB</li> <li>- For integrated network devices Multi</li> <li>- For Ethernet Fabric devices Fabric</li> <li>- For management hosts (IPCOM VX) Management Host</li> <li>- For firewalls (virtual appliances) Firewall (Virtual)</li> <li>- For server load balancers (virtual appliances) SLB (Virtual)</li> <li>- For integrated network devices (virtual appliances) Multi(Virtual)</li> </ul>	

 **Information**

- When the list is sorted by specific items, the resources are output in the [Node] area in the CSV file in the sorted order.
- When filtering resources, only the filtered information is output.

Table 11.16 Column List of the Link Area

	Column	Description	Output Example
Link connection source port information	resource_name_1	The name of the connection source resource is output.	catalyst_1
	resource_ip_1	The IP address of the connection source resource is output. When the resource does not have an IP address, "-" is displayed.	192.168.10.62
	port_name_1	The name of the port of the connection source resource is output.	Gi1/0/4
	port_status_1	The status of the port of the connection source resource is output.	normal
Link connection target port information	resource_name_2	The name of the connection target resource is output.	srx_1
	resource_ip_2	The IP address of the connection target resource is output. When the resource does not have an IP address, "-" is displayed.	192.168.10.63
	port_name_2	The name of the port of the connection target resource is output.	4

	Column	Description	Output Example
	port_status_2	The status of the port of the connection target resource is output.	normal

### Information

This is output in random order.

When the resources are filtered, the link information for which both connection source and target resources are displayed is output in the [Link] area.

- When the logical map or the logical list is displayed

```
name , label , comment , status , lplatform , type
:
```

Table 11.17 Column List

Column	Description	Output Example
name	The name of the resource is output.	Web1-1
label	The label displayed on the [Resource] tab of the ROR console is output. When the label is not configured, "-" is output.	WebServer1
comment	The comment displayed on the [Resource] tab of the ROR console is output. When the comment is not configured, "-" is output.	WebServer1
status	The status of the resource is output.	normal
lplatform	The name of the L-Platform on which the resource is deployed is output.	A-3tier-system
type	One of the following is output as the resource type: <ul style="list-style-type: none"> <li>- For L-Platforms L-Platform</li> <li>- For L-Servers L-Server</li> <li>- For network resources Network Resource</li> <li>- For firewalls Firewall</li> <li>- For SLBs SLB</li> </ul>	L-Server

### Information

- When the list is sorted by specific items, the resources are output in the CSV file in the sorted order.
- When filtering resources, only the filtered information is output.

## 11.3.8 Operating the Contact List

This section explains operation of the contact list.

### 11.3.8.1 Displaying the Contact List

The contact list of tenant users that use the L Platform can be displayed.

The resources in the L-Platform displayed in the contact list are those indicated below.

- Resources in abnormal status in the logical view
- Resources displayed with a physical-logical relationship icon

#### Point

Using the contact list enables easy checking of the relevant contacts when the infrastructure administrator contacts tenant users in the following cases:

- When sending notification that a problem occurred
- When sending notification of the maintenance schedule in advance
- When sending notification of the start and end of maintenance

The procedure to display the contact list is as given below.

1. Click the [Action] button in the network view.  
A list of actions is displayed.
2. Select the "contact list" from the action list.  
The following information is displayed as the contact information of the tenants that use the L Platform on which a problem is currently occurring.
  - The name of the L-Platform to which the resource on which a problem has occurred is deployed
  - The name of the resource on which a problem has occurred
  - The status of the resource on which a problem has occurred
  - The representative email address of the tenant that uses the L-Platform
  - The name of the tenant user that uses the L Platform
  - The email address of the tenant user that uses the L Platform

#### Information

In "User Email Address", the email address of the emergency contact is displayed.

When an email address for the emergency contact has not registered, the email address set for the personal information is displayed.

When the email address of the personal information is displayed, an asterisk (\*) is displayed at the end of the email address.

### 11.3.8.2 Exporting the Contact List

The contact list for the users of a tenant using an L-Platform can be output to a CSV file.

The procedure to output the contact list is given below.

1. Click the [Action] button in the network view.  
A list of actions is displayed.
2. Select the "contact list" from the action list to display it.
3. Click [Export CSV].  
The displayed contact list can be output as a CSV file.

The CSV file is output in the following format.

```
l-platform,resource_name,status,tenant_mail,user,user_mail1,user_mail2
```

Table 11.18 Column List of the Contact List

Column	Description	Output Example
l-platform	The name of the L-Platform is output.	A-3-tier-system1
resource_name	The name of the resource is output. When multiple resources exist, all resources are output separated by semicolons (";").	FW-A2;SLB-A2
status	The status of the resource is output. When multiple resources exist, the statuses of all resources are output separated by semicolons (";").	normal;error
tenant_mail	The representative email address of the tenant is output.	tenant@mail.com
user	The user name is output. When multiple users are registered, the names of all users are output separated by semicolons (";"). The names of the users are output with the registered emergency contact coming first.	Fujitsu Taro;Fujitsu Jiro;Fujitsu Saburo
user_mail1	The email address registered as the emergency contact for the user is output. When there are multiple users with emergency contacts registered, all email addresses are output separated by semicolons (";"). For the users with no emergency contact registered, the email address registered as the user's contact address is output, followed by an asterisk ("*").	taro@mail.com;jiro@mail.com
user_mail2	The email address registered as the contact address of the user is output. When multiple addresses are registered, all email addresses are output separated by semicolons (";").	saburo@mail.com

### 11.3.9 Linking Resources Using the Physical Map and the Logical Map

The physical and logical resources can be linked at a resource level.

#### Point

The operations below can be performed in a short time.

- Checking of the logical resources or L-Platforms affected by physical resources  
The scope of affect can be easily checked when maintenance is scheduled.  
The time for checking operations can be shortened, since the users affected can easily be determined from the contact list.
- Checking of the physical resources on which a problem occurs using the logical resources in an L-Platform  
When inquiries related to communication errors are received from users, the physical resource on which a problem has occurred can be easily specified using the logical resources in the L-Platform.  
This enables shortening of the time taken to start problem resolution, and shortening of the time necessary for problem resolution.

#### 11.3.9.1 Checking Related Logical Resources Using Physical Resources

This section explains the procedure to check the related logical resources using physical resources.

#### Information

When logical resources to which the "physical-logical relationship icon" is assigned in the network view (logical map) are displayed, if all of the following conditions are satisfied, the parent resources containing the target logical resources are automatically expanded.

- The number of target logical resources for display is 50 or less.
- Child resources of other resources are contained.

### Operation Procedure Using the Network View (Physical Map) Icon

1. Click the expand button ("▼") for the physical resources.
2. Select the "physical-logical relationship icon" from the popup menu.  
Check if the "physical-logical relationship icon" is assigned to the physical resource in the network view (physical map).
3. Switch the network view from the physical view to the logical view.  
For details on display switchover, refer to "[11.3.3 Display Switchover of Network View \(Physical View and Logical View\)](#)".
4. The logical resource to which the "physical-logical relationship icon" is assigned in the network view (logical map) is the resource related to the physical resource.

### Operation Procedure Using the Physical-Logical Relationship Icon Input Field of the Highlight Box of the Utility Panel (Custom View)

1. Click [+] in the upper right of the Highlight box to display the window for setting highlighting options.
2. Check the [Related Resources] checkbox and click [OK].  
The input field of the physical-logical relationship icon is displayed.
3. Clicking the physical-logical relationship icon input field enables display of the list of the physical resources that can be checked.
4. Select the physical resource to check.  
Check if the "physical-logical relationship icon" is assigned to the physical resource in the network view (physical map).
5. Switch the network view from the physical view to the logical view.  
For details on display switchover, refer to "[11.3.3 Display Switchover of Network View \(Physical View and Logical View\)](#)".
6. The logical resource to which the "physical-logical relationship icon" is assigned in the network view (logical map) is the resource related to the physical resource.

### Decision Procedure Using the [Menu] Button of the Utility Panel (Property)

1. Click the physical resource to confirm in the network view (physical map).
2. Click the [Menu] button of the property.
3. Click the "physical-logical relationship icon".  
Check if the "physical-logical relationship icon" is assigned to the physical resource in the network view (physical map).
4. Switch the network view from the physical view to the logical view.  
For details on display switchover, refer to "[11.3.3 Display Switchover of Network View \(Physical View and Logical View\)](#)".
5. The logical resource to which the "physical-logical relationship icon" is assigned in the network view (logical map) is the resource related to the physical resource.

## 11.3.9.2 Checking Related Physical Resources Using Logical Resources

This section explains the procedure to check the related physical resources using logical resources.

### Information

When physical resources to which the "physical-logical relationship icon" is assigned in the network view (physical map) are displayed, if all of the following conditions are satisfied, the parent resources containing the target physical resources are automatically expanded.

- The number of target physical resources for display is 50 or less.
- Child resources of other resources are contained.

### Operation Procedure Using the Network View (Logical Map) Icon

1. Click the expand button ("▼") for the logical resources.

2. Select the "physical-logical relationship icon" from the popup menu.  
Check if the "physical-logical relationship icon" is assigned to the logical resource in the network view (logical map).
3. Switch the network view from the logical view to the physical view.  
For details on display switchover, refer to "[11.3.3 Display Switchover of Network View \(Physical View and Logical View\)](#)".
4. The physical resource to which the "physical-logical relationship icon" is assigned in the network view (physical map) is the resource related to the logical resource.

### Operation Procedure Using the Physical-Logical Relationship Icon Input Field of the Highlight Box of the Utility Panel (Custom View)

1. Click [+] in the upper right of the Highlight box to display the window for setting highlighting options.
2. Check the [Related Resources] checkbox and click [OK].  
The input field of the physical-logical relationship icon is displayed.
3. Clicking the physical-logical relationship icon input field enables display of the list of the logical resources that can be checked.
4. Select the logical resource to check.  
Check if the "physical-logical relationship icon" is assigned to the logical resource in the network view (logical map).
5. Switch the network view from the logical view to the physical view.  
For details on display switchover, refer to "[11.3.3 Display Switchover of Network View \(Physical View and Logical View\)](#)".
6. The physical resource to which the "physical-logical relationship icon" is assigned in the network view (physical map) is the resource related to the logical resource.

### Decision Procedure Using the [Menu] Button of the Utility Panel (Property)

1. Click the logical resource to check in the network view (logical map).
2. Click the [Menu] button of the property.
3. Click the "physical-logical relationship icon".  
Check if the "physical-logical relationship icon" is assigned to the resource in the network view (logical map).
4. Switch the network view from the logical view to the physical view.  
For details on display switchover, refer to "[11.3.3 Display Switchover of Network View \(Physical View and Logical View\)](#)".
5. The physical resource to which the "physical-logical relationship icon" is assigned in the network view (physical map) is the resource related to the logical resource.

## 11.3.10 Point-to-Point Route Search

---

Selecting two resources displayed in the network view displays a route with which point-to-point communication is possible.



### Information

When there are multiple links in the selected resource, the resource and links other than the route of the point-to-point might be displayed.

The following resources can be selected by the point-to-point route search.

- Servers
- VM hosts
- VM guests
- Virtual switches
- LAN switch blades
- L2 switches
- Management hosts (IPCOM VX)



- Firewalls
- SLB
- Integrated network devices
- Ethernet Fabric devices
- L-Servers
- Network resources

The procedure to display the point-to-point route is as given below.

### **Operation Procedure Using the Network View Icon**

1. Click the expansion button ("▼") of the resource that is the starting point of the search.
2. Select "Route from here" from the popup menu.  
Check if the "physical-logical relationship search icon (starting point)" is assigned to the physical resource in the network view.
3. Click the expand button ("▼") of the resource that is the end point of the search.
4. Select "Route to here" from the popup menu.  
Check if the "physical-logical relationship search icon (end point)" is assigned to the physical resource in the network view.
5. Click the expansion button ("▼") of the resource that is the starting point or end point of the search.
6. Select "Route Search" from the popup menu.  
The search results are displayed in the network view.

### **Decision Procedure Using the Route Search of the Filter Box of the Utility Panel (Custom View)**

1. Click [+] in the upper right of the filter box to display the window for setting filter options.
2. Check the route search checkbox and click [OK].  
The route search input field is displayed.
3. Select the resource to be the starting point in the network view.
4. Click the [Route from here] button in the route search input field.  
Check if the "physical-logical relationship search icon (starting point)" is assigned to the physical resource in the network view.
5. Click the resource which is the end point in the network view.
6. Click the [Route to here] button in the route search input field.  
Check if the "physical-logical relationship search icon (end point)" is assigned to the physical resource in the network view.
7. Click the [Search] button in the route search input field.  
The search results are displayed in the network view.

### **Decision Procedure Using the [Menu] Button of the Utility Panel (Property)**

1. Select the resource to be the starting point in the network view.
2. Click the [Menu] button of the property.
3. Click "Route from here".  
Check if the "physical-logical relationship search icon (starting point)" is assigned to the physical resource in the network view.
4. Click the resource which is the end point in the network view.
5. Click the [Menu] button of the property.
6. Click "Route to here".  
Check if the "physical-logical relationship search icon (end point)" is assigned to the physical resource in the network view.
7. Click the [Menu] button of the property.

8. Click "Route Search".  
The search results are displayed in the network view.

### Note

- The display of resources included in the resource that has been selected cannot be closed while selecting the resources for the route search.
- The search results may differ, depending on whether the resource has been deployed.  
Execute Route Search when you want to search for a correct route with a deployed resource.
- Network links not displayed in the network view cannot be searched.

## 11.4 Advisory Notes

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This section explains the advisory notes of NetworkViewer.

### Browser

- Internet Explorer 8 cannot be used. Use another browser.  
For details of usable browsers, refer to "Required Software: Admin Clients" in "6.1.2.4 Required Software" in the "Overview".

### View

- The following LAN switch blades are supported by the Network Map.
  - BX600 GbE Switch Blade 30/12
  - PY CB Eth Switch/IBP 1Gb 36/12
  - PY CB Eth Switch/IBP 1Gb 36/8+2
  - PY CB Eth Switch/IBP 1Gb 18/6
  - PY CB Eth Switch/IBP 10Gb 18/8
  - PY CB Eth Switch 10/40Gb 18/8+2
  - PY CB DCB SW 10Gb 18/6/6
  - PY CB 10Gb FEX Nexus B22
- The settings of [Extended Partitioning Mode] for PRIMEQUEST servers are not displayed in the Network View. They can be checked from the ROR console. Refer to "[5.8.2 Registering PRIMEQUEST Servers](#)".
- As Windows bridge connections are not supported, network links will not be displayed.
- Chassis and servers are displayed for PRIMERGY BX series, PRIMEQUEST, and PRIMERGY RX/TX.
- The virtualization software that can display the network configuration in a virtual server is VMware and Hyper-V.
- For VMware and Hyper-V virtual switches, network links are only displayed when using the standard switches.
- When using switches other than the standard ones, such as distributed virtual switches, those virtual switches and their network links are not displayed.
- The display of Logical Networks in Hyper-V environments is not supported.
- When connecting wires between virtual LAN switches and VMware VM guests are not correctly displayed, log in to the VM management software, start the VM guest, and then execute the update of the network information.
- When SCVMM is not registered with ROR, the resources of Hyper-V might not be correctly displayed.
- Neither the logical port nor the relation of links of the link aggregation is displayed.

- When two or more VM hosts with the same name exist, the relation between the VM host and the Virtual LAN Switch might not be correctly displayed.
- VLAN is not displayed for ports where trunk VLANs or private VLANs are set and ports in promiscuous mode.
- The display of NIC teaming is not supported when the following NIC teaming software is used.
  - One Command NIC Teaming and Multiple VLAN Manager
  - NIC Teaming (LBFO)
- Link information of the virtual switches of Hyper-V 2012 R2 and NICs of virtual machines that are not managed by SCVMM will not be displayed.
- Network resources not connected to L-Servers are not displayed.
- When the UMC function ([Function number expansion] for the physical L-Server) is enabled for the CNA of the physical server, NICs other than those with function number 0 are not displayed.
- Only the network links of PRIMERGY BX series LAN switch blades and the network devices of PRIMERGY RX/TX servers are displayed. The network links of PRIMEQUEST servers and network devices are not displayed.
- Even the link between resources is deleted, it may remain temporarily in the link display. To update Network links manually, click the [Update] button.
- If a non-supported L2 switch is registered, network links may not be properly displayed for that switch.
- The Network Map cannot display network links between BX600 GbE Switch Blade 30/12 and the following LAN switch blades:
  - PY CB Eth Switch/IBP 1Gb 36/12
  - PY CB Eth Switch/IBP 1Gb 36/8+2
  - PY CB Eth Switch/IBP 1Gb 18/6
- Network links between two supported L2 switches may not be displayed properly if an unregistered or un-supported L2 switch is placed between them.



## Example

.....

In such a case, the following inconsistency may be displayed. A L2 switch port may be seen as being connected to multiple switches (multiple links are shown attached to that switch port).

.....

- The links of an external port are not displayed for LAN switch blades that operate in Converged Fabric mode or LAN switch blade PY CB 10Gb FEX Nexus B22.
- The links composing link aggregation might not be correctly displayed.
- VLAN search status is only displayed for port to port or port to NIC. If both ends are not port or NIC, the VLAN search status is not displayed.
- VLAN search status is not displayed for the connection relationship between a network resource and an L-Server.
- Some Untagged VLANs which have been configured with an AMPP function for VCS fabrics may not be displayed.

# Chapter 12 Cloning [Physical Servers]

This chapter explains how to use the server cloning function.

## 12.1 Overview

Cloning is a function used to deploy a cloning image collected from a single managed server (source server) to other managed servers (destination servers).

This function shortens the time required for an initial installation as it can be used to install the same operating system and software on multiple servers.

Software maintenance can also be performed quickly and easily by deploying a cloning image collected from a server on which patch application or software addition or modification has been performed.

The information below is not copied when the cloning image is collected from the managed server; and will be automatically reconfigured when the cloning image is deployed. This enables a single cloning image to be deployed to different servers.

- Hostname
- IP address and subnet mask for the admin LAN
- Default gateway for the admin LAN

Settings other than the above (such as those for applications and middleware) are not automatically reconfigured, set them manually before and after the cloning operation when necessary.

Cloning cannot be performed for Linux managed servers on which iSCSI disks have been configured.



### Note

- When using ServerView Deployment Manager on the admin LAN, this function is disabled. Use the cloning function of ServerView Deployment Manager. For details, refer to "I.2 Co-Existence with ServerView Deployment Manager" in the "Setup Guide CE".
- When using server cloning, regardless of the boot environment (local/SAN/iSCSI) or RAID configurations, only content from the boot disk (first disk recognized by the BIOS on managed servers) is actually cloned. Data disk content (second disk onwards) cannot be cloned. It is recommended to use other backup software, or copy features available in storage systems for such purposes. For a server using local boot with a SAN data configuration, it is necessary to configure the target disk of image operations. If cloning images are deployed without configuring the target disk for image operations, data may be overwritten on an unintended disk.

For details, refer to "9.1.13 Changing Target Disks of Image Operations" in the "User's Guide VE".

Note that all partitions (Windows drives or Linux partitions) included in the boot disk will be cloned.

Table 12.1 Cloning Target Examples

Disk	Windows Drive	Cloning Target
First	C:	Yes
	E:	Yes
Second	D:	No
	F:	No

- Because managed servers are restarted during the cloning process, it is necessary to stop all applications running on those servers beforehand.
- The first partition must be a primary partition.  
When multiple partitions exist within the disk of the cloning target, the drive letters for the drives other than the system drive may be changed after cloning images are deployed. Change the drive letter back to the original letter, after deploying cloning images.
- Dynamic disks cannot be used.

- Cloning images can be collected with the following file systems. Note that LVM (Logical Volume Manager) partitions are not supported.

- NTFS
- EXT3
- EXT4
- LinuxSwap

## Point

When Red Hat Enterprise Linux 7 is installed with default options, the file system is XFS.

- When using Windows Server 2012 as a managed server, cloning images cannot be collected from system disks that include ReFS data areas.
- All of 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.
  - All server models must be identical.
  - The hardware configuration of each server must be identical, including optional cards, expansion boards, and the slots they are mounted in.
  - When using the UMC function, the number of functions is the same.
  - The type of all functions is NIC.
  - The same BIOS settings must have been made for all servers according to the procedure in "8.2.7 Configuring BIOS Settings of Managed Servers" in the "Design Guide CE".
  - All servers must use the same redundancy configuration (if any) and the same number of redundant paths for LAN and SAN connections. All servers must also be able to access the same network and storage devices.  
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.
- When backing up or restoring system images, or collecting and deploying cloning images, up to four processes can be executed simultaneously. If four processes are already being executed, any additional image operations will enter a standby state. Moreover, server switchover which is executed using the backup and restore method or any restore process performed during failback will also enter a standby state. 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 operating system after collecting or deploying the cloning image.
- For managed servers on which the Watchdog function is enabled, cloning operations on that server may be aborted by an automatic restart or shutdown. The Watchdog is a function which automatically restarts or shuts down non-responsive servers when their operating system does not respond for a given period.  
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 activation with Windows Server 2008 or Windows Server 2008 R2, Sysprep can be executed a maximum of three times.  
Since Sysprep is executed when deploying a cloning image, cloning image collection and deployment cannot be executed four or more times.  
Therefore, it is recommended not to collect cloning images from managed 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.
- When the managed server is Linux and the disk is recognized using the by-id name, cloning cannot be used.

## 12.2 Collecting

When installing servers using the cloning function, first collect a cloning image from a source server. Collected cloning images can later be used for the deployment of other servers.

A cloning image can be collected only from a managed server on which an agent has been registered.

For details on registering agents, refer to "8.2 Installing Software and Registering Agents on VM Hosts".

A cloning image can be collected from a managed server that satisfies all of the following conditions:

- The status is either "normal" or "warning"
- Has been placed into maintenance mode

Cloning images cannot be collected from VM hosts or VM guests.

### Preparations

- Install the desired operating system and necessary applications on the managed server from which a cloning image will be collected. Additionally, apply any required patches and other necessary settings.  
Make sure that the source server operates properly after those steps.
- If the managed server has the following configuration, configure the target disk of image operations before collecting cloning images.
  - Local boot with a SAN data environment  
For the configuration procedure, refer to "9.1.13 Changing Target Disks of Image Operations" in the "User's Guide VE".
- When the configurations of managed servers are as below, execute the following commands before collecting cloning images.
  - When using the ext4 file system of Red Hat Enterprise Linux 6 or Red Hat Enterprise Linux 7, and one of the following conditions is met
    - In a SAN boot environment using HBA address rename
    - When using a rack mount or tower server and the server is registered with "Disable" of "Association with server management software (ServerView)" is selected

[Windows Manager]

```
>Installation_folder\SVROR\Manager\bin\rxadm server set -name physical server -attr bootagt=winpe
<RETURN>
```

[Linux Manager]

```
#!/opt/FJSVrcvmr/bin/rxadm server set -name physical server -attr bootagt=winpe <RETURN>
```

- In a SAN boot environment using HBA address rename, and the following model
  - PRIMERGY BX960 S1

[Windows Manager]

```
>Installation_folder\SVROR\Manager\bin\rxadm server set -name physical server -attr bootagt=winpe
<RETURN>
```

[Linux Manager]

```
#/opt/FJSVrcvnr/bin/rcxadm server set -name physical server -attr bootagt=winpe <RETURN>
```

- 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.  
This setting can be changed by following the instructions given in "[6.4 Changing the Maximum Number of Cloning Image Versions \(Physical Servers\)](#)".
- When deploying cloning images, the destination server temporarily starts up with its hostname set to either the physical server name or the source server's hostname.  
If the same server names are detected on the same network, a network duplication error will occur.  
Some programs may experience problems when started with a different hostname. If such programs have been installed, configure their services not to start automatically. This has to be configured before collecting the cloning image.  
  
Some programs may experience problems when the same server name exists. If such programs have been installed, configure their services not to start automatically. This has to be configured before collecting cloning images.
- 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 how to change boot options, refer to "[7.1.10 Changing Boot Options](#)".
- When using local disks as system disks, and iSCSI storage as data disks, refer to the advisory notes described in "Table: Supported Storage Configurations" in "8.1.1 Storage Configuration" in the "Design Guide VE".

[Windows]

- Enable NetBIOS over TCP/IP.
- A volume license is required for cloning. The volume license must be entered during the installation of Resource Orchestrator Agent. Refer to "2.2.1.2 Collecting and Checking Required Information" and "2.2.2 Installation [Windows] [Hyper-V]" in the "Setup Guide CE" for details.

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 (*)
```

\* Note: 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

In the [ActivationInfo] section, set the following parameters using a "parameter=value" syntax. Refer to the following table for details on each parameter.

Table 12.2 Structure of the Definition File

Format	Parameters	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	The host name (FQDN), computer name, or IP address of the KMS host.
	.cmd.remotescript. 1.params.kmsport	KMS host port number. The default is 1688.
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. 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. "yes" means that the password is encrypted. If this line exists, the rxadm 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
```

## Collecting Cloning Images

Use the following procedure to collect cloning images:

1. Place the target 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 the [OK] button.  
The target server is placed into maintenance mode.

2. Stop all operations running on the source server.

When a cloning image is collected, the source server is automatically restarted. Therefore, all operations running on the source server should be stopped before collecting the image.

Cancel the settings in the following cases:

- NIC redundancy has been configured for admin LANs and public LANs (\*)
- Tagged VLANs have been configured on NICs

\* Note: However, there is no need to cancel public LAN redundancy settings made via the network parameter auto-configuration function.

The following settings are disabled during cloning image collection, which may result in services failing to start on server startup. To avoid this, automatic startup should be disabled for any service that depends on the following settings.

- Hostname
- IP address and subnet mask for the admin LAN
- Default gateway for the admin LAN



## Note

When using SUSE Linux Enterprise Server, it is necessary to configure the managed server so that only the NIC used for the admin LAN is active when the server is started. For details on how to modify the configuration, refer to the operating system manual. If this procedure is not performed, startup of network interfaces will take time, and errors may occur during the process.

### 3. Collect a cloning image.

- a. In the ROR console server resource tree, right-click the physical OS of the source server and select [Cloning]-[Collect] from the popup menu.  
The [Collect a Cloning Image] dialog is displayed.

- b. Perform the following settings:

#### Cloning Image Name

Enter a name to identify the collected cloning image.

##### New

When creating a new cloning image, select [New] and enter a new cloning image name.

For a cloning image name, enter a character string beginning with an alphabetic character and containing up to 32 alphanumeric characters and underscores ("\_").

##### Update

When updating an existing cloning image, select [Update] and select a cloning image from the list.

Cloning images with the same name can be saved up until the maximum number of image versions.

If the selected cloning image has already reached this limit, it is necessary to delete one of its existing versions in order to create a new cloning image. This can be done directly in this dialog by selecting the version to be deleted from the displayed list.

The selected version will be automatically deleted when collection of the new cloning image completes.

The maximum number of image versions is three by default.

This setting can be changed by following the instructions given in ["6.4 Changing the Maximum Number of Cloning Image Versions \(Physical Servers\)"](#).

#### Comment (Optional)

Enter a comment that identifies the cloning image.

Up to 128 characters other than percent signs ("%"), back slashes ("\ cant="), double quotes (" cant="), and line feed characters can be specified.

If [Update] was selected for the [Cloning Image Name] option, the comment of the most recent image version is displayed.

If no comment is specified, a hyphen ("-") will be displayed in the ROR console.

It is recommended to enter comments with information such as hardware configuration (server model, disk size, and number of network interfaces), software configuration (names of installed software and applied patches), and the status of network parameter auto-configuration function.

#### [Release Maintenance Mode after collection] checkbox

Enable this option to automatically release the source server from maintenance mode after image collection and maintenance work.

If this option disabled, maintenance mode should be released manually after collecting the cloning image.

- c. Click the [OK] button.

The process of collecting the cloning image starts.

The process status can be checked in the Recent Operations area of the ROR console.

When the [Cancel] button is clicked in the Recent Operations area, the confirmation dialog to quit the process is displayed.

### 4. Restart applications on the source server.

Restore the settings of any service whose startup settings were changed in step 2 and start these services.

Restore the settings for the following cases:

- NIC redundancy for admin LANs and public LANs has been released
- The settings of tagged VLANs for NICs have been released

Check that applications are running properly on the source server.

5. Release the source server from maintenance mode.

This step is not required if the [Release Maintenance Mode after collection] checkbox was enabled in the [Collect a Cloning Image] dialog.

- a. In the ROR console server resource tree, right-click the source server (or its physical OS) and select [Maintenance Mode]-[Release] from the popup menu.

The [Release Maintenance Mode] dialog is displayed.

- b. Click the [OK] button.

The target server is released from maintenance mode.

- While a cloning image is being collected, no other operations can be performed on that image or other versions of that image (images sharing the same image name).

## 12.3 Deploying

---

Once collected, cloning images can be deployed to one or more destination servers.

Cloning images collected from the source server can only be deployed to destination servers which satisfy all of the following conditions:

- Destination servers should be in either "normal", "warning", "unknown", or "stop" status.
- Destination servers should have been placed into maintenance mode.
- Destination servers should be of the same model as the source server.
- I/O virtualization should be used, when destination servers are spare servers.

Cloning images cannot be deployed to managed servers where VM hosts or VM guests are running.

### Preparations

- If the managed server has the following configuration, configure the target disk of image operation before deploying cloning images.

- Local boot with a SAN data environment

For the configuration procedure, refer to "9.1.13 Changing Target Disks of Image Operations" in the "User's Guide VE".

- When the configurations of managed servers are as below, execute the following commands before deploying cloning images.
  - When using the ext4 file system of Red Hat Enterprise Linux 6 or Red Hat Enterprise Linux 7, and one of the following conditions is met
    - In a SAN boot environment using HBA address rename
    - When using a rack mount or tower server and the server is registered with "Disable" of "Association with server management software (ServerView)" is selected

[Windows Manager]

```
>Installation_folder\SVROR\Manager\bin\rcxadm server set -name physical server -attr bootagt=winpe  
<RETURN>
```

[Linux Manager]

```
#!/opt/FJSVrcvnr/bin/rcxadm server set -name physical server -attr bootagt=winpe <RETURN>
```

- In a SAN boot environment using HBA address rename, and the following model
  - PRIMERGY BX960 S1

[Windows Manager]

```
>Installation_folder\SVROR\Manager\bin\rxadm server set -name physical server -attr bootagt=winpe  
<RETURN>
```

[Linux Manager]

```
#!/opt/FJSVrcvnr/bin/rxadm server set -name physical server -attr bootagt=winpe <RETURN>
```

If the above command has not been executed on the server from which the cloning image is being collected, the cloning image may not be collected correctly. Delete that cloning image and then redo the cloning image collection.

- It is recommended to back up destination servers before deploying cloning images, as this will simplify the recovery procedure in case of the deployed cloning image is faulty.

For details on backing up, refer to "16.2 Backup" in the "User's Guide VE".

## Note

- Cloning images cannot be deployed to servers that have been set up as spare servers for other managed servers, when not using I/O virtualization. Cancel any such settings before deploying a cloning image.
- When deploying cloning images to servers with the target disk of image operations configured, deploy the cloning images to individual servers separately.  
If cloning images are deployed without configuring the target disk for image operations, data may be overwritten on an unintended disk.
- VLAN settings (on adjacent LAN switch ports) cannot be deployed during server cloning. LAN switch VLAN settings should be set up before deploying a cloning image.  
For details on how to configure VLAN settings on LAN switch blades, refer to "[5.4.4 Configuring VLANs on LAN Switch Blades](#)".
- When deploying a cloning image back to its source server, the source server should be backed up before deployment.

For details on backing up, refer to "16.2 Backup" in the "User's Guide VE".

If the deployed cloning image is faulty and causes deployment errors, use the following procedure to collect a new cloning image.

1. Restore the system image that was backed up before cloning image deployment.
2. Fix any incorrect settings on the source server
3. Collect a new cloning image
4. Delete the faulty cloning image

- When deploying cloning images to multiple managed servers, if the managed servers belong to different subnets, cloning images cannot be deployed.
- When using PRIMEQUEST servers, cloning images cannot be deployed to partitions for which UEFI has been set.  
When collecting and deploying cloning images, configure the BIOS settings and boot option settings after changing to Legacy boot.  
For details on how to change boot options, refer to "[7.1.10 Changing Boot Options](#)".
- When using local disks as system disks, and iSCSI storage as data disks, refer to the advisory notes described in "Table: Supported Storage Configurations" in "8.1.1 Storage Configuration" in the "Design Guide VE".

## Deploying Cloning Images

Use the following procedure to deploy a cloning image to one or more destination servers:

1. Place the destination server(s) into maintenance mode (only for agent-registered servers).
  - 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 the [OK] button.

The target server is placed into maintenance mode.

## 2. Deploy a cloning image.

- Deploying a cloning image to a single destination server

- a. In the ROR console server resource tree, right-click the destination server (or its physical OS) and select [Cloning]-[Deploy] from the popup menu.

The [Deploy a Cloning Image] dialog is displayed.

The available cloning images are displayed.

Only cloning images that have been collected from a server of the same model as the destination server are available for deployment.

- b. Select the cloning image to deploy, and set the following items.

### **Server name after deployment**

Enter the name of the server to which the cloning image is to be deployed.

By default, the physical OS name is entered if the physical OS is registered. If the physical OS is not registered, the physical server name is entered.

[Windows]

A string composed of up to 63 alphanumeric characters, underscores, ("\_"), and hyphens, ("-").

The string cannot be composed solely of numbers.

[Linux]

A string composed of up to 64 alphanumeric characters, and the following symbols:

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



When using SUSE Linux Enterprise Server, it is not possible to configure server names that include periods (".") for the post-deployment server names of cloning images.



Since the entered server name is also used as the hostname of its corresponding destination server, it is recommended to use only characters defined in RFC (Request For Comments) 952:

- Alphanumeric characters
- Hyphens, ("-")
- Periods, (".") [Linux]

### **[Release from Maintenance Mode after deployment] checkbox**

Enable this option to automatically release the destination server from maintenance mode after cloning image deployment. If this option disabled, maintenance mode should be released manually after collecting the cloning image.

- c. Click the [OK] button.

The cloning image deployment process starts.

The process status can be checked in the Recent Operations area of the ROR console.

When the [Cancel] button is clicked in the Recent Operations area, the confirmation dialog to quit the process is displayed.



Note that canceling the deployment of a cloning image does not restore the destination server to the state before the deployment took place.

- Deploying a cloning image to multiple destination servers

- a. In the ROR console, select the [Image List] tab.

A list of cloning images is displayed under the cloning image list.

- b. Right-click the cloning image to deploy and select [Deploy] from the popup menu.

The [Deploy a Cloning Image] dialog is displayed.

A server that can be deployed is displayed.

- c. Check the checkbox of the server to deploy a cloning image to, and set the following items:

**[Release from Maintenance Mode after deployment] checkbox**

Enable this option to automatically release the destination server from maintenance mode after cloning image deployment.

If this option disabled, maintenance mode should be released manually after collecting the cloning image.

The [Server Name] column displays the names of each destination servers.

By default, server names (computer name or hostname) or physical server names are displayed.

The names specified in this column will be assigned to destination servers as their computer names (for Windows systems) or system node names (for Linux systems).

Those names can be changed using the following procedure.

1. Double-click the [Server name after deployment] cell of a server.

The [Server name after deployment] cell becomes editable.

2. Enter a new server name.

**[Windows]**

A string composed of up to 63 alphanumeric characters, underscores, ("\_"), and hyphens, ("-").

The string cannot be composed solely of numbers.

**[Linux]**

A string composed of up to 64 alphanumeric characters, and the following symbols:

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

 **Information**

Since the entered server name is also used as the hostname of its corresponding destination server, it is recommended to use only characters defined in RFC (Request For Comments) 952:

- Alphanumeric characters
- Hyphens, ("-")
- Periods, (".") [Linux]

- d. Click the [OK] button.

The cloning image deployment process starts.

The process status can be checked in the Recent Operations area of the ROR console.

When the [Cancel] button is clicked in the Recent Operations area, the confirmation dialog to quit the process is displayed.

 **Note**

When this process is canceled, cloning image deployment to all destination servers is canceled.

Note that canceling the deployment of a cloning image does not restore the destination server to the state before the deployment took place.

3. Restart applications on the destination server(s).

Perform the following settings if necessary:

- The settings of NIC redundancy for admin LANs and public LANs

- The settings of tagged VLANs for NICs

After deployment, destination servers are set to use the admin server as their default gateway.

Reconfigure such network settings if necessary. Check that applications are running properly on destination servers.

At this point, if an application is still using the source server's hostname or IP address (e.g. within application-specific settings or configuration file), manually update such settings with the destination server values.

### Note

When a managed server is a PRIMEQUEST, set the PSA-MMB IP address after deployment. For details, refer to the PRIMERGY Partition Model manual.

#### 4. Release maintenance mode.

This step is not required if the [Release from Maintenance Mode after deployment] checkbox was enabled in the [Deploy a Cloning Image] dialog.

- In the ROR console server resource tree, right-click the source server (or its physical OS) and select [Maintenance Mode]-[Release] from the popup menu.

The [Release Maintenance Mode] dialog is displayed.

- Click the [OK] button.

The target server is released from maintenance mode.

### Note

- When deploying a cloning image that was collected from a Windows server, the following information is reset on each destination server. This is a result of the execution of Microsoft's System Preparation (Sysprep) tool.

If necessary, restore the following settings to their original values after the cloning image has been deployed:

- Desktop icons and shortcuts
  - Drive mappings
  - The "Startup and Recovery" settings accessed from the [Advanced] tab of the [System Properties] window
  - Virtual memory settings
  - TCP/IP-related settings
  - The "What country/region are you in now?" settings in the locations defined in the [Location Information] window
  - Disk quota settings
  - Storage Provider settings
  - Microsoft Internet Explorer settings (RSS feeds subscription information, information stored by the Autocomplete function, saved passwords)
  - Microsoft Outlook Express settings (mail/directory server passwords)
  - Network card driver settings (drivers without a digital signature should be replaced by the latest updated drivers with a digital signature)
  - Access rights to the '\Documents and Settings\Default User' folder
- While a cloning image is being deployed, collection, deployment, and deletion cannot be performed simultaneously on the cloning images with the same name.
  - If a cloning image is deployed to a system with a larger disk capacity than the disk space required for the cloning image, any excessive disk space becomes unused disk space. This unused disk space can be used for other purposes.
  - Destination servers are rebooted several times during cloning image deployment. Make sure that deployment has completed before restarting operations and making further settings.

- The number of reboots during deployment increases when using the HBA address rename function.
- If activation of Windows Server 2008 or later failed during deployment, message number 47233 is displayed. This message indicates that deployment of Windows Server 2008 or later completed, but activation failed. For details on the appropriate corrective action, refer to "Message number 47233" in "Messages".
- When a cloning image is deployed to multiple servers, it may be necessary to enable IGMP snooping on admin LAN switches. If IGMP snooping is not enabled, transfer performance may deteriorate when ports with different speeds co-exist in the same network, or multiple image operations are run simultaneously.

## 12.4 Viewing

This section explains how to display collected cloning images.

In the ROR console, select the [Image List] tab.

A list of cloning images is displayed under the cloning image list.

Use this list to manage the cloning images used by Resource Orchestrator.

Figure 12.1 Cloning Image List

Cloning Image Name	Version	Collection Date	OS	Comments
BX900_1_clone	1	2012-10-22 10:51:00	Microsoft Windows Server 2003	.

For details on the "Cloning Image List", refer to "A.9 [Image List] Tab".

## 12.5 Deleting

This section explains how to delete a cloning image.

Use the following procedure to delete cloning images:

1. In the ROR console, select the [Image List] tab.
  - A list of cloning images is displayed under the cloning image list.
2. In this list, right-click the name of the cloning image to delete and select [Delete] from the popup menu.
  - The confirmation dialog is displayed.
3. Click the [OK] button.
  - The selected cloning image is deleted.



### Note

While the cloning image is being deleted, no operations can be performed on other versions of the same cloning image (images that share the same image name).



# Chapter 13 Collecting Power Consumption Data and Displaying Graphs

This chapter explains how to export the power consumption data collected from registered power monitoring targets and how to display it as graphs, and also describes the exported data's format.

## 13.1 Exporting Power Consumption Data

This section explains how to export power consumption data.

The power consumption data for each power monitoring target that is registered in the power monitoring environment can be exported in CSV format.

The exported data can be selected by specifying the desired data types (power and energy), time spans, and sampling rate.

Use the following procedure to export power consumption data.

1. In the ROR console server resource tree, right-click a power monitoring target, and select [Export]-[Environmental Data] from the popup menu.

The [Export Environmental Data (*power\_monitoring\_target*)] dialog is displayed.

2. Set the following items:

Figure 13.1 [Export Environmental Data (*power\_monitoring\_target*)] Dialog

Choose the type and period of environmental data that will be exported.

Target Resources

Select	Device Name	Comments
<input checked="" type="checkbox"/>	ups	

Data Type

Select	Data Type	Unit	Description
<input checked="" type="checkbox"/>	Power	W	Instantaneous power consumption
<input type="checkbox"/>	Average power	W	Average power consumption during the selected time span
<input type="checkbox"/>	Energy	Wh	Total energy consumption during the selected time span

Output time span: Last hour

Rate: Finest sampling

Format: CSV

OK Cancel Help

### Target Resources

Specify the power monitoring target to export the power consumption data of.  
Select the checkboxes of each desired target. More than one target can be selected.

### Data Type

Specify the type of data to export.  
Check the checkbox of each desired data type. More than one data type can be selected.

### Output time span

Select the time span for which to export data from the drop-down menu.  
Select one of the following options:

- Last hour
- Last day
- Last week
- Last month
- Last year
- Custom

When "Custom" is selected, the following fields must all be specified:

- Start day
- Start time
- End day
- End time

### Rate

Select the data sampling rate to export from the drop-down menu.

Select one of the following options:

- Finest sampling
- Hourly
- Daily
- Monthly
- Annual

### 3. Click [OK].

In the download dialog that is displayed, specify the name of the export file. The data will be exported to the specified file.

### Note

Exporting large amounts of data will take time.

The operation will fail when it takes over five minutes.

If the operation fails, as processing on the server may not have finished, wait for a while before performing the operation again. In that case, change the settings of "Target Resources" and "Output time span" to reduce the amount of data output.

The recommended export settings for environmental data are as listed below.

Table 13.1 Recommended Export Settings

Rate	Output time span	Output device count
Finest sampling	Last day	12
Hourly	Last month	30

Rate	Output time span	Output device count
Daily	Last year	30
Monthly	Select "Custom" and specify 5 years	60
Annual	Select "Custom" and specify 5 years	60

## 13.2 Displaying Power Consumption Data Graphs

This section explains how to display power consumption data as graphs.

The power consumption data for each power monitoring target that is registered in the power monitoring environment can be displayed as graphs.

The collected power consumption data and average values of the specified time span and rate can be displayed in line graphs.

Use the following procedure to display power consumption data as graphs.

1. Select [Tools]-[Environmental Data Graph] from the ROR console menu.

The [Environmental Data Graph] dialog is displayed.




2. Set the following items:

Figure 13.2 [Environmental Data Graph] Dialog

Environmental Data Graph

Choose the desired resources and output time.  
Up to 18 resources can be selected.

**Target Resources**

 Chassis
   Server
   Power Monitoring Device

Select	Resource Name	Resource Type
<input type="checkbox"/>	bx900	Chassis
<input type="checkbox"/>	bx900-2	Server
<input type="checkbox"/>	bx900-3	Server
<input type="checkbox"/>	bx900-4	Server
<input type="checkbox"/>	bx900-6	Server
<input type="checkbox"/>	bx900-7	Server
<input type="checkbox"/>	bx900-8	Server
<input type="checkbox"/>	bx900-9	Server
<input type="checkbox"/>	bx900-10	Server

**Graph Settings**

Data Type:  Power (Instantaneous power consumption)  
 Average power (Average power consumption during the selected time span)

Output Time Span: Last hour ▼

Rate: Finest sampling ▼

## Target Resources

Specify the power monitoring target name to display the power consumption data graph of.  
Select the checkboxes of each desired target.  
Up to 18 targets can be selected.

## Graph Settings

### Data Type

Specify the type of data to display the graph.  
Specify either one of the following for the data type:

- Power (Instantaneous power consumption)
- Average power (Average power consumption during the selected time span)

### Output Time Span

Select the time span for the data from the drop-down menu.

Select one of the following options:

- Last hour
- Last day
- Last week
- Last month
- Last year
- Custom

When "Custom" is selected, the following fields must all be specified:

- Start day
- Start time
- End day
- End time

### Rate

Select the graph output interval to export from the drop-down menu.

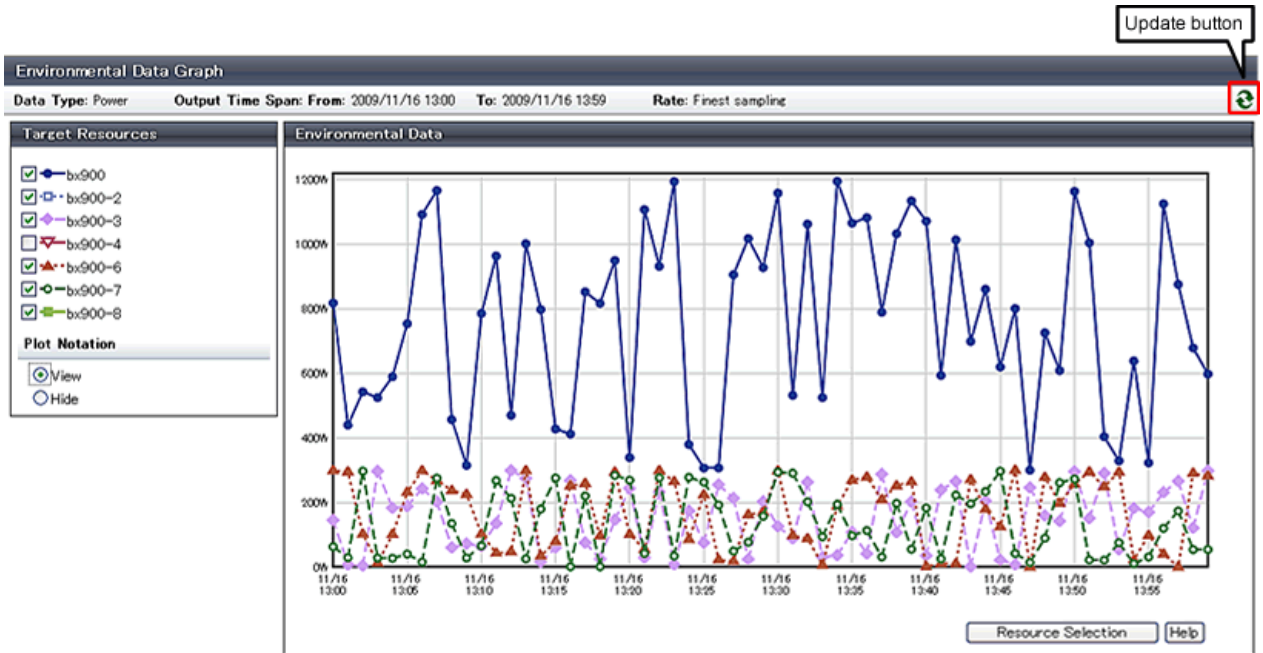
Select one of the following options:

- Finest sampling
- Hourly
- Daily
- Monthly
- Annual

3. Click [Graph Output].

After switching to the graph display window, the selected power consumption data can be displayed in line graphs.

Figure 13.3 Graph Display Window



The following operations can be performed from the graph display window.

- Switching resource display

By selecting and clearing the checkbox of the [Target Resources], it is possible to display or hide the corresponding graph.

- Switching plot symbol display

Selecting the [View] or [Hide] radio button of [Plot Notation] switches between displaying and hiding plot symbols in line graphs.

- Data update

Clicking the update button on the upper right of the screen updates the displayed graph.

- Return to resource selection window.

Clicking [Resource Selection] displays the [Environmental Data Graph] dialog.

### Note

If you change the size of the web browser when displaying graphs, click the update button after doing so.

# Chapter 14 Registering Resources in Resource Pools

This chapter explains how to register a resource managed by Resource Orchestrator to a resource pool.

A resource pool is a type of resource folder displayed on the orchestration tree of ROR console, which stores the resources for selection when creating or adding L-Servers, or performing automatic configuration of network devices.

A resource pool type is specified when creating a resource pool, and only resources of a specific type are stored in each type of resource pool. When installing Resource Orchestrator, one resource pool is created for each resource pool type. For details on operating multiple resource pools, refer to "[Chapter 20 Resource Pool Operations](#)".

This section explains how to register resource pool types and resources to a resource pool.

Table 14.1 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		Auto-configuration of Network Devices	
			Physical L-Server	Virtual L-Server	Simple Configuration Mode	User Customization Mode
VM pool	VM host resources	For details, refer to " <a href="#">14.1 VM Host Resources</a> ".	No	Yes	No	No
Server pool	Physical server resources	For details, refer to " <a href="#">14.2 Physical Server Resources</a> ".	Yes	No	No	No
Storage pool	Virtual storage resources or disk resources	For details, refer to " <a href="#">14.5 Storage Resources</a> ".	Yes	Yes	No	No
Network pool	Network resources or network devices	Refer to " <a href="#">14.3 Network Resources</a> " or " <a href="#">14.4 Network Devices</a> ".	Yes	Yes	Yes	Yes
Address pool	Address set resources	For details, refer to " <a href="#">14.6 Address Set Resources</a> ".	Yes	Yes (*1)	Yes (*3)	No
Image pool	Image resources The following two types are available:  - Virtual image resource An image that is created using a template from VM management software for VM guest creation, or that is collected as a cloning image from an L-Server.  - Physical image resources An image that uses a cloning image from cloning of a physical server in ROR VE.	 - For details on how to register an image that uses a template from VM management software, refer to " <a href="#">14.7.1 Virtual Image Resources</a> ".  - For details on how to register a cloning image that was collected using ROR VE, refer to " <a href="#">14.7.2 Physical Image Resources</a> ".  - For details on how to collect cloning images from an L-Server, refer to " <a href="#">17.5.1 Collecting and Registering</a> ".	Yes (*2)	Yes (*4)	No	No

Yes: Required

No: Not required

\*1: When using RHEL5-Xen, RHEL-KVM, or Citrix Xen, it is necessary to register MAC addresses.

\*2: When collecting cloning images from L-Servers, the images are automatically stored in the image pool.

- \*3: When managing the virtual IP addresses (public IP addresses) used for address translation functions of firewalls, and automatically allocating them, it is necessary to register global IP addresses.
- \*4: When using templates, register them in the image pool.

 **Information**

For details on configuration modification, registration release, and deletion of resources registered in resource pools, refer to "[Chapter 19 Resource Operations](#)".

## 14.1 VM Host Resources

This section explains how to register a VM host in a VM pool.

Moving an L-Server (migration) is only possible between VM hosts belonging to the same cluster group, when two or more cluster groups are registered in the same VM pool.

Use the following procedure to register a VM host in a VM pool:

1. 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.

2. Select the VM host to register.

The list of the VM hosts that can be registered is displayed in the resource list. Select the VM host that you want to register using the [Select] checkbox, or select all VM host resources displayed in the resource list by checking [Select all].

When the [Match network configuration to that of the other VM host] checkbox is displayed, the network can be automatically configured during VM host registration by selecting this checkbox.

 **Information**

The [Match network configuration to that of the other VM host] checkbox may be displayed when there are no VM hosts registered in a pool. This is because there is a VM host with automatic network configuration in the same cluster.

To use uniform network settings in a cluster, select the checkbox and perform registration of VM host resources.

3. Click the [OK] button.

The VM host resource is registered.

 **Note**

When changing the status of the partition on which a VM host is configured after registering the VM host in a VM pool on the PRIMEQUEST 2000 series, unregister the VM host first. If the VM host is not unregistered, an unusable VM host will remain registered.

- When changing the Extended Partitioning Mode of a PPAR partition to "Enable" while a VM host configured on the PPAR partition is registered in a VM pool

## 14.2 Physical Server Resources

This section explains how to register a physical server in a server pool.

Use the following procedure to register a physical server in a server pool:

1. In the ROR console orchestration tree, right-click the server pool, and select [Register Resources] from the popup menu. The [Register Resources] dialog is displayed.

2. Select the physical server to register.

The list of the physical servers that can be registered is displayed in the resource list. Select the physical server that you want to register using the [Select] checkbox, or select all registered physical servers displayed in the resource list by clicking the [Select all] button.

## Note

- When the [Display servers with OS installed] checkbox is checked, physical servers with OSs installed are displayed in the resource list. However, physical servers with OSs installed cannot be used for creating L-Servers.

Do not check the [Display servers with OS installed] checkbox.

- Do not select servers for which I/O virtualization is not available, such as other vendor's servers and Solaris, as those servers cannot be used to create physical L-Servers.

When managing configured Solaris physical servers, refer to "[Chapter 18 Linking L-Servers with Configured Physical Servers or Virtual Machines](#)" for details.

### 3. Click the [OK] button.

The physical server is registered.

## Note

- When changing the status of a partition after registering the partition in a server pool on a PRIMEQUEST 2000 series, unregister the partition first. If the partition is not unregistered, an unusable partition will remain registered.
  - When changing the Extended Partitioning Mode of a PPAR partition to "Enable" while the PPAR partition on which a physical server is configured is registered in a server pool
  - When changing the Extended Partition Mode of a PPAR partition on which Extended Partitioning is configured to "Disable" while the Extended Partition on which a physical server is configured is registered in a server pool
  - When deleting the Extended Partition from a PPAR partition on which Extended Partitioning is configured while the Extended Partition on which a physical server is configured is registered in a server pool
- When using [Function number expansion (Onboard)] on a physical L-Server, register a server that satisfies all of the following conditions as a physical server resource. Physical L-Servers cannot be created for servers that do not satisfy these conditions.
  - PRIMERGY BX920 S3, BX924 S3, BX920 S4, BX924 S4, BX2560 M1, BX2560 M2, BX2580 M1, BX2580 M2
  - Onboard CNA connected to a 10G LAN switchboard

## 14.3 Network Resources

---

This section explains how to create a network resource and register the resource in a network pool.

Network resources can be created using the following methods:

- Creating new network resources

Refer to "[14.3.1 Creating New Network Resources](#)".

- Creating network resources using already registered admin LAN subnets

Refer to "[14.3.2 Creating Network Resources Using Already Registered Admin LAN Subnets](#)".

The network resource for the admin LAN that is directly connected from the manager is automatically created with the values of "AdminLan" for the network resource name and "1" for the VLAN ID.

To change these values, delete "AdminLan", and then create a new network resource following the procedure provided in "[14.3.2 Creating Network Resources Using Already Registered Admin LAN Subnets](#)".

When configuring the subnet settings in network resources, confirm that the following IP addresses are not included in the subnet scope. Set them as excluded addresses when they are included in the subnet scope.

- IP addresses of detected, unregistered servers
- IP addresses of VM management software
- Admin LAN IP addresses for LAN switch blades



- IP address of the default gateway
- iRMC addresses
- IP addresses and virtual IP addresses of network devices

### Information

As the virtual IP addresses configured using simple configuration mode for auto-configuration of network devices are automatically allocated from network resources, it is not necessary to configure them as excluded IP addresses.

### Note

- In order to connect with an installation server, the admin LAN IP address is necessary when creating an L-Server with an image specified.  
Therefore, create admin LAN network resources for the admin LAN for the VM host, in the pool within the user's access scope.
- When using [Function number expansion (Onboard)] on a physical L-Server, create an admin resource with a VLAN ID of 2 - 4094, as it is necessary to allocate a VLAN ID within this range as the UMC LPVID.

## 14.3.1 Creating New Network Resources

Use the following procedure to create a new network resource and register it in a network pool:

When using VMware as server virtualization software, and using the same VLAN for both the service console and the port group, configure the port group name to be excluded from network auto-configuration in the "VMware Excluded Port Group Definition Files" beforehand.

An L-Server can be created, even if there are multiple port groups that have the same VLAN.

When a user wants to perform network auto-configuration using an arbitrary physical NIC, specify a physical LAN segment of a server NIC definition from network resources, defining a physical NIC to use for the server NIC definitions. To reflect the physical NIC configuration specified in the server NIC definition file on Resource Orchestrator, use the `rcxadm nicdefctl commit` command.

The command operations enable the network auto-configuration to perform in the configurations using arbitrary physical NICs.

### See

- For details on how to specify a port group to be excluded from network auto-configuration, refer to "15.14 VMware Exclusion Port Group Definition File" in the "Reference Guide (Command/XML) CE".
- For details on the `rcxadm nicdefctl` command, refer to "5.15 rcxadm nicdefctl" in the "Reference Guide (Command/XML) CE".
- For details on the server NIC definitions, refer to "15.13 Server NIC Definition" in the "Reference Guide (Command/XML) CE".

1. In the ROR console orchestration tree, right-click the target network pool, and select [Create Network Resource]-[New] from the popup menu.  
The [Create a network resource] dialog is displayed.

2. Enter the following items:

#### Network resource name

Enter a name for the network resource.

- When selecting [Admin LAN] for type

Enter up to 16 characters beginning with an alphabet character (upper or lower case), and including alphanumeric characters (upper or lower case), underscores ("\_"), periods ("."), or hyphens ("-").

- If a type other than [Admin LAN] is selected.

Enter up to 32 characters beginning with an alphanumeric character (upper or lower case), and including alphanumeric characters (upper or lower case), underscores ("\_"), periods ("."), or hyphens ("-").

## Note

Specify a name different from the resource name of the address set resource that manages the WWN and MAC address for a network resource name.

### Type

Set the network resources type to create using the following option buttons:

- Public LAN
- Admin LAN
- iSCSI boot

When creating the public LAN, a network resource name and a VLAN ID must be entered.

When creating a network resource for the admin LAN, a network resource name, a VLAN ID, a subnet address, and a subnet mask must be entered.

When creating a network resource for iSCSI boot, a network resource name, a VLAN ID, a subnet address, and a subnet mask must be entered.

In a clustered manager configuration, when creating network resources used for an admin LAN for the first time, perform "[Settings for Clustered Manager Configurations](#)" in "[5.11 Registering Admin LAN Subnets](#)". When performing configuration, replace "admin LAN subnets" with "network resources for an admin LAN".

The reason for configuring the settings above is that the admin LAN subnet is also configured at the same time, when creating new network resources.

## Information

A network resource for the admin LAN is automatically created as the management network that is specified when installing Resource Orchestrator.

When using two or more management networks, create two or more network resources for admin LANs.

It is not necessary to register admin LAN subnets of the server resource tree.

For details on how to register admin LAN subnets, refer to "[5.11 Registering Admin LAN Subnets](#)".

### Detail configuration

Make settings to suit usage.

- Use configured virtual switches.

Select this checkbox to use a virtual switch that was set up beforehand.

Clear this checkbox if VLAN auto-configuration is to be used for the external port of the LAN switch blade.

- Automatically configure VLANs for the uplink ports

Select this checkbox if VLAN auto-configuration is to be used for the external port of the LAN switch blade.

### VLAN ID/Uplink port settings

Perform the settings for VLAN IDs and uplink ports.

#### VLAN ID

Specify the VLAN ID to allocate to the LAN switch blade and virtual switch. Select a VLAN ID allocated to the uplink port of the LAN switch blade, or enter a number. Specify a pre-designed VLAN ID.

Enter an integer between "1" and "4094".

- For external networks including blade servers

Select the VLAN ID of an uplink port.

- For internal networks or external networks with rack mount servers only:

Enter a VLAN ID.

Specifying VLAN IDs and clicking [Setting] displays the [Define VLAN ID/Uplink port settings] dialog.

#### Uplink port settings (Chassis/LAN Switch/Position/Port/LAG Name) (Optional)

If you connect an external network to an L-Server, perform the settings for the internal ports and virtual switches of the LAN switch blade to enable communication for the specified ports.

Information for an uplink port consists of the following information.

- Chassis name

Displays the chassis name for the external connection port.

- LAN Switch

Displays the switch name for the external connection port.

- Location to mount

Displays the slot number in the chassis for the external connection port.

- Port number/port name

Displays the port number for the external connection port. If the external port is a link aggregation group, the port numbers of the member ports are displayed, separated by commas (",").

The port name of the Ethernet Fabric (Converged Fabric) CIR port is displayed, when using an Ethernet Fabric (Converged Fabric).

- LAG

If the external port is a link aggregation group, the link aggregation group name is displayed.

- Untagged VLAN

Displays the Untagged VLAN information set in the external connection port.

- Tagged VLAN

Displays the Tagged VLAN information set in the external connection port, separated by commas (",").

Make the settings for the external port as follows.

- a. Click the [Setting] button in [VLAN ID/Uplink port settings] in the [Create a network resource] dialog.

The [Uplink port settings] dialog is displayed.

- b. Specify the uplink port to use when automatically setting external networks, including blade servers.

Select two ports to make into a pair.

For details on how to configure link aggregation on LAN switch blades, refer to "C.3.2 Preparations" in the "Design Guide CE".

#### **If there are multiple chassis**

Select the all ports of the chassis to use.

#### **When using Converged Fabric (When specifying a configuration other than link aggregation)**

Select one or more Converged Fabric CIR ports. It is not necessary to select the external port, when there are multiple pairs of ports and chassis.

#### **When specifying a port in a link aggregation configuration (When specifying LAN switch blade PY CB 10Gb FEX Nexus B22)**

Confirm the settings of the LAN switch blade in advance, and select one or more uplink ports for which link aggregation has been configured.

**When specifying a port in a link aggregation configuration (For Converged Fabric)**

Configure a link aggregation configuration in the CIR port for Converged Fabric, reflect the link aggregation information on Resource Orchestrator, and then select link aggregation port identification information for the configured link aggregation.

**When specifying a port in a link aggregation configuration (When specifying something else)**

Set a link aggregation configuration on the uplink ports of LAN switch blades in advance, reflect the link aggregation information for LAN switch blades, and then select a configured link aggregation group name.

**When specifying a port with pinning connections (When specifying LAN switch blade PY CB 10Gb FEX Nexus B22)**

Select one of the internal connection ports and all uplink ports with pinning connections.

The ports displayed for the selected targets of "Uplink ports" can be filtered based on the following items.

- "Filter ports by VLAN ID"
- Chassis name
- Switch name
- Location to mount
- Port number/port name
- LAG name

If the VLAN auto-configuration of the external port is to be used, clear the [Filter ports by VLAN ID] checkbox, and check the checkbox of the external port that was set up beforehand.

Do not specify for internal networks or external networks with rack mount servers only.

**Subnet settings (Optional)**

This setting can be omitted if [Public LAN] is specified for the type.

Enter if you want to automatically set a network and IP address for the NIC connected to the network resource when deploying an image on an L-Server. IP addresses included in subnet addresses are allocated to L-Servers, but it is possible to specify a range of addresses to exclude. Clicking the [Add] button will display the Define start and end IP addresses dialog, specify the range of IP addresses to exclude, and click the [Add] button. To reactivate excluded IP addresses, check the appropriate checkboxes on the list, and click the [Delete] button. Clicking the [OK] button displays the original dialog with the entered settings.

Network addresses and broadcast addresses are automatically excluded.

 **Information**

If a subnet address has been set for the network resource, the IP address can be automatically set when deploying an image to an L-Server.

If no subnet address is set, the DHCP settings are adopted.

**Subnet address/mask**

Enter the subnet address and subnet mask to set using the "xxx.xxx.xxx.xxx" format.

The maximum value for a subnet mask is 255.255.255.255 (32-bit mask) and the minimum value is 255.255.0.0 (16-bit mask). However, 255.255.255.254 cannot be specified.

## Note

- When creating a physical L-Server, specify a different subnet from admin LAN for the public LAN subnet.
- Specifying the same subnet between network resources for an admin LAN is not possible. For details, refer to "Chapter 9 Defining and Configuring the Network Environment" in the "Design Guide CE".

### Default gateway (Optional)

This setting can be omitted if something other than [Admin LAN] is selected.

Enter the IP address for the default gateway to use when communicating externally of the subnet.

### Exclusion IP range (Optional)

IP addresses that you do not want to automatically allocate to an L-Server (because they are being used or are planned to be used for other devices) can be specified.

## Information

The IP addresses that are being used by configured physical servers, virtual machines, and other devices must be specified for this item in order to prevent them from being used for L-Servers.

## Note

Of the IP addresses specified for the Subnet address/mask, the following addresses are automatically excluded from the target of allocation. They cannot be specified for Exclusion IP range.

- Admin server
- Network address and broadcast address

### Ruleset (Optional)

Select a ruleset to use from the rulesets available for network resources.

Register the ruleset to use in the common folder on the network device for the network resource. For the folder to register the ruleset for the network resource in, refer to "F.3.2 Folders for Network Resources" in the "Design Guide CE".

### Physical LAN segment (Optional)

When using network auto-configuration with a physical NIC, specify the physical LAN segment.

If no server NIC is defined, [Setting] will not be displayed for the physical LAN segment.

For details on the server NIC definitions, refer to "15.13 Server NIC Definition" in the "Reference Guide (Command/XML) CE".

### Label (Optional)

A custom label can be defined for the network resource. User-defined labels make it easier to identify the resource.

Enter a maximum of 32 characters.

### Comment (Optional)

A custom comment can be defined for the network resource. For example, registering detailed work content, troubleshooting, and recovery procedures can speed up recovery.

Enter a maximum of 256 characters.

### 3. Click the [OK] button.

The network resource is created and registered in a network pool.

When the [Automatically configure VLANs for the uplink ports.] checkbox in the VLAN ID/Uplink port settings is checked, a tagged VLAN is automatically configured in the uplink port of LAN switch blade, when creating a network resource.

## 14.3.2 Creating Network Resources Using Already Registered Admin LAN Subnets

---

Use the following procedure to create a network resource using an admin LAN subnet, and register it in a network pool:

1. In the ROR console orchestration tree, right-click the target network pool, and select [Create Network Resource]-[Using existing admin subnet] from the popup menu.

The [Create a network resource] dialog is displayed.

2. Enter the following items:

Network resource name

Clicking the [Select] button displays the [Select a subnet for the admin LAN] dialog.

Select an already configured admin LAN subnet.

When the selected admin LAN subnet has no name, enter the name of a network resource for "Network resource name".

Enter up to 32 characters beginning with an alphanumeric character (upper or lower case), and including alphanumeric characters (upper or lower case), underscores ("\_"), periods ("."), or hyphens ("-").

Click the [OK] button.

Type

"Admin LAN" is displayed.

VLAN ID/Uplink port settings

Refer to "[VLAN ID/Uplink port settings](#)" of "[14.3.1 Creating New Network Resources](#)".

Subnet settings (Optional)

Refer to "[Subnet settings \(Optional\)](#)" of "[14.3.1 Creating New Network Resources](#)".

Ruleset (Optional)

Refer to "[Ruleset \(Optional\)](#)" in "[14.3.1 Creating New Network Resources](#)".

Physical LAN segment (Optional)

Refer to "[Physical LAN segment \(Optional\)](#)" in "[14.3.1 Creating New Network Resources](#)".

Label (Optional)

Refer to "[Label \(Optional\)](#)" of "[14.3.1 Creating New Network Resources](#)".

Comment (Optional)

Refer to "[Comment \(Optional\)](#)" of "[14.3.1 Creating New Network Resources](#)".

3. Click the [OK] button.

The network resource is created and registered in a network pool.

When the [Automatically configure VLANs for the uplink ports.] checkbox in the VLAN ID/Uplink port settings is checked, a tagged VLAN is automatically configured in the uplink port of LAN switch blade, when creating a network resource.

## 14.4 Network Devices

---

This section explains how to register a network device in a network pool.

Use the following procedure to register a network device in a network pool as a resource:

1. Right-click the target network pool in the orchestration tree, and select [Register Resources] from the popup menu.

The [Register Resources] dialog is displayed.

2. Check the [Select] checkbox for the resource to register.

3. Click the [OK] button.

The network device is registered in the network pool as a resource.

## Point

When registering or modifying the network devices to be registered in a network pool as resources, the Type element of the XML definition must be "Firewall" or "SLB".

## Information

### Script execution to perform auto-configuration of network devices

When there are the folder names of rulesets corresponding to [Vendor] and [Unit Name] or [Model Name] of network devices registered in the network pool, the scripts registered in the relevant ruleset folder are executed.

Use the following procedure to confirm the [Vendor] and [Unit Name] or [Model Name] of the network device.

1. Select the network device to confirm in the network device tree on the ROR console.
2. Select the [Resource Details] tab.

In the [General] section, [Vendor], [Unit Name] and [Model Name] are displayed.

## 14.5 Storage Resources

---

This section explains how to register a storage resource in a storage pool.

The registration method varies depending on the type of storage resource.

### For Physical L-Servers

- Virtual Storage Resources

Refer to "[Virtual Storage Resources and Disk Resources for Physical L-Servers](#)".

- Disk Resources

Refer to "[Virtual Storage Resources and Disk Resources for Physical L-Servers](#)".

- iSCSI Boot Disks

To register iSCSI boot disks, execute the iSCSI boot operation command (rcxadm iscsictl).

For details on the rcxadm iscsictl command, refer to "5.10 rcxadm iscsictl" in the "Reference Guide (Command/XML) CE".

When registering a disk for iSCSI boot in a storage pool, it is recommended to use the appropriate physical storage unit resource allocation method (thin provisioning or thick provisioning) for that disk.

This does not affect the allocation method of storage resources in the storage pool.

## Note

If iSCSI boot information already registered is specified, the registered information continues to exist.

If the registered information is changed, delete the iSCSI boot information using the unregister subcommand, and then register the iSCSI boot information by using the register subcommand again.

### For Virtual L-Servers

- Virtual Storage Resources

Refer to "[Virtual Storage Resources and Disk Resources for Physical L-Servers](#)".

Do not register virtual storage resources corresponding to the Solaris 11 zfs root pool, to the storage pool.

[Solaris Zones (Solaris 10)]

It is not necessary to register virtual storage resources.

- Disk Resources [KVM] [Solaris Zones (Solaris 10)] [OVM for SPARC]

Register the raw devices or partitions recognized by VM hosts (for Solaris Zones, the global zone) as disk resources.

When a VM host not managed with server management software is used, it is not necessary to register disk resources.

Disk resources can be registered by executing the `rcxadm disk register` command.

When performing migration of VM guests (for Solaris Zones, non-global zones) corresponding to virtual L-Servers, register devices that are shared between VM hosts as disk resources defined to be shared.

For details on the `rcxadm disk` command, refer to "3.3 `rcxadm disk`" in the "Reference Guide (Command/XML) CE".



## Note

[KVM] [Solaris Zones (Solaris 10)] [OVM for SPARC]

For disk resources used by virtual L-Servers, the content of disks will remain when disks are detached from the L-Server, or when the L-Server itself is deleted.

When using disk resources that are registered in global pools, perform operation carefully, as the disk resources can be allocated to any users.

When using disk resources for virtual L-Servers, it is recommended to operate the disks in a local pool, and delete data on the disks during deletion of L-Servers or detachment of disks.

Use the following methods to delete the data on disks.

- Using an OS, perform disk formatting while the L-Server is connected
- Using a function of the storage, perform disk formatting (For ETERNUS)
- Create a LUN again

[KVM]

- Disk resources created beforehand

The content of disk resources created beforehand remains without being deleted, as explained above.

Disk resources created from virtual storage are deleted.

- Deletion of the content of disk resources created beforehand

The deletion of the content of disks can be automated by specifying "true" for "CLEAN\_VM\_GUEST\_DISK\_RESOURCE" in the definition file "storage.rcxprop" when the deletion of the content of the disks of all KVM virtual L-Servers in the system is possible.

When you specify the deletion of the content of the disks for each virtual L-Server, specify "false" for "CLEAN\_VM\_GUEST\_DISK\_RESOURCE" in the definition file "storage.rcxprop".

Refer to "8.6.1 Creating Definition Files" in the "Setup Guide CE".

Register the disk resources that one VM host can use in one storage pool. Creating the L-Server might fail when disk resources have been divided between two or more storage pools.

When registering a disk resource for virtual L-Servers in a storage pool, it is recommended to use the appropriate physical storage unit resource allocation method (thin provisioning or thick provisioning) for that disk resource.

This does not affect the allocation method of storage resources in the storage pool.

## Virtual Storage Resources and Disk Resources for Physical L-Servers

Use the following procedure to register a storage resource:

1. 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.



2. Select the storage resource to register from [Resources].

#### Resources

##### Virtual storage

When creating a specified size of disk automatically from the virtual storage during L-Server creation, select [Virtual storage]. When [Virtual Storage] is selected, the virtual storage resources which can be registered are displayed in the resource list.

Select the virtual storage resource which you want to register using the [Select] checkbox of the resources, or select all registered virtual storage resources by checking [Select all].



#### Note

- Virtual storage resources cannot be selected for EMC storage.
- Virtual storage resources cannot be selected for the Storage Server on which FalconStor NSS operates.
- Do not register virtual storage resources corresponding to the Solaris 11 zfs root pool, to the storage pool.

##### Disk resource

When using a disk that has been created in advance as an L-Server, select [Disk resource].

When the following items are specified as search conditions, the list of the relevant disk resources that can be registered is displayed.

##### Virtual storage

Select a virtual storage where there is a disk that has been created in advance.

##### Size

Enter the size of the disk resource.

##### Minimum value

Enter the lowest value of the disk size to be searched as a number with up to one decimal place, in units of gigabytes. Check the [Minimum value] checkbox, and enter a value lower than the maximum value.

##### Maximum value

Enter the highest value of the disk size to be searched as a number with up to one decimal place, in units of gigabytes. Check the [Maximum value] checkbox, and enter a value higher than the minimum value.

Depending on the value of the second decimal place of the disk size, matching disks may not be able to be displayed in the result. For search conditions, specify a size allowing for errors.

##### Resource Name

Specify the name of the disk to be found.

- Begins with

Specify when searching for disks whose names begin with the specified string.

- Includes

Specify when searching for disks whose names include the specified string.

Select the disk resource which you want to register using the [Select] checkbox of the displayed disk resources, or select all registered disk resources by clicking the [Select all] button.

When using Thin Provisioning or Automatic Storage Layering, the displayed resources that can be registered differ depending on whether Thin Provisioning attributes of storage pools are configured or not.

For details on resources which can be registered, refer to "10.1.1 Allocating Storage" in the "Design Guide CE".

3. Click the [OK] button.

The storage resource is registered.

## Note

When using a LUN that has been created in advance and a LUN for iSCSI boot as a disk resource, if the L-Server is deleted or disks are deleted from L-Servers, the content of disks will remain (is not deleted).

When using disk resources that are registered in global pools, perform operation carefully, as the disk resources can be allocated to any users.

When using a LUN that has been created in advance as a disk resource, it is recommended to operate the LUN in a local pool, and delete data on the disk during deletion of L-Servers or detachment of disks.

Use the following methods to delete the data on disks.

- Using an OS, perform disk formatting while the L-Server is connected
- Using a function of the storage, perform disk formatting (For ETERNUS)
- Create a LUN again

## 14.6 Address Set Resources

---

This section explains how to create an address set resource and register the resource in an address pool.

In the following cases, it is necessary to create address set resources and register them in the address pool:

- When Creating Physical L-Servers

- For blade servers

For WWNs and MAC addresses, it is necessary to create address set resources and register them in the address pool.

- For rack mount servers

For WWNs, it is necessary to create address set resources and register them in the address pool.

It is not necessary to create or register address set resources, since MAC addresses allocated to network adapters of physical servers are used.

- When creating a virtual L-Server with the VM type "RHEL-Xen", "RHEL-KVM", or "Citrix Xen"

For MAC addresses, it is necessary to create address set resources and register them in the address pool.

- When performing auto-configuration of network devices using simple configuration mode

When managing the virtual IP addresses (public IP addresses) used for address translation functions of firewalls, and allocating them automatically, it is necessary to create the address set resources of global IP addresses and register them in the address pool.

## Note

Specify a name different from the resource name of the network resource (address set name) for the address set resource name.

Use the following procedure to create an address set resource and register it in an address pool:

### Registration in Address Pools (WWNs)

To register a WWN in an address pool, execute the `rcxadm addrset create` command.

For details on the `rcxadm addrset create` command, refer to "3.1 `rcxadm addrset`" in the "Reference Guide (Command/XML) CE".

### Registration in Address Pools (MAC Addresses)

To register a MAC address in an address pool, execute the `rcxadm addrset create` command.

For details on the `rcxadm addrset create` command, refer to "3.1 `rcxadm addrset`" in the "Reference Guide (Command/XML) CE".

## Registration in Address Pools (Global IP Addresses)

To register a global IP address in an address pool, execute the `rcxadm addrset create` command.

Register the global IP addresses so they are not shared between tenants in the local pool.

In Disaster Recovery environments, switchover of global IP addresses is not supported. Do not register global IP addresses.

For details on the `rcxadm addrset create` command, refer to "3.1 `rcxadm addrset`" in the "Reference Guide (Command/XML) CE".

An address set resource will be created and registered in the address pool.

## 14.7 Image Resources

---

This section explains how to register a cloning image to a resource pool.

The registration method varies depending on the type of image resource.

### Point

---

The image type is as follows:

- Physical
  - VMware, Hyper-V, OVM for x86 2.2, OVM for x86 3.x, Citrix Xen, Solaris Zones, OVM for SPARC
  - KVM, Xen
- 

### 14.7.1 Virtual Image Resources

---

This section explains how to register a cloning image to a resource pool.

When an image (template) has been created in advance using VM management software, register it to the image pool using the following procedure:

When a VM host not managed with server management software is used, it is not necessary to register cloning images.

1. In the ROR console orchestration tree, right-click the target image pool, and select [Register Resources] from the popup menu.

The [Register Resources] dialog is displayed.

2. Select a cloning image to register.
3. Click the [OK] button.

The cloning image is registered.

### 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 "Operation Methods for Cloning Image Collection" in "[17.5 Cloning Image Operations](#)" for the operation.

[Citrix Xen]

- The virtual image resource acquires information from the pool master of Citrix XenServer registered with this product. When the pool master is not registered, register a pool master as a VM host. After registration, perform registration after waiting for a while.
-

## Note

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- For images (templates) created in advance using VM management software, change the name of a template as follows to enable Resource Orchestrator to process it:
  - Delete any characters other than alphanumeric characters and underscores ("\_").
  - Ensure an alphabetic character is used for the first character.

- When using an image created beforehand (template), configure the system disk for template using the following settings:

[VMware]

SCSI:0:0

[Hyper-V]

IDE:0:0

[OVM for x86 2.2]

- For PVM (Para-Virtualized Machine)

xvda

- For HVM (Hardware Virtualized Machine)

hda

[Citrix Xen]

userdevice:0

[OVM for x86 3.x]

Slot 0

When using something other than the above for the system disk, the L-Server creation process that accompanies cloning image deployment may fail.

- Note the following points when creating an image (template) with a VM management product.

[Citrix Xen]

Do not use single quotations (') in the image name.

[Hyper-V]

When using Virtual Machine Manager from System Center 2012 or later as VM management software, only templates with an attribute of High Availability can be used. Create a template with an attribute of High Availability when you will use the template.

---

## 14.7.2 Physical Image Resources

---

This section explains how to register a cloning image created in advance from a physical server to a resource pool.

1. In the ROR console orchestration tree, right-click the target image pool, and select [Register Resources] from the popup menu.

The [Register Resources] dialog is displayed.

2. Select a cloning image to register.

3. Click the [OK] button.

The cloning image is registered.

# Chapter 15 L-Server Template Operations

This section explains how to operate 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. Use the following XML format.

There are two ways to create an L-Server template:

- Using the Wizard GUI

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

For details, refer to "[15.1 Operations Using the Wizard GUI](#)".

- Creation Using an Editor

L-Server templates can be created using an editor.

For details, refer to "[15.2 Editing a Template Using an Editor](#)".

Use the UTF-8 character code for L-Server templates.



## Note

When registering the L-Server template to be used on the L-Platform, note the following:

- If using server virtualization software other than VMware, ensure that the VM type has been specified.
- L-Server templates with extended disks cannot be used. Register 1 for the number of disks.
- Physical L-Server templates that specify a model name cannot be used. Also, ensure that the number of CPUs, CPU performance, and memory size have been specified.
- Specify only one NIC definition. Also, if less NICs are configured in the L-Platform server than in the L-Server template, the L-Platform will fail to deploy or servers will fail to be added.
- L-Server templates whose "ServerImageLink" is enabled cannot be used.  
If an L-Server template whose "ServerImageLink" is enabled is used, deploying an L-Platform or adding a server may fail.
- When enabling [Function number expansion (Onboard)], add the same number of NICs as the number of functions using the L-Platform template.

For example, when [Function number expansion (Onboard)] is set to "2" for a physical server environment with only onboard CNA, it is necessary to set four NICs for four functions (two ports x two functions).

## 15.1 Operations Using the Wizard GUI

This section explains how to operate an L-Server template using the wizard-style GUI.

From the wizard GUI, it is possible to perform the following operations:

- Viewing a Template

Refer to "[15.1.1 Viewing](#)".

- Creation

Refer to "[15.1.2 Creating](#)".

- Modification

Refer to "[15.1.3 Modifying](#)".

- Copying a Template

For details, refer to "[15.1.4 Copying](#)".

- Deleting a Template  
Refer to "[15.1.5 Deleting](#)".
- Export  
Refer to "[15.1.6 Export](#)".
- Import  
Refer to "[15.1.7 Import](#)".
- Creating a Template Using an Another Existing Template  
Refer to "[15.1.8 Creating a Template Using an Another Existing Template](#)".

## 15.1.1 Viewing

---

Use the following procedure to view a list of L-Server templates:

1. Select the ROR console orchestration tree, and select [File]-[L-Server Template]-[Edit] from the ROR console menu.  
The [ROR L-Server Template Editor] window is displayed.
2. The information of registered L-Server templates is displayed on the [L-Server Template Management] tab.  
The L-Server template information and the buttons that will be displayed are shown below.

### Buttons

#### [Create] button

Click when creating an L-Server template. For details, refer to "[15.1.2 Creating](#)".

#### [Import] button

Click when importing an L-Server template. For details, refer to "[15.1.7 Import](#)".

### L-Server template List

In each page of the list, 10 items can be displayed.

It is possible to specify the page number to display, move forwards and backwards by single pages, and move to the first or last page.

#### Name (Label)

The L-Server template name and label are displayed.

#### Server Type

The server type is displayed.

For physical L-Server templates, "Physical" is displayed.

For virtual L-Server templates, "VM" is displayed.

#### Server Specifications

When the server type is "Physical", the model name of the server is displayed.

When the server type is "VM", the CPU frequency multiplied by the number of CPUs, and the memory size are displayed.

#### Disk Capacity

The disk capacity is displayed, in units of GB.

#### NIC Number

The number of NICs for the L-Server template is displayed.

#### Redundancy

Server redundancy is displayed.

#### Position

The boot location is displayed.

#### [Modify] button

Click when modifying an L-Server template. For details, refer to "[15.1.3 Modifying](#)".

#### [Copy] button

Click when copying an L-Server template. For details, refer to "[15.1.4 Copying](#)".

#### [Delete] button

Click when deleting an L-Server template. For details, refer to "[15.1.5 Deleting](#)".

#### [Export] button

Click when exporting an L-Server template. For details, refer to "[15.1.6 Export](#)".

Clicking the [L-Server To Template Conversion] tab displays the information of registered L-Servers.

The L-Server information that is displayed is shown below.

#### L-Server List

In each page of the list, 10 items can be displayed.

It is possible to specify the page number to display, move forwards and backwards by single pages, and move to the first or last page.

#### Server Name

The L-Server name is displayed.

#### Server Type

The server type is displayed.

For physical L-Servers, "Physical" is displayed.

For virtual L-Servers, "VM" is displayed.

#### Server Specifications

When the server type is "Physical", the model name of the server is displayed.

When the server type is "VM", the CPU frequency multiplied by the number of CPUs, and the memory size are displayed.

#### Disk Capacity

The disk capacity is displayed, in units of GB.

#### NIC Number

The number of NICs on the L-Server is displayed.

#### Position

The boot location is displayed.

#### [Export of Template] button

Click when exporting an L-Server template.

For details, refer to "[15.1.8 Creating a Template Using an Another Existing Template](#)".

## 15.1.2 Creating

---

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

To create a Physical L-Server Template, refer to "[15.1.2.1 Creating a Physical L-Server Template](#)".

To create a Virtual L-Server Template, refer to "[15.1.2.2 Creating a Virtual L-Server Template](#)".

## 15.1.2.1 Creating a Physical L-Server Template

Use the following procedure to create a physical L-Server template:

1. Select the ROR console orchestration tree, and select [File]-[L-Server Template]-[Edit] from the ROR console menu.

The [L-Server Template Management] tab is displayed on the [ROR L-Server Template Editor] window.

2. In the [L-Server Template Management] tab of the [ROR L-Server Template Editor] window, click [Create].

The [Create L-Server Template] dialog is displayed.

3. Configure the following settings:

- a. Enter basic information.

### Name

Enter the name of the L-Server template.

The character string within 32 characters composed of alphanumeric character, underscore ("\_"), and hyphen ("-") is specified in the first alphanumeric character.

### Label (Optional)

Enter a label for the L-Server template.

Specify a string of up to 32 characters.

### Comments (Optional)

Enter a comment for the L-Server template.

Specify a string of up to 256 characters.

### Server Type

Select a server type.

Select "Physical" when creating a physical L-Server template.

### Server Specification Methods

When Server Type is "Physical", the "Model", and "CPU and Memory" of the server are displayed.

Click "Model" to select a model name to allocate to the L-Server.

Clicking <CPU and Memory> enables you to enter the number of CPUs, CPU performance, and memory size of the server allocated to the L-Server.

### Model

Select a model name.

The following models are displayed:

When using a model name that is not displayed, enter the model name.

- PRIMERGY BX2560 M1

- PRIMERGY BX2560 M2

- PRIMERGY BX2580 M1

- PRIMERGY BX2580 M2

- PRIMERGY BX620 S6

- PRIMERGY BX620 S5

- PRIMERGY BX620 S4

- PRIMERGY BX920 S4

- PRIMERGY BX920 S3

- PRIMERGY BX920 S2



- PRIMERGY BX920 S1
- PRIMERGY BX922 S2
- PRIMERGY BX924 S4
- PRIMERGY BX924 S3
- PRIMERGY BX924 S2
- PRIMERGY BX960 S1
- PRIMERGY RX100 S6
- PRIMERGY RX100 S5
- PRIMERGY RX200 S8
- PRIMERGY RX200 S7
- PRIMERGY RX200 S6
- PRIMERGY RX200 S5
- PRIMERGY RX200 S4
- PRIMERGY RX2520 M1
- PRIMERGY RX300 S8
- PRIMERGY RX300 S7
- PRIMERGY RX300 S6
- PRIMERGY RX300 S5
- PRIMERGY RX300 S4
- PRIMERGY RX4770 M1
- PRIMERGY RX4770 M2
- PRIMERGY RX600 S5
- PRIMERGY RX600 S4
- PRIMERGY RX900 S1
- PRIMERGY TX150 S7
- PRIMERGY TX150 S6
- PRIMERGY TX200 S6
- PRIMERGY TX200 S5
- PRIMERGY TX300 S6
- PRIMERGY TX300 S5
- PRIMERGY TX300 S4
- Other PC servers

#### Converged Network Adapter Settings

##### **Function number expansion (Onboard)**

Select either [Enable] or [Disable]. By default, [Disable] is selected.

##### **Number of functions per board**

Select "2" or "4".

Set the basic information, and click [Next].

- b. Enter information on the CPU and memory.

**CPU Perf**

Select the CPU frequency. Enter a number between 0.1 and 10.

**CPU Num**

Enter the number of CPUs to be allocated to the L-Server.

Enter a number between 1 and 240.

**Memory Size**

Enter the memory capacity to be allocated to the L-Server.

Enter a number between 0.1 and 8192.

Set the basic information, and click [Next].

- c. Enter NIC information.

**NICs**

Enter the number to identify the NIC definition to allocate to the L-Server.

**Index**

Index is a number in which the NIC definition allocated in L-Server is identified.

Configure a number in the following range:

0 - 31

Click [Add NIC] to add a NIC.

Click [Delete] to delete a NIC.

**NIC Num**

Specify the number of network resources (NumOfNetworkLinks) to configure for NICs. Each index is specified.

Specify a number in the following range:

1 - 4098

**NIC Group (Optional)**

Specify a NIC redundancy group. Specify a NIC redundancy group, if necessary.

Up to 16 NIC groups can be added.

**Index**

Index is a number which identifies the NIC redundancy group. Configure a number in the following range:

0 - 15

**NIC Num**

Enter the number of network resources (NumOfNetworkLinks) contained in the NIC redundancy group.

Specify a number in the following range:

1 - 4098

One network resource is set to NIC and the NIC redundancy group when omitting it.

Click [Add NIC Group] to add a NIC Group.

Click [Delete NIC Group] to delete a NIC Group.

**NICs**

Select a NIC index to configure as the NIC redundancy group. Two NICs must be specified for the group.

Enter the NIC information, and click [Next].

- d. Enter the disk information.

#### Disk

Enter the disk capacity.

Enter a number in the following range:

0.1 to 2048

Clicking [Add] adds a disk.

Clicking [Delete] deletes the disk.

Up to 60 disk indexes can be added, in the range 0 - 59.

#### Connection Configuration

Select a disk type.

- FC

- iSCSI

When "FC" is selected for the connection type, clicking [Add] adds a disk. Clicking [Delete] deletes the disk.

Enter the disk information and click [Next].

- e. Enter the information regarding repurposing, server redundancy, alive monitoring, and boot location.

#### Repurpose

Specify whether to release the server allocated to the L-Server when the power is turned off.

When not configuring repurpose, select " ".

When automatically releasing a server, select "true".

When not automatically releasing a server, select "false".

" " is selected by default.

#### AllowForceOFF

When physical servers in the spare server pool are running out, make settings to use physical servers that are set for "Allow forced turning off" even if the server is powered on.

When forced powering off of the target physical server is allowed, "true" is displayed.

When forced powering off of the target physical server is not allowed, "false" is displayed.

"false" is selected by default.

#### Redundancy

Select whether server redundancy is to be allocated to the L-Server.

Enables or disables the redundancy settings. Check "HA" when enabling redundancy.

#### Spare server specs

Specify the selection method of spare servers.

Select "Name Order", when selecting a server from servers with the same model name in alphabetical order.

When selecting a server with the same or higher level of performance values, or the server with the least difference in the performance levels, select "Keep Spec".

" " is selected by default.

#### Spare Server ForceOFF

Specify whether to use the physical servers for which "true" is set for "Allow forced turning off" after performing forced powering off of the target physical server, when physical servers in the spare server pool are running out.

When using forced powering off of the target physical server, "true" is displayed.

When not using forced powering off of the target physical server, "false" is displayed.

"false" is selected by default.

### Alive Monitoring

Configure alive monitoring as enabled or disabled.

### FC connection pattern

Specify the name of the pattern file for FC connections.

The list of file names of pattern files for FC connections located under the directory in the manager environment is displayed as a pull-down menu.

[Windows Manager]

*Installation\_folder*\SVROR\Manager\etc\customize\_data\fc\_connection\_pattern

[Linux Manager]

/etc/opt/FJSVrcvmr/customize\_data/fc\_connection\_pattern

" " is selected when there is no FCConnectionPattern file.

As for default, " " is selected.

When the fc\_connection\_pattern file is created after the L-Server template created, it is possible to input directly. Enter a string that is no more than 64 characters long, where the first character is a number or letter and the remaining characters are alphanumeric characters, underscores ("\_") and hyphens ("-").

- f. The dialog to confirm the entered information is displayed.

When "Are you sure to create a new L-Server Template?" is displayed, confirm the content, and then click [Create].



See

For the input ranges for the [Create L-Server Template] dialog, refer to "15.2.1 Physical L-Server Templates" in the "Reference Guide (Command/XML) CE".

## 15.1.2.2 Creating a Virtual L-Server Template

Use the following procedure to create a virtual L-Server template:

When a VM host not managed with server management software is used, it is not necessary to create virtual L-Server templates.

1. Select the ROR console orchestration tree, and select [File]-[L-Server Template]-[Edit] from the ROR console menu.

The [L-Server Template Management] tab is displayed on the [ROR L-Server Template Editor] window.

2. In the [L-Server Template Management] tab of the [ROR L-Server Template Editor] window, click [Create].

The [Create L-Server Template] dialog is displayed.

3. In the [Create L-Server Template] dialog, set the following items. For the setting ranges of each item for each VM type, refer to "[Table 15.1 Setting range of each VM type of L-Server template](#)".

- a. Enter basic information.

#### Name

Enter the name of the L-Server template.

The character string within 32 characters composed of alphanumeric character, underscore ("\_"), and hyphen ("-") is specified in the first alphanumeric character.

#### Label (Optional)

Enter a label for the L-Server template.

Specify a string of up to 32 characters.

### Comments (Optional)

Enter a comment for the L-Server template.

Specify a string of up to 256 characters.

### Server Type

Select a server type.

Select "VM" when creating a virtual L-Server template.

### VM Type

Select a VM type.

The following VM types are displayed:

- VMware
- Hyper-V
- RHEL-Xen
- Oracle VM
- RHEL-KVM
- OVM-SPARC
- Solaris Containers
- Citrix-Xen
- OVM-x86

Set the basic information, and click [Next].

### b. Configure the overcommit function.

#### Overcommit

Decide whether to use the Overcommit function.

Select "true" when using the overcommit function.

Select "false" when not using the overcommit function.

"false" is selected by default.

### c. Enter information on the CPU and memory.

#### CPU Arch

The CPU architecture is displayed.

#### CPU Perf

Enter the CPU frequency.

#### CPU Reserve (Optional)

Enter the minimum size of CPU resources to be reserved for the L-Server. Enter when using the overcommit function.

If left blank, "0" is set when creating an L-Server.

#### CPU Share (Optional)

Enter the relative proportion for allocation of CPU resources.

Enter when using the overcommit function.

By default the value is set to number of CPUs \* 1000 when an L-Server is created.

#### CPU Allocation Priority (Optional)

Enter CPU allocation priority.

Enter when using the overcommit function.

If left blank, "100" is set when creating an L-Server.

#### CPU Num

Enter the number of CPUs to be allocated to the L-Server.

#### Memory Size

Enter the memory capacity to be allocated to the L-Server, in units of gigabytes.

#### Memory Reserve (Optional)

Enter the minimum amount of memory resources to be reserved for the L-Server.

Enter when using the overcommit function.

If left blank, the value specified for the memory size when creating an L-Server is configured.

#### Memory Share (Optional)

Enter the relative proportion for allocation of memory resources on the L-Server.

Enter when using the overcommit function.

If left blank, the value specified for the memory size \* 1024 \* 10 is configured when creating an L-Server.

#### Memory buffer (Optional)

Specify the memory buffer.

By default, "20" is set when enabling a dynamic memory when L-Server is created.

#### Memory Weight (Optional)

Specify the memory allocation priority.

If left blank, "5000" is set when creating an L-Server.

#### Startup RAM (Optional)

Specify the amount of an initial memory.

When omitted, memory capacity is set when dynamic memory is enabled when an L-Server is created.

#### Dynamic Memory (Optional)

Specify "true" when enabling a dynamic memory.

Specify "false" when disabling a dynamic memory.

By default, this information is different depending on an amount of an initial memory and a set value of the memory buffer.

"True" is set when the amount of an initial memory or the memory buffer has already set.

Nothing is set when the amount of an initial memory and the memory buffer are unset.

Enter the CPU and memory information, and click [Next].

#### d. Enter NIC information.

##### NIC Number

Enter the number of NICs.

Enter the NIC information, and click [Next].

#### e. Enter the disk information.

##### Disk

Enter the disk capacity, in units of GB.

Clicking [Add] adds a disk.

Clicking [Delete] deletes the disk.

The index number of DISK is automatically set in ascending order.

Enter the disk information and click [Next].

- f. Enter the information regarding repurposing, server redundancy, boot location, ServerImageLink, and FitDiskSizeToImage.

#### Repurpose

Specify whether to release the server allocated to the L-Server when the power is turned off.

Select "true" when releasing automatically.

Select "false" when not releasing automatically.

Nothing is set by default. In this case, the value set to the definition file is used when an L-Server is created.

For details, refer to "8.11 Advisory Notes for Virtual L-Server Usage" in the "Setup Guide CE".

#### Server Redundancy

Select whether server redundancy is to be allocated to the L-Server.

Enables or disables the redundancy settings.

Check "HA" when enabling redundancy.

#### Alive Monitoring

Configure alive monitoring as enabled or disabled.

This item can only be configured when "Redundancy" is enabled.

#### Positioning

Decide whether the physical location of servers to be allocated to the L-Server can be changed.

Select "Fixed" when starting the L-Server on the same VM host that operated last time.

Select "AttachAtBoot" when automatically selecting the optimal VM host when the L-Server is started.

#### ServerImageLink

Specify "all" when deploying all disks with the same configuration for images, including data disks.

This specification is not required when deploying only system disks.

When "all" is specified in the definition file for L-Server creation, priority is given to "all" even if this setting is not specified.

#### Match Disk Size to Image Disk Size

Specify whether to match the disk size allocated to an L-Server with the disk size of an image during L-Server creation.

Specify "true" when matching the disk size of an L-Server with the disk size of an image.

When specifying "false", the disk capacity allocated to L-Servers is as follows:

- When specifying the images and the L-Server templates

The larger of the disk capacities of the disk size of image and the disk size of the L-Server template (specified by the DiskSize element, when using XML definitions)

- When specifying the images, L-Server templates, and the DiskSize elements in the XML definition files for L-Servers

The larger of the disk capacities of the disk size of image and the disk size specified for the DiskSize element in the XML definitions for L-Servers

- When specifying "false" for the DiskSize elements and the fit\_disk\_size attributes in the XML definition files for L-Servers, and specifying an image without an L-Server template

The larger of the disk capacities of the disk size of image and the disk size specified for the DiskSize element in the XML definitions for L-Servers

When increasing the size of the data disk included in an image during L-Server creation, this parameter should be set to "false", and [ServerImageLink] should be set to "all".

#### Execute a Command at the First Login

Specify the GUIRunOnce command definition file name to specify the command to be executed at the first login. Specify the file name without the extension (.rcxprop).

For details on how to create the GUIRunOnce command definition file, refer to "8.2.1 Creating Definition Files" in the "Setup Guide CE".

If no command is to be executed at the first login, do not specify the file name.

### Participate in the Active Directory Domain

Specify whether to participate in the Active Directory domain.

Specify "true" when participating in the domain.

Specify "false" when not participating in the domain.

"false" is set by default.

g. Click the [Next] button.

The dialog to confirm the entered information is displayed.

When "Are you sure to create a new L-Server Template?" is displayed, confirm the content, and then click [Create].

Table 15.1 Setting range of each VM type of L-Server template

	VMware	Hyper-V	Xen	KVM	Solaris Zones	OVM for x86 3.x	OVM for x86 2.2	OVM for SPARC	Citrix Xen
Overcommit	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes
CPU Arch	IA	IA	IA	IA	SPARC	IA	IA	SPARC	IA
CPU Perf	0.1 - 8.0	0.1 - 8.0	0.1 - 8.0	0.1 - 8.0	1.0 - 8.0	0.1 - 2147483647	0.3 - 8.0	0.1 - 8.0	0.1 - 2147483647
CPU Reserve	0 - CPU Perf	0 - CPU Perf	No	No	No	No	No	No	No
CPU Share	An integer between 1 and 1000000	No	No	No	No	No	No	No	No
CPU Weight	No	1 - 10000	No	No	No	No	No	No	1 - 65535
CPU Num	1 - 8	1 - 4	1 - 8	1 - 64	1 - 4096	1 - 128	1 - 32	1 - 1024	1 - 32
Memory Size	0.1 - 255.0	0.1 - 255.0	0.1 - 255.0	0.1 - 255.0	0.1 - 32768.0	0.3 - 1024.0	0.1 - 255.0	0.1 - 32768.0	0.2 - 8589933568.0
Memory Reserved	An integer between 0 to the upper_limit_of_the_memory_capacity	No	No	No	No	No	No	No	An integer between 0 to the upper_limit_of_the_memory_capacity
Memory Share	An integer between 0 and 1000000	No	No	No	No	No	No	No	No
Memory Buffer	No	5 - 2000	No	No	No	No	No	No	No
Memory Weight	No	0 - 10000	No	No	No	No	No	No	No
Startup RAM	No	An integer between 0.1 to the upper_limit_of_the_	No	No	No	No	No	No	No



	VMware	Hyper-V	Xen	KVM	Solaris Zones	OVM for x86 3.x	OVM for x86 2.2	OVM for SPARC	Citrix Xen
		<i>memory_capacity</i>							
Dynamic Memory	No	Yes	No	No	No	No	No	No	No
NIC Num	1 - 10	1 - 10	1 - 15	1 - 8	0 - 8	1 - 8	1 - 8	0 - 8	1 - 7
Index number of DISK	0 - 55	0 - 59	0 - 251	0 - 16	0 - 63 (*4)	0 - 105	0 - 59	0 - 63	0 - 13
Disk Capacity	0.1 - 2048.0	0.1 - 2048.0	0.1 - 999.9	0.1 - 2048.0	0.1 - 9600.0	0.1 - 10240.0	1.0 - 2048.0	0.1 - 9600.0	0.1 - 2048.0
Repurpose	Yes	Yes	Yes (*1)	Yes	Yes	Yes	Yes	Yes	Yes
Redundancy	Yes	Yes	Yes (*2)	Yes (*2)	Yes	Yes	Yes	Yes	Yes
Alive Monitoring	Yes	Yes	No	No	No	No	No	No	No
Positioning	Yes	Yes	Yes (*3)	Yes	Yes	Yes	Yes	Yes	Yes
ServerImage Link	Yes	Yes	No	No	No	No	No	No	No
Fit DiskSize To Image	Yes	Yes	No	No	No	No	No	No	No
Execute a command at the first login	Yes	No	No	No	No	No	No	No	No
Participate in the Active Directory Domain	Yes	No	No	No	No	No	No	No	No

Yes : Setting is possible.

No: Setting is not possible.

\*1: Only "false" can be specified.

\*2: "HA" cannot be specified.

\*3: Only "Fixed" can be specified.

\*4: The setting range when using virtual storage. When not using virtual storage, only "0" can be specified.



## See

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For the input ranges for the [Create L-Server Template] dialog, refer to "15.2.2 Virtual L-Server Templates" in the "Reference Guide (Command/XML) CE".

.....



## Note

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When configuring a template using wizard-style GUI, the detailed configurations can be confirmed in the last confirmation window.

The confirmation window of detailed configurations is displayed in order to enable confirmation of the setting values. When using the confirmation window for operation, there may be difference in the displayed contents. Do not operate it on the confirmation screen.

.....

### 15.1.3 Modifying

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Use the following procedure to modify an L-Server template:

1. Select the ROR console orchestration tree, and select [File]-[L-Server Template]-[Edit] from the ROR console menu.  
The [L-Server Template Management] tab is displayed on the [ROR L-Server Template Editor] window.
2. Select an L-Server template to edit on the [L-Server Template Management] tab of the [ROR L-Server Template Editor] window, and click [Modify].  
The [Modify L-Server Template] dialog is displayed.
3. In the [Modify L-Server Template] dialog, edit the items you want to modify, and click the [Modify] button.
4. The dialog to confirm the entered information is displayed.  
When "Are you sure to copy L-Server Template?" is displayed, confirm the content, and then click the [Modify] button.  
The L-Server template will be modified.

### 15.1.4 Copying

---

Use the following procedure to copy an L-Server template:

1. Select the ROR console orchestration tree, and select [File]-[L-Server Template]-[Edit] from the ROR console menu.  
The [L-Server Template Management] tab is displayed on the [ROR L-Server Template Editor] window.
2. Select an L-Server template to copy on the [L-Server Template Management] tab of the [ROR L-Server Template Editor] window, and click [Copy].
3. The [Copy L-Server Template] dialog is displayed.  
Edit the L-Server template name.
4. In the [Copy L-Server Template] dialog, click [Next].
5. The copy confirmation dialog is displayed.  
When "Are you sure to copy L-Server Template?" is displayed, confirm the content, and then click the [Copy] button.  
The L-Server template will be copied.



#### Note

.....  
The disk number [No.] is displayed in consecutive order even though the disk number [No.] of the reproduced L-Server is not consecutive.  
.....

### 15.1.5 Deleting

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Use the following procedure to delete an L-Server template:

1. Select the ROR console orchestration tree, and select [File]-[L-Server Template]-[Edit] from the ROR console menu.  
The [L-Server Template Management] tab is displayed on the [ROR L-Server Template Editor] window.
2. Select an L-Server template to delete on the [L-Server Template Management] tab of the [ROR L-Server Template Editor] window, and click [Delete].
3. When "Are you sure you want to delete this Template?" is displayed, confirm the content, and then click the [Delete] button.  
The L-Server template will be deleted.



When deleting an L-Server template, do not delete until after confirming that it is not being used as a type of L-Platform Template Server. If an L-Server template (being used for L-Platform templates) and image information is mistakenly deleted, rectify it by performing the following procedure:

1. After unpublishing the L-Platform template that uses the L-Server template which was deleted from the [Template] tab, delete it.
2. After unpublishing the image information that uses the L-Server template which was deleted from the [Template] tab, delete it.
3. In cases where deleting does not work in either 1 or 2, as there is an L-Platform that has completed deployment, recreate an L-Server template with the same name.

## 15.1.6 Export

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Use the following procedure to export an L-Server template:

1. Select the ROR console orchestration tree, and select [File]-[L-Server Template]-[Edit] from the ROR console menu.  
The [L-Server Template Management] tab is displayed on the [ROR L-Server Template Editor] window.
2. Select an L-Server template to export on the [L-Server Template Management] tab of the [ROR L-Server Template Editor] window, and click [Export].
3. The export confirmation dialog is displayed.  
When "Are you sure to export the specified L-Server Template?" is displayed, confirm the content, and then click [Yes].  
The L-Server template will be exported.

## 15.1.7 Import

---

Use the following procedure to import an L-Server template:

1. Select the ROR console orchestration tree, and select [File]-[L-Server Template]-[Edit] from the ROR console menu.  
The [L-Server Template Management] tab is displayed on the [ROR L-Server Template Editor] window.
2. Select an L-Server template to import on the [L-Server Template Management] tab of the [ROR L-Server Template Editor] window, and click [Import].
3. The [Import L-Server Template] dialog is displayed.
4. Select the file name for L-Server template to import, and Click the [OK] button.  
The L-Server template is imported.  
When a registered L-Server template name is included in the specified file, a warning dialog is displayed to confirm whether to overwrite the L-Server template.  
When overwriting it, click the [OK] button.  
When not overwriting it, click the [Cancel] button and return to the dialog to specify the file name.

## 15.1.8 Creating a Template Using an Another Existing Template

---

It is possible to create an L-Server using another L-Server template that has already been made.

Use the following procedure to create an L-Server template from an L-Server:

1. Select the ROR console orchestration tree, and select [File]-[L-Server Template]-[Edit] from the ROR console menu.  
The [L-Server Template Management] tab is displayed on the [ROR L-Server Template Editor] window.

2. Click the [L-Server To Template Conversion] tab.

The L-Server list is displayed on the [L-Server To Template Conversion] tab.

3. Select the L-Server from the list of L-Servers displayed on the [L-Server To Template Conversion] tab of the [ROR L-Server Template Editor] window, and click [Save as a Template].

The [Save as a Template] dialog is displayed.

4. Specify the template name for saving the L-Server, and click [OK].



### Note

- When an L-Server template is created from an existing L-Server, the log is not displayed in the event and the progress report of the ROR console.
- When using an L-Server template, which was created from an L-Server linked with a configured physical server or virtual machine, to create an L-Server, the configuration of the L-Server template might need to be modified in advance. Verify the configuration of such L-Server templates and make any necessary changes.

## 15.2 Editing a Template Using an Editor

---

This section explains how to edit an L-Server template using an editor.

Use the following procedure:

1. Export an L-Server Template

For details on how to export L-Server templates, refer to "[15.2.1 Export](#)".

2. Edit with an Editor

For details on editing a template with an editor, refer to "[15.2.2 Editing](#)".

3. Import the L-Server Template

For details on how to import L-Server templates, refer to "[15.2.3 Import](#)".

For details on how to delete L-Server templates, refer to "[15.2.4 Deleting](#)".

### 15.2.1 Export

---

This section explains how to export an L-Server template.

Use the following procedure to export an L-Server template:

1. Select the ROR console orchestration tree.

On the [Template List] tab, right-click the L-Server template to export and select [Export] from the popup menu. Displays the [File Download] dialog.

2. Click the [Save] button.

The L-Server template is exported.

From the command-line, execute `rcxadm template export`.

For details on the `rcxadm template export` command, refer to "8.1 `rcxadm template`" in the "Reference Guide (Command/XML) CE".



### Note

When exporting an L-Server template, the XML file is generated based on the XML specifications.

## 15.2.2 Editing

---

This section explains how to edit an L-Server template.

Edit the L-Server template exported in "[15.2.1 Export](#)" using the editor.

The L-Server template XML definitions differ depending on whether the server is a physical L-Server or virtual L-Server.

- For Physical L-Servers

For XML definitions of L-Server templates, refer to "15.2.1 Physical L-Server Templates" in the "Reference Guide (Command/XML) CE".

- For Virtual L-Servers

For XML definitions of virtual L-Server templates, refer to "15.2.2 Virtual L-Server Templates" in the "Reference Guide (Command/XML) CE".



When creating a virtual L-Server, the values in the VM specific information definition file are used even if those values have not been set in the L-Server template.

If there are discrepancies between the L-Server template and VM specific information definition file (e.g. CPU performance is lower than CPU Reserve), L-Server creation will fail.

For details on VM specific information definition files, refer to "8.1 Definition Files Commonly Shared when Creating Virtual L-Servers" in the "Setup Guide CE".

## 15.2.3 Import

---

This section explains how to import an L-Server template.

Use the following procedure to import L-Server templates edited in "[15.2.2 Editing](#)".

1. Select the ROR console orchestration tree, and select [File]-[L-Server Template]-[Import] from the ROR console menu.
2. Specify the file name, and click [OK].

The L-Server template is imported.

When a registered L-Server template name is included in the specified file, a warning dialog is displayed to confirm whether to overwrite the L-Server template.

When overwriting it, click [OK].

When not overwriting it, click [Cancel] and return to the dialog to specify the file name.

If a template is imported without editing the L-Server template name of the L-Server template file which was exported in "[15.2.2 Editing](#)", the content of the existing L-Server template will be overwritten.

If a template is imported after changing the L-Server template name of the L-Server template file which was exported in step 2, a new L-Server template will be added, leaving the content of the existing template intact.

From the command-line, execute `rcxadm template import`.

For details on the `rcxadm template import` command, refer to "8.1 `rcxadm template`" in the "Reference Guide (Command/XML) CE".

## 15.2.4 Deleting

---

This section explains how to delete an L-Server template.

L-Server templates that are no longer required, including the sample template, can be deleted.

Use the following method to delete an L-Server template:

On the [Template List] tab, right-click the L-Server template to delete, and select [Delete] from the popup menu.

From the command-line, execute `rcxadm template delete`.

For details on the `rcxadm template delete` command, refer to "8.1 `rcxadm template`" in the "Reference Guide (Command/XML) CE".

## Point

---

When deleting an L-Server template, do not delete until after confirming that it is not being used as a type of L-Platform Template Server. If an L-Server template (being used for L-Platform templates) and image information is mistakenly deleted, rectify it by performing the following procedure:

1. After unpublishing the L-Platform template that uses the L-Server template which was deleted from the [Template] tab, delete it.
  2. After unpublishing the image information that uses the L-Server template which was deleted from the [Template] tab, delete it.
  3. In cases where deleting does not work in either 1 or 2, as there is an L-Platform that has completed deployment, recreate an L-Server template with the same name.
-

# Chapter 16 Creating L-Servers

This chapter explains how to create L-Servers.

For an overview of the functions, refer to "2.2.3 L-Server" in the "Design Guide CE".

L-Servers can be created using the following two methods:

- Creation Using an L-Server Template  
Resources are automatically selected from a resource pool.
- Creation Without Using an L-Server Template  
Specify a resource or a resource pool.

For details on how to specify and select the VM host to which the created L-Server is to be deployed, refer to "2.2.3 L-Server" in the "Design Guide CE".

## Creation Using an L-Server Template

Use the following procedure to create an L-Server using an L-Server template:

- When cloning images are not stored in image pools, or when not using cloning images which have been already registered
  1. Select an L-Server template. Specify [None] for images.  
For details, refer to "[16.1 Creation Using an L-Server Template](#)".
  2. Install an OS manually.  
As an L-Server with no OS installed is created, install an OS manually.  
For details, refer to "[Cloning Image Operations](#)[17.5 Cloning Image Operations](#)".
- When cloning images are stored in image pools
  1. Select an L-Server template. Specify a cloning image to deploy.  
An L-Server on which a cloning image has been deployed is created.  
For details, refer to "[16.1 Creation Using an L-Server Template](#)".

## Creation Without Using an L-Server Template

For details on how to create specifying individual specifications without using an L-Server template, refer to "[16.2 Creation of Physical L-Servers Using Parameters](#)" or "[16.3 Creation of Virtual L-Servers Using Parameters](#)".



### Note

[Linux]

When using Linux for a physical L-Server, and iSCSI storage for a system disk, an L-Server cannot be created using a cloning image.

[Xen]

When using RHEL5-Xen, L-Server creation and operation using the ROR console cannot be performed. For details, refer to "8.4 RHEL5-Xen" in the "Setup Guide CE".

[Solaris]

When using Solaris, physical L-Servers cannot be created.  
In this case, link L-Servers with configured physical servers.

For details, refer to "[Chapter 18 Linking L-Servers with Configured Physical Servers or Virtual Machines](#)".

[Solaris Zones (Solaris 10)] [OVM for SPARC]

When a VM host not managed with server management software is used, virtual L-Servers cannot be created.

In this case, link L-Servers with configured virtual machines.

For details, refer to "[Chapter 18 Linking L-Servers with Configured Physical Servers or Virtual Machines](#)".

## Information

[Physical Servers]

For details on physical L-Servers, refer to "7.5 Creating L-Servers" in the "Setup Guide CE".

[VMware]

For details on VMware, refer to "8.2 VMware" in the "Setup Guide CE".

[Hyper-V]

For details on Hyper-V, refer to "8.3 Hyper-V" in the "Setup Guide CE".

[KVM]

For details on RHEL-KVM, refer to "8.4 RHEL5-Xen" in the "Setup Guide CE".

[OVM for x86 2.2]

For details on OVM for x86 2.2, refer to "8.5 OVM for x86 2.2" in the "Setup Guide CE".

[Solaris Zones]

For details on Solaris Zones, refer to "8.7 Solaris Zones" in the "Setup Guide CE".

[OVM for SPARC]

For details on OVM for SPARC, refer to "8.8 OVM for SPARC" in the "Setup Guide CE".

[Citrix Xen]

For details on Citrix Xen, refer to "8.9 Citrix XenServer" in the "Setup Guide CE".

[OVM for x86 3.x]

For details on OVM for x86 3.x, refer to "8.10 OVM for x86 3.x" in the "Setup Guide CE".

## Linking L-Servers with Configured Physical Servers or Virtual Machines

Configured physical servers and virtual machines can be managed by linking them with L-Servers.

The management scope and the scope of use as an L-Server vary depending on the resources used by the configured physical server or virtual machine.

For details, refer to "[Chapter 18 Linking L-Servers with Configured Physical Servers or Virtual Machines](#)".

## 16.1 Creation Using an L-Server Template

This section explains how to create an L-Server using an L-Server template.

Use the following procedure to create an L-Server using an L-Server template:

1. Select the ROR console orchestration tree. Select an L-Server template on the [Template List] tab of the Main Panel, and click [Create].

The [Create an L-Server] dialog is displayed.

2. On the [General] tab, set the following items.

Name (Label)

Enter a name for the L-Server.

- For Physical L-Servers

Enter up to 64 characters beginning with an alphanumeric character (upper or lower case), and including alphanumeric characters (upper or lower case), underscores ("\_"), or hyphens ("-").



- For Virtual L-Servers

[VMware] [Hyper-V] [OVM for SPARC] [Citrix Xen]

Enter up to 64 characters beginning with an alphanumeric character (upper or lower case), and including alphanumeric characters (upper or lower case), underscores ("\_"), periods ("."), and hyphens ("-").

[Xen] [OVM for x86 2.2]

Periods (".") cannot be used.

[KVM] [OVM for x86 3.x]

Enter up to 64 characters beginning with an alphanumeric character (upper or lower case), and including alphanumeric characters (upper or lower case), underscores ("\_"), or hyphens ("-").

[OVM for x86 2.2]

Enter the location using 32 characters or less.

[Solaris Zones]

Enter up to 52 characters beginning with an alphanumeric character (upper or lower case), and including alphanumeric characters (upper or lower case), underscores ("\_"), periods ("."), and hyphens ("-"). Enter up to 63 characters beginning with an alphanumeric character (upper or lower case), and including alphanumeric characters (upper or lower case), underscores ("\_"), periods ("."), and hyphens ("-"). However, names which start with "SUNW" cannot be used.

The name "global" cannot be used when the configuration uses the same name for both a virtual L-Server and a VM. For the configuration to use the same name for both a virtual L-Server and a VM machine, refer to "[Table 17.17 List of Items Specified in the Definition File](#)" of "[17.8.1 Installation](#)".

#### Destination folder

Select a resource folder or a tenant to store L-Servers.

#### Template

Specify an L-Server template created following "[15.1.2 Creating](#)" in the "Setup Guide CE".

The L-Server template specified from the [Template List] tab is displayed. Check the specifications (CPU performance, memory capacity, disk capacity (multiple)) for the L-Server to create.

- For Physical

Model name, disk capacity (multiple) are displayed.

- For Virtual

CPU performance, memory capacity, and disk capacity (multiple) are displayed.

[VMware] [Hyper-V]

When using templates with "all" specified for "ServerImageLink", all disks (system disk and data disks) are deployed as they are in the cloning image.

To check the disk configuration of the L-Server to be created, check the cloning image in advance.

#### Image

Specify a cloning image to deploy.

Clicking the [Select] button displays the [Select a Cloning Image] dialog.

To manually install an operating system, select [None].

When [None] is selected, it is necessary to select the OS type on the [Server] tab.

When selecting [None], check the [Single path mode] checkbox of [FC path].

For details, refer to "[16.2.2 \[Server\] Tab](#)" and "[16.3.2 \[Server\] Tab](#)".

If you select [Deploy] from [Image deployment], the parameters for the operating system must also be specified.

For details on the items that must be set, refer to "[16.2.5 \[OS\] Tab](#)" and "[16.3.5 \[OS\] Tab](#)".



#### Note

When creating an L-Server specifying a cloning image, if the OS of a cloning image is Linux, the L-Server is created using the user name and password used when the cloning image was created.

It is recommended to change the password after creating an L-Server to maintain security.

When deploying cloning images, the OS image included in a cloning image is used, but the values of CPU, memory and network are overwritten with the values used when creating an L-Server.

[VMware] [Hyper-V]

When using templates with "all" specified for "ServerImageLink", all disks are created in the same location.

- When selecting a storage location, only specify system disks on the [Disk] tab.  
If different locations are specified for system disks and data disks, L-Server creation with cloning image deployment may fail.
- Disks are created in the same location even if there is a mixture of disks with Thin Provisioning attributes and disks with no Thin Provisioning attributes in the cloning image.

When the setting of "Increasing disk capacity(FitDiskSizeToImage)" is "false", on virtual products, VM guests are temporarily created with the disk size of an image. Therefore, a record of the disk size temporarily created may remain in the log on virtual products.

When creating a virtual L-Server with a cloning image specified, the provisioning attribute of the cloning image takes preference over the provisioning attribute of the storage pool.

 **Information**

For virtual L-Servers, when creating an L-Server, even if the size of the system disk is specified in advance, if the specified size differs from that of the deployed cloning image, the size will be changed to that of the deployed cloning image.

However, the operation explained above is only when the setting of "Increasing disk capacity(FitDiskSizeToImage)" is true, or is not specified.

When the setting of "Increasing disk capacity(FitDiskSizeToImage)" is "false", the disk with the larger disk capacity when the disk size of the image and the disk size of the L-Server template (specified by the DiskSize element, when using XML definitions) are compared, is allocated.

When the data disk size contained in an image is increased, the setting of "Increasing disk capacity(FitDiskSizeToImage)" should be "false", and [ServerImageLink] should be set to "all" L-Server templates.

[VMware] [Hyper-V]

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.

Basic software (OS) that can be used on an L-Server is limited to software supported by the server virtualization software. The image to deploy can be specified when creating an L-Server. Image deployment for Resource Orchestrator uses the following functions of the server virtualization software:

Table 16.1 Functions Used when Deploying Images

Server Virtualization Software	Function
VMware vSphere 4.0 VMware vSphere 4.1 VMware vSphere 5 VMware vSphere 5.1 VMware vSphere 5.5 VMware vSphere 6.0	Template, guest OS customization
Microsoft(R) System Center Virtual Machine Manager 2008 R2 Microsoft(R) System Center 2012 Virtual Machine Manager Microsoft(R) System Center 2012 R2 Virtual Machine Manager	Template, guest OS operating system profile

[Solaris Zones]

The cloning image needs to be specified.

#### Resource allocation

When creating an L-Server for which only a configuration definition exists, check the [None (Definition only)] checkbox.

When an L-Server for which only a configuration definition has been created is started, resources will be allocated.

For details, refer to "[17.8.2.1 Allocating Resources](#)".

When modifying the configuration of an L-Server for which only a configuration definition was created, refer to "[17.8.2.3 Modifying Configuration Definition Information](#)".

#### Network (NIC)

Select a network resource to connect to the NIC of the L-Server.

A list of the NICs defined in the L-Server template is displayed. Select the network to connect to each NIC from the [Network to connect] column.

- a. Click the [Select] button in the [Network to connect] column.  
The [Select a Network Resource] dialog is displayed.
- b. The following items are displayed: Select the network resource to connect.
  - Name (Label)
  - Admin LAN
  - Subnet address
  - Number of addresses (Unused/Total)

For physical L-Servers, the network connection can be selected in addition to these items.

- Connect

Specify when connecting network resources.

- Do not connect

Specify when not connecting network resources, only creating a configuration definition.



The network (NIC) number corresponds to a NIC number (NICIndex) + 1 that is defined in L-Server templates.

[OVM for x86 2.2]

One or more networks must be specified.

#### Label (Optional)

A custom label can be defined for the L-Server. User-defined labels make it easier to identify the server.

Enter a maximum of 32 characters.

#### Comment (Optional)

A custom comment can be defined for the L-Server. For example, registering detailed work content, troubleshooting, and recovery procedures can speed up the recovery of affected applications when a problem occurs.

Enter a maximum of 256 characters.

3. Click the [OK] button.

The L-Server is created.

The process status can be checked in the Recent Operations area of the ROR console.

When creating a physical L-Server specifying image deployment, clicking [Cancel] in the Recent Operations area displays a confirmation dialog and stops the process.

[OVM for SPARC]

After creating an L-Server, it is necessary to carry out operations based on the environment.

For details, refer to "Operations after creating an L-Server" of "8.8.6 Creating L-Servers" in the "Setup Guide CE".

### Note

- Note that canceling the creation of a physical L-Server specifying image deployment does not restore the destination server to the state before image deployment took place.
- When operations are canceled on the last part, the physical L-Server may remain.

Delete the physical L-Server, from the [Resource] tab on the ROR console. For details on how to delete an L-Server, refer to "17.4 Deleting".

- When using a virtual L-Server template, which has inconsecutive disk number [No.], a virtual L-Server with a disk configuration different from the specified content is created.

4. Configure the network settings of the OS referring to the IP address and network information of the L-Server if necessary.

For details, refer to "7.8 Network Redundancy and VLAN Settings of L-Servers" in the "Setup Guide CE".

### Point

#### Association of an L-Server Name with a VM Guest Name

When installing an operating system manually on the L-Server or using the management console of server virtualization software, select the L-Server in the orchestration tree, and operate the VM for the *Guest\_name* displayed in [Resource Details].

The following name is automatically allocated for *Guest\_name*:

*L-Server\_name - Number*

*Number* is automatically set by Resource Orchestrator to avoid overlapping of names on server virtualization software if an L-Server with the same name is created during "Chapter 21 Resource Folder Operations". When 1,000 or more L-Servers are deployed, *Number* is a four digit numerical value.

For operation without *numbering*, refer to "Numbering VM names" in "Table 17.17 List of Items Specified in the Definition File" of "17.8.1 Installation". However, L-Servers with the same name cannot be created. Avoid using the same L-Server name more than once.

### Note

- When creating an L-Server, log off ETERNUSmgr of ETERNUS storage registered on ESC.
- When operating NetApp storage in cluster environments and operating a partial system due to system trouble, recover the NetApp storage and return the system to cluster operation before re-commencing operations.
- When the status of the VM host and virtual storage is one other than "normal", the resource will be excluded from L-Server allocation regardless of its available space.
- When operating a VM host in a cluster system, create an L-Server with the storage resources shared between VM hosts specified.  
L-Server cannot be created using storage resources that are not shared between VM hosts.
- Depending on the [None (Definition only)] checkbox, the power status of an L-Server after its creation is as follows.

Table 16.2 L-Server Power Status after Creation

	When Checked	When not Checked
Physical L-Server	Power OFF	Power ON
Virtual L-Server	Power OFF	Power OFF

For details on how to start an L-Server, refer to "17.1.1 Starting an L-Server".

- When creating a virtual L-Server, the values in the VM specific information definition file are used even if those values have not been set in the L-Server template.

If there are discrepancies between the L-Server template and VM specific information definition file (e.g. CPU performance is lower than CPU Reserve), L-Server creation will fail.

For details on VM specific information definition files, refer to "8.1 Definition Files Commonly Shared when Creating Virtual L-Servers" and "Appendix G Definition Files" in the "Setup Guide CE".

[Hyper-V]

- When using dynamic memory or memory weight, the VM host must be either of the following.
  - Microsoft(R) Windows Server(R) 2008 R2 SP1 or later
  - Microsoft(R) Windows Server(R) 2012 or later

SCVMM must be one of the following, either of which can manage the VM hosts.

- System Center Virtual Machine Manager 2008 R2 SP1 or later
- System Center 2012 Virtual Machine Manager or later

When creating an L-Server for which dynamic memory is enabled or memory weight is specified, creation of the L-Server will fail unless there are a VM host and SCVMM satisfying the conditions above.

---

## 16.2 Creation of Physical L-Servers Using Parameters

---

This section explains how to configure a physical L-Server with server, storage, and network specifications configured, without using an L-Server template.

Specify the values on the following tabs:

- [General] Tab
- [Server] Tab
- [Disk] Tab
- [Network] Tab
- [OS] Tab

Use the following procedure to create L-Servers:

1. Right-click the target resource folder in the orchestration tree, and select [Create]-[L-Server] from the popup menu.  
The [Create an L-Server] dialog is displayed.
2. On each tab, set the following items.
3. Click the [OK] button.  
The L-Server is created.
4. Configure the network settings of the OS referring to the IP address and network information of the L-Server if necessary.  
For details, refer to "7.8 Network Redundancy and VLAN Settings of L-Servers" in the "Setup Guide CE".



### Note

Each item to set has an upper limit. Even when valid values are specified, the creation of an L-Server may fail depending on the availability of resources in resource pools and the hardware configuration.

L-Servers cannot be created for physical servers that are in maintenance mode.

## Information

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- For the storage units that support the setting of LUN alias names, when disk resources are created with Resource Orchestrator, set the alias (if possible) based on the disk resource name in the LUN.
- If identical alias names are set for the ETERNUS LUNs, the initial settings for aliases in ETERNUS LUNs are used instead.

The format for the alias name set for the disk resource names and Resource Orchestrator is as follows.

### Disk resource names Format

`name-x-disk-y`

*name*: L-Server name specified by user

*x*: String in decimal format, uniquely allocated by the manager

*y*: Decimal representing the disk index

### Alias name Format

`NAMEXXXXXXXXXX` (maximum 16 characters)

*NAME*: String starting at the beginning of *name* (maximum 11 characters)

*XX*: Two digit decimal string corresponding to *x*

*YYYY*: Three digit decimal string corresponding to *y*

- As the L-Server names that can be reflected in alias are a maximum of 11 characters, the infrastructure administrator should consult with the tenant administrator and determine rules for L-Server names.
  - If the L-Server name is changed, the disk resource name and aliases in the details about the disk are not changed.
  - If the disk resources are created from the virtual storage (RAID group, for example) that is the subject of ETERNUS Dynamic LUN Mirroring, the LUN created on the remote site receives the same alias.
  - If the alias name of the ETERNUS LUN corresponding to the disk created from the virtual storage has been changed using the ETERNUS WebGUI, the alias name in the disk details will be updated with the regular update. The disk resource name is not changed.
- 

## 16.2.1 [General] Tab

---

### Name (Label)

Enter a name for the L-Server.

Enter up to 64 characters beginning with an alphanumeric character (upper or lower case), and including alphanumeric characters (upper or lower case), underscores ("\_"), or hyphens ("-").

### Destination folder

Select a resource folder or a tenant to store L-Servers.

### Template

Specify [None] in the selection list.

### Server type

Enter the type of server for the L-Server to be created.

Select [Physical].

### Image

Specify a cloning image to deploy.

- a. Click the [Select] button.

The [Select a Cloning Image] dialog is displayed.

- b. Select the cloning image to deploy to the L-Server, specifying [Deploy] in [Image deployment].

The available cloning images are displayed in the selection list.

Specifying [Do not deploy] in [Image deployment] will create an empty server without an operating system installed.

### Note

When using a Windows image for multiple languages (English/Japanese Language Pack), manually select the language version when deploying the cloning image.

#### Resource allocation

When creating an L-Server for which only a configuration definition exists, check the [None (Definition only)] checkbox.

When allocating resources for an L-Server for which only a configuration definition was created, refer to "[17.8.2.1 Allocating Resources](#)".

#### Network (NIC)

If "None" is specified in "Template" and the server type is specified, the [Add] and [Delete] buttons are displayed.

Clicking the [Add] button adds a network. Perform settings based on the physical server the L-Server will be located on.

Clicking the [Delete] button deletes the network in the last line of the list.

When [Physical] is selected for the server type, the admin LAN network resource is automatically configured if the admin LAN network settings for all physical servers registered in a server pool are the same. When the admin LAN network settings for physical servers differ, specify the correct NICs for the admin LAN or public LAN, and the network resources of the destination for connection.

When not using the public LAN, select "not connected".

### Note

- When the admin LAN network settings for a physical server registered in a server pool are different, an admin LAN network resource is automatically registered, if a physical server is selected for use in the [Server] tab.

Also, if an admin LAN network resource is specified for the NIC in [Network (NIC)], when [Physical server] is selected on the [Server] tab, only a physical server or server pool with a NIC configuration matching that of the admin LAN network will be displayed.

For details, refer to "[16.2.2 \[Server\] Tab](#)".

- When performing NIC redundancy, configure the settings by switching over to the [Network] tab.

For details, refer to "[16.2.4 \[Network\] Tab](#)".

- When [Function number expansion (Onboard)] is enabled, selecting "not connected" for the NIC destination is not possible due to errors during creation. Allocate a network resource.

#### Label (Optional)

Enter a label for the L-Server.

Enter a maximum of 32 characters.

#### Comment (Optional)

Enter any comments for the L-Server.

Enter a maximum of 256 characters.

## 16.2.2 [Server] Tab

---

#### Server Specification Methods

Select a method to specify a server.

Click [Model] to select a model name to allocate to the L-Server.

Clicking [CPU and Memory] enables you to enter the number of CPUs, CPU performance, and memory size of the server allocated to the L-Server.

## Note

When the [CPU and Memory] button is selected, you must enter the number of CPUs, the CPU performance, and the memory size.

### Number of CPUs

Enter the number of server CPUs to allocate to the L-Server. Enter an integer between 1 and 240.

### CPU Performance

Enter the server CPU performance to allocate to the L-Server. Enter a number with up to one decimal place, in units of gigahertz. Values between 0.1 and 10 can be specified.

### Memory Size

Enter the memory capacity to allocate to the L-Server. Enter a number with up to one decimal place, in units of gigabytes. Values between 0.1 and 8192 can be specified.

### Specifications

The specifications of the physical server are displayed.

When [Automatic] or [Pool] is selected for [Physical server], a hyphen ("-") will be displayed in each parameter.

### Converged Network Adapter Settings

#### Function number expansion (Onboard)

Select either [Enable] or [Disable]. By default, [Disable] is selected.

#### Number of functions per board

Select "2" or "4".

### Physical server

Select the physical server to allocate to the L-Server.

Clicking the [Select] button displays the [Select a Server Resource] dialog.

Select one of [Automatic], [Pool], or [Server] in [Resource type].

The default is "Automatic".

#### - When [Automatic] is Selected

Select a physical server automatically from the resource pool with high priority.

When selecting [Automatic], operate a resource pool with priorities.

When there are multiple resource pools with the same priority, physical servers will be selected satisfying the conditions for a resource pool that has been searched in advance. Therefore, the physical server that has the least difference from the L-Server definitions may not be allocated

For details, refer to "7.9 Methods for Selecting Physical Servers Automatically" in the "Setup Guide CE".

#### - When [Pool] is Selected

A list of server pools that can be selected is displayed.

In the server pool list, the server pool name and the number of servers (unused/total) are displayed.

Select the server pool from the server pool list.

#### - When [Server] is Selected

The list of the physical servers that can be selected is displayed.

In the physical server list, server names, model names, CPU performance, memory size, and NIC numbers are displayed.

Select the physical server to use from the physical server list.



When creating an L-Server for which only a configuration definition has been created, a physical server not allocated to the L-Server can be selected from the list.

When the [Currently unusable] checkbox is checked, failed physical servers and physical servers that have inconsistencies in their admin LAN network configurations are displayed in the list.

When the [Busy] checkbox is checked, the following physical servers are displayed in the list:

- Physical servers already allocated to other L-Servers
- Physical servers already assigned as spare servers
- Physical servers with an OS installed

### Note

The [Select a Server Resource] dialog works as follows, depending on the configuration status of admin LAN network resources on the NICs in the [General] tab or the [Network] tab.

- When admin LAN network resources are unset on the NIC

Depending on the selected physical server or the server pool, admin LAN network resources are automatically set on the NIC configurations in the [General] tab or the [Network] tab.

For details on the resources automatically set, refer to the [General] tab or the [Network] tab.

- When admin LAN network resources have been set on the NIC

Physical servers or server pools matching the admin LAN network NIC configurations that are set on the [General] tab or the [Network] tab are displayed.

When not filtering resources using admin LAN network settings, open the [Select a Server Resource] dialog after deleting the settings.

### Resource release

Specify whether to release the physical server allocated to the L-Server when the power is turned off.

If the [Automatic (when powered off)] checkbox is checked, the server is released when the power is turned off.

### Note

When resources of the same servers are shared due to a change in usage, ensure that [Resource release] is set for the L-Server they are allocated to.

When the server resources are allocated to an L-Server for which [Resource release] is not configured, the server resources cannot be shared.

### Spare server behavior

When physical servers in the spare server pool are running out, make settings to use physical servers that are set for "Allow forced turning off" even if the server is powered on.

When "Resource release" is set to target L-Server, "Allow forced turning off" can be set.

### Boot Location

Decide whether the physical location of servers to be allocated to the L-Server can be changed.

When unselecting the [Automatic (when powered off)] checkbox of [Resource release], the location will be [Fixed].

- Fixed

Starts the L-Server on the same physical server that was operated last time.

- Relocate at startup

Automatically selects the optimal physical server when the L-Server is started.

Even when [Physical server] is specified, the L-Server may operate on a separate physical server from the second time it is started.

## Server Redundancy

Specify the server redundancy to allocate to the L-Server. To enable redundancy, select the [HA] checkbox.

When selecting the [HA] checkbox, the [Use a low spec server] checkbox of [Spare server specs], and the [Select] button of [Spare server pool] will be enabled.

## Spare server specs

This section specifies the selection method of spare server.

When the [Use a low spec server] checkbox is selected, physical servers with models matching that in the L-Server definition are selected as spare servers.

For details on how to select a spare server, refer to "18.1.1 High Availability of L-Servers" in the "Operation Guide CE".

## Spare server is in use

When physical servers in the spare server pool are running out, specify whether to use physical servers that are set for "Allow forced turning off".

When "Resource release" is set to target L-Server, "Allow forced turning off" can be set.

## Spare server pool

Select the spare server pool.

Clicking the [Select] button displays the [Select a Server Resource] dialog.

Specify the server pool that the physical server to use for automatic switchover is registered in.

When a problem occurs on the physical server, recovery is performed by automatically switching to another physical server in the same resource pool that is operating normally.

For details on how to perform switchover a spare server, refer to "18.1.1 High Availability of L-Servers" in the "Operation Guide CE".

## Alive Monitoring

Configure alive monitoring as enabled or disabled.

## Address pool (WWN / MAC)

Select an address pool.

Clicking the [Select] button displays the [Select an Address Resource] dialog.

Select [Automatic] or [Pool]. The default is [Automatic].

When selecting [Pool], select from the registered address pool.

Specify the virtual WWN obtained from the I/O Virtualization Option and the address pool of the registered MAC address.

## Startup priority

With L-Servers, when performing batch power operations in a resource folder or a tenant, configure the priority for the L-Server.

Set a number between 1 and 256. Smaller values indicate higher priority. If omitted, "128" is set.

When not performing batch power operations, check the [Exclude from batch power operations] checkbox.

## FC settings

### FC connection pattern

If the number of FCs fitted or their location differs from physical server to physical server, specify an FC connection pattern file.

This setting can be made when the storage units are the following: For details, refer to "7.1 Creating Definition Files" in the "Setup Guide CE".

- EMC CLARiiON Storage or EMC VNX Storage
- EMC Symmetrix DMX Storage
- EMC Symmetrix VMAX Storage

## Note

When FC connection patterns are not displayed in the selection list, there are errors in the configuration file. Review the configuration files for FC connection patterns, referring to "7.1 Creating Definition Files" in the "Setup Guide CE".

Indicates the settings for when the server starts

### FC path

When installing an OS manually, check the [Single path mode] checkbox.

When an image is not specified, it is automatically checked.

After installing a multi-path driver on an OS, perform [17.2.1 Modifying Specifications], and clear the "Single path mode" checkbox.

For details, refer to "7.5 Creating L-Servers" in the "Setup Guide CE".

### Boot Mode

Specify the L-Server boot method.

- Normal

Specify this mode when performing the boot from the disk connected to the L-Server.

- NIC for PXE boot

Specify this mode when performing the network boot using PXE (Preboot eXecution Environment).

- Network for PXE boot

Select the network resource for PXE boot, from the network resources defined in the L-Server.

## Note

PXE boot is unavailable on networks that use tagged VLAN settings.

For network boot, select network resources for which tags are not configured.

### **When performing a network boot on the admin LAN**

When the DHCP service used by the PXE boot server is configured to receive DHCP requests from other clients, the following functions cannot be used.

- Backup and restore
- Creation of a physical L-Server with images selected
- Deployment and collection of cloning images

## 16.2.3 [Disk] Tab

---

### Disk type

Select a disk type.

- SAN (Storage Area Network)

Select when using SAN storage.

- iSCSI

Select when using iSCSI storage.

### Disk

Clicking the [Add] button displays the [Disk Definitions] dialog.

Specify the following items for each disk:

#### Size \* Number of Disks

- Size

Enter a number with up to one decimal place, in units of gigabytes. Values of 0.1 or larger can be specified.

- Number

Clicking the [Add] button will display the [Disk Definitions] dialog, then specify the number of disks to add. Specify a number 1 or larger.

#### Resource type

Specify the disk to allocate to the L-Server.

Select from the following items.

- Automatic assignment

Select a suitable virtual storage resource from those registered in the appropriate storage pool. Create the specified size of disk resources, and allocate them to the L-Server. Set [Automatic] for the default value.



#### Note

- When there are storage pools with and without Thin Provisioning attributes configured that have the same priority, the storage pool that will be given priority is decided based on definition files. For details on definition files, refer to "8.1 Definition Files Commonly Shared when Creating Virtual L-Servers" in the "Setup Guide CE".
- If dynamic LUN mirroring has been set in the virtual storage, a volume is also created on the ETERNUS storage in the remote site specified in the definition file. If the ETERNUS storage in the remote site has been detected by Resource Orchestrator, it will be detected as a disk resource that was prepared beforehand, but do not register it to the storage pool.

- Storage pool

Select a virtual storage resource registered in the specified storage pool. Create the specified size of disk resources, and allocate them to the L-Server.

- Virtual storage

Displays virtual storage resources such as RAID groups or aggregates as a list.

Select from the displayed virtual storage resources.

Create the specified size of disk resources from the specified virtual storage resource, and allocate them to the L-Server.

When using the virtual storage resource on which the Thin Provisioning attributes are configured, the disk resource can be created specifying a size exceeding the actual disk space.

- Disk

Assign the LUN created in advance to the L-Server.

When specifying search conditions, the relevant disk resource list is displayed.

Select from the displayed disk resources.

The specified disk resources are allocated to the L-Server.

#### Search conditions

##### Storage pool

Select the storage pool of the storage destination of the disk resource.

##### Search size

Enter the lowest value of the disk size to be searched as a number with up to one decimal place, in units of gigabytes.

##### Allocation status

Specify the status for the disk to allocate to the L-Server.

- Unallocated

Specify when selecting a disk resource that is not allocated to another L-Server.

- Allocated

Specify when selecting a disk resource that is allocated to another L-Server.

#### Allocated L-Server

Specify an L-Server when sharing the disk resources.

#### Disk name

Specify the name of the disk to be found.

- Prefix match

Specify when searching for disks whose names begin with the specified string.

- Partial match

Specify when searching for disks whose names include the specified string.

## 16.2.4 [Network] Tab

---

Specify the following items.

#### NIC/Network

Configure the network to connect with the NIC used in the L-Server. Clicking the [Add] button displays the [Add a Network] dialog. Select a network resource to connect with the NIC.

The number of NICs that can be configured is 1 to 32.

#### NICs

Select the NIC to use in the L-Server from the selection list. When adding a new NIC or NIC group, select the number displayed as "(Undefined)" from the list. When selecting an already defined NIC, a network resource is added.

When [Function number expansion (Onboard)] is enabled on the [Server] tab, each NIC and functions of the L-Server are associated as follows during physical L-Server creation:

Table 16.3 Relationship when "2" is Selected for [Number of functions per board]

NIC Index	CNA Function
1	On board CNA physical port 1, function number 0
2	On board CNA physical port 2, function number 0
3	On board CNA physical port 1, function number 1
4	On board CNA physical port 2, function number 1

Table 16.4 Relationship when "4" is Selected for [Number of functions per board]

NIC Index	CNA Function
1	On board CNA physical port 1, function number 0
2	On board CNA physical port 2, function number 0
3	On board CNA physical port 1, function number 1
4	On board CNA physical port 2, function number 1
5	On board CNA physical port 1, function number 2
6	On board CNA physical port 2, function number 2
7	On board CNA physical port 1, function number 3
8	On board CNA physical port 2, function number 3

When using rack mount and tower servers managed using VIOM as physical L-Servers, the NIC numbers of those physical L-Servers are associated with the definition numbers defined as LAN or CNA according to "7.1.6 Configuration when Creating a Physical L-Server without Specifying a Model Name in the L-Server Template" in the "Setup Guide CE", and virtual MAC addresses are configured accordingly.

### Setup redundant NIC

When performing NIC redundancy, check the [Setup redundant NIC] checkbox, and select another NIC pair from the list to make redundant.

### Network

Select a network resource to connect.

When [Function number expansion (Onboard)] is enabled, allocate the network resources with the VLAN ID 2 - 4094 for each NIC corresponding to CNA functions. For example, when selecting "2" for [Number of functions per board], allocate network resources for NIC Index 1 - 4. Note that "not connected" cannot be selected as the NIC destination.

It is not possible to allocate network resources with the same VLAN ID using an untagged VLAN for the same CNA port. For example, as NIC index 1 and 3 correspond to the same physical port 1, allocating a network resource with the same VLAN ID 2 causes errors.

Clicking the [Delete] button deletes the selected network.

Clicking the [Change] button displays the [Select a Network Resource] dialog.

If the [OK] button is clicked while a network resource is selected, the network resource to connect is modified.

### IP address (Optional)

Specify the IP address to allocate to the L-Server. This should be entered for direct specification of the IP address to be allocated to the L-Server. The specified IP address will be converted to the IP address of the physical server during creation of the L-Server.

### Note

If a LUN created beforehand is used to create a physical L-Server, specify the IP address of the OS stored in the LUN.

If an agent has already been installed in the LUN created beforehand, and the IP address of the manager has been changed, the following procedures need to be performed after creating the physical L-Server.

1. Initialize the file where the agent's SSL certificate data is stored.  
For details, refer to "5.5 rxadm certctl" in the "Reference Guide (Command/XML) CE".
2. Modify the IP address of the admin LAN of the manager registered in the agent.  
For details, refer to "5.3 rxadm agtctl" in the "Reference Guide (Command/XML) CE".
3. Reboot the physical L-Server.

### Example

Table 16.5 Correspondence Relationships of Network Information [Windows]

OS Information		Information for L-Server Configuration	
IP address specified for network interface (configured by a tenant administrator)	Name of network interface	Number of NICs (number of NICs on the back side of rack mount servers)	IP Address
192.168.1.1	Local area connection 1	1	192.168.1.1
192.168.2.1	Local area connection 2	2	192.168.2.1

Table 16.6 Correspondence Relationships of Network Information [Linux]

OS Information		Information for L-Server Configuration	
IP address specified for network interface (configured by a tenant administrator)	Name of network interface	Number of NICs (number of NICs on the back side of rack mount servers)	IP Address
192.168.1.1	eth0	1	192.168.1.1
192.168.2.1	eth1	2	192.168.2.1

.....

### Untagged VLAN

When not configuring a VLAN, check this checkbox.

Only one VLAN can be selected in the same NIC or NIC group.

When [Function number expansion (Onboard)] is enabled, it is necessary to allocate a network resource with [Untagged VLAN] checked for all NICs corresponding to the CNA function.



[Physical Servers]

The IP address to be allocated to a physical L-Server must be unique. An IP address is required for each L-Server used.

.....

## 16.2.5 [OS] Tab

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.

When using an L-Server with the server type [Physical], refer to "7.7 [OS] Tab Configuration" in the "Setup Guide CE".

## 16.3 Creation of Virtual L-Servers Using Parameters

This section explains how to configure a virtual L-Server with server, storage, and network specifications configured, without using an L-Server template.

Specify the values on the following tabs:

- [General] Tab
- [Server] Tab
- [Disk] Tab
- [Network] Tab
- [OS] Tab

Use the following procedure to create L-Servers:

1. Right-click the target resource folder in the orchestration tree, and select [Create]-[L-Server] from the popup menu.

The [Create an L-Server] dialog is displayed.

2. Set the items required in each tab, and click [OK] to create the L-Server.

[OVM for SPARC]

After creating an L-Server, it is necessary to carry out operations based on the environment.

For details, refer to "Operations after creating an L-Server" of "8.8.6 Creating L-Servers" in the "Setup Guide CE".



- Each item to set has an upper limit.

Even when valid values are specified, the creation of an L-Server may fail depending on the availability of resources in resource pools, the hardware configuration, and the VM management software specifications.

- When creating a virtual L-Server, if there are any values configured in the VM specific information definition file, those values are used.

For details on VM specific information definition files, refer to "8.1 Definition Files Commonly Shared when Creating Virtual L-Servers" and "Appendix G Definition Files" in the "Setup Guide CE".

[Xen]

- When using RHEL5-Xen, L-Server creation cannot be performed using the ROR console. Use the rcxadm lserver command.

For details on the rcxadm lserver command, refer to "3.6 rcxadm lserver" in the "Reference Guide (Command/XML) CE".

[Hyper-V]

- When using dynamic memory or memory weight, the VM host must be either of the following.

- Microsoft(R) Windows Server(R) 2008 R2 SP1 or later
- Microsoft(R) Windows Server(R) 2012 or later

SCVMM must be one of the following, either of which can manage the VM hosts.

- System Center Virtual Machine Manager 2008 R2 SP1 or later
- System Center 2012 Virtual Machine Manager or later

When creating an L-Server for which dynamic memory is enabled or memory weight is specified, creation of the L-Server will fail unless there are a VM host and SCVMM satisfying the conditions above.

[Solaris Zones]

- Calculate the cap value to configure for the non-global zone from the number of CPUs and the CPU performance.

For details, refer to "8.7.7 Creating L-Servers" in the "Setup Guide CE".

[Solaris Zones] [OVM for SPARC]

- When a VM host not managed with server management software is used, virtual L-Servers cannot be created.

In this case, link L-Servers with configured virtual machines.

For details, refer to "[Chapter 18 Linking L-Servers with Configured Physical Servers or Virtual Machines](#)".

---

## 16.3.1 [General] Tab

Name (Label)

Enter a name for the L-Server.

[VMware] [Hyper-V] [OVM for SPARC] [Citrix Xen]

Enter up to 64 characters beginning with an alphanumeric character (upper or lower case), and including alphanumeric characters (upper or lower case), underscores ("\_"), periods ("."), and hyphens ("-").

[Xen] [OVM for x86 2.2]

Periods (".") cannot be used.

[KVM] [OVM for x86 3.x]

Enter up to 64 characters beginning with an alphanumeric character (upper or lower case), and including alphanumeric characters (upper or lower case), underscores ("\_"), or hyphens ("-").

[OVM for x86 2.2]

Enter the location using 32 characters or less.



## Note

Do not enter more than 32 characters.

[Solaris Zones]

Enter up to 52 characters beginning with an alphanumeric character (upper or lower case), and including alphanumeric characters (upper or lower case), underscores ("\_"), periods ("."), and hyphens ("-"). Enter up to 63 characters beginning with an alphanumeric character (upper or lower case), and including alphanumeric characters (upper or lower case), underscores ("\_"), periods ("."), and hyphens ("-"). However, names which start with "SUNW" cannot be used.

The name "global" cannot be used when the configuration uses the same name for both a virtual L-Server and a VM. For the configuration to use the same name for both a virtual L-Server and a VM machine, refer to "[Table 17.17 List of Items Specified in the Definition File](#)" of "[17.8.1 Installation](#)".

### Destination folder

Select a resource folder or a tenant to store L-Servers.

### Template

Specify [None] in the selection list.

### Server type

Enter the type of server for the L-Server to be created.

Select [VM].

When [VM] is selected for the server type, select the VM type on the [Server] tab.

However, when an image is selected, Resource Orchestrator will automatically select the VM type that matches the image, so selection is not necessary when selecting the server type.

### Image

Specify a cloning image to deploy. Clicking the [Select] button displays the [Select a Cloning Image] dialog.

Select the cloning image to deploy to the L-Server, specifying [Deploy] in [Image deployment] on the [Select a Cloning Image] dialog.

The available cloning images are displayed in the selection list.

Specifying [Do not deploy] in [Image deployment] will create an empty server without an operating system installed.

[OVM for x86 2.2]

L-Servers cannot be created with [Do not deploy] specified in [Image deployment].

## Information

When a cloning image is specified, the sizes of system disks of virtual L-Servers will be changed into the size of when the cloning image was deployed.

When deploying cloning images, the OS image included in a cloning image is used, but the values of CPU, memory and network are overwritten with the values used when creating an L-Server. Only system disks are deployed.

## Note

When using a Windows image for multiple languages (English/Japanese Language Pack), manually select the language version when deploying the cloning image.

[Solaris Zones] [Citrix Xen] [OVM for x86 3.x]

L-Servers cannot be created with [Do not deploy] specified in [Image deployment].

### Resource allocation

When creating an L-Server for which only a configuration definition exists, check the [None (Definition only)] checkbox.

When allocating resources for an L-Server for which only a configuration definition was created, refer to "[17.8.2.1 Allocating Resources](#)".

#### Network (NIC)

If [None] is specified in [Template], the [Add] and [Delete] buttons are displayed.

Clicking the [Add] button adds a network.

Perform settings based on the physical server the L-Server will be located on.

Clicking the [Delete] button deletes the network in the last line of the list.

#### Label (Optional)

Enter a label for the L-Server.

Enter a maximum of 32 characters.

#### Comment (Optional)

Enter any comments for the L-Server.

Enter a maximum of 256 characters.

## 16.3.2 [Server] Tab

---

#### VM type

Select the VM type for the L-Server to be created.

It is not necessary to specify this when deploying an image, because the VM type of the image is used.

#### Number of CPUs

Enter the number of server CPUs to allocate to the L-Server. Enter an integer between 1 and 8.

Specify a value within the number of CPUs of VM hosts registered in the VM pool.

[Hyper-V]

Enter an integer between 1 and 4.

[KVM]

The upper limit of the number of CPUs is 64.

[Solaris Zones] [OVM for SPARC]

The capacity of hardware resources where VM hosts operate can be specified.

[Citrix Xen]

Specify an integer between 1 and 32.

However, when using Citrix XenServer, the number of CPUs differs according to the supported OS types. For details, refer to the Citrix XenServer manual (Administrator's Guide).

[OVM for x86 3.x]

Enter an integer between 1 and 128.

[OVM for x86 2.2]

The range that can be entered differs depending on the OS type of VM guests.

- Windows

  - An integer between 1 and 8

- Linux

  - An integer between 1 and 32

#### CPU Performance

Enter the server CPU performance to allocate to the L-Server. Enter a number with up to one decimal place, in units of gigahertz. A number between 0.1 and 8 can be specified.

Specify a value within the CPU performance of VM hosts registered in the VM pool.

When using the overcommit function, a value greater than VM host's CPU performance can be specified.

The value entered here is used to determine the CPU ratio to allocate to the L-Server out of the clock speed of the physical CPU of the VM host. If VM hosts with different types of physical CPUs are registered in the VM pool, the actual processing performance may differ according to the allocated VM host.

[VMware]

For VM guests on VMware, set the CPU performance for the limit value and 0 for the reserved value.

### Information

For details on limit values and reserved values of CPUs, refer to the "vSphere Resource Management Guide" of VMware.

Refer to the relevant version of document, referring to the following URL:

URL: [http://www.vmware.com/support/pubs/vs\\_pubs.html](http://www.vmware.com/support/pubs/vs_pubs.html)

[Hyper-V]

CPU performance is realized through the resource settings of VM guests and VM hosts.

When the SCVMM management console or a Hyper-V manager is used to change the resource reservation of a VM guest or VM host, there is a chance that the creation or starting of VM guests may fail, or the expected performance may not be obtained.

Do not change VM guest and VM host resource reservations when L-Servers have been created.

[KVM]

The CPU Capping function is supported.

[Solaris Zones] [Citrix Xen] [OVM for x86 3.x] [OVM for x86 2.2]

Specify the value within the range of 0.1 to *the\_capacity\_of\_the\_hardware\_on\_which\_the\_VM\_hosts\_operate*.

### Information

When a value of less than 10% of the CPU performance of a physical server is specified, it is rounded up to the value of 10%.

Therefore, it is recommended to set a value of 1GHz or more.

[OVM for SPARC]

CPU performance cannot be specified.

## Memory Size

Enter the memory capacity to allocate to the L-Server. Enter a number with up to one decimal place, in units of gigabytes. A number between 0.1 and 255 can be specified.

[VMware]

For VM guests on VMware, set the memory size for the limit and reserved values.

### Information

For details on limit values and reserved values of memory, refer to the "vSphere Resource Management Guide" of VMware.

Refer to the relevant version of document, referring to the following URL:

URL: [http://www.vmware.com/support/pubs/vs\\_pubs.html](http://www.vmware.com/support/pubs/vs_pubs.html)

[Hyper-V]

A number between 0.1 and 64 can be specified.

For VM guests with dynamic memory disabled, set the memory size for the virtual machine memory.

For VM guests with dynamic memory enabled, set the memory size to the maximum memory.

The enabled/disabled state of dynamic memory is determined according to the value specified in the VM specific information definition file. For details on VM specific information definition files, refer to "8.1 Definition Files Commonly Shared when Creating Virtual L-Servers" and "Appendix G Definition Files" in the "Setup Guide CE".

[KVM]

Specify a number between 0.1 and 256.

[Solaris Zones] [OVM for SPARC] [Citrix Xen]

The capacity of hardware resources where VM hosts operate can be specified.

[OVM for x86 3.x]

Specify a number between 0.3 and 1024.0.

[OVM for x86 2.2]

Specify the value within the range of 0.3 to *the\_capacity\_of\_the\_hardware\_on\_which\_the\_VM\_hosts\_operate*.

## Operating System Type

Specify the type of operating system to allocate to the L-Server. It is not necessary to specify this when deploying an image, because the VM type of the image is used. The OS type can be changed after the OS installation.



### Information

The OS type of the image displays information acquired from the server virtualization software.  
For details on displayed information, refer to the manual of server virtualization software.

[KVM]

When image collection is performed using Resource Orchestrator, the OS type of the L-Server the image was collected from is inherited.  
Note that it is not acquired from the server virtualization software.

[Solaris Zones (Solaris 10)]

For Solaris 10 VM hosts, "Solaris" is displayed based on the information of the virtual package registered in BladeLogic.  
For details of virtual packages, refer to the manual of BladeLogic.

[Solaris Zones (Solaris 11)]

For Solaris 11 VM hosts, "Solaris 11" is displayed based on the information of the image stored on the admin server.  
For details of the images stored on the admin server, refer to "6. Register virtual image resources" in "8.7.3 Registering Resources in Resource Pools" in the "Setup Guide CE".

[Hyper-V]

If an unsupported OS type is specified, 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.

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>

[KVM]

Windows, Linux, Linux (SELinux), and Other can be selected. "Other" is used when an OS other than Windows, Linux, Linux (SELinux) is selected.

Automatic configuration of guest OSs can only be selected for Windows, Linux, or Linux (SELinux).

When an OS for which automatic configuration is not possible is selected for the guest OS, the items listed in "8.6.8 [OS] Tab

Configuration" in the "Setup Guide CE", and network resources such as the IP address, are not configured. Perform configuration manually if necessary.

When creating a new guest VM, the information will be displayed. When information of a newly created VM guest is lost during backup and restoration, "unknown" may be displayed.

[Solaris Zones] [OVM for SPARC] [Citrix Xen] [OVM for x86 2.2] [OVM for x86 3.x]  
The OS type cannot be changed.

#### VM host (Optional)

Individually specify the resources to allocate to the L-Server.

Clicking the [Select] button displays the [Select a VM host] dialog.

Specify a VM host or VM pool. If you do not specify a VM host or VM pool, a VM host that can create an L-Server is automatically searched for from the VM pool. If there are multiple VM pools, the VM host is searched for, beginning with the VM pool with the highest priority.

[Solaris Zones] [OVM for SPARC]

When specifying the VM host to use, choose a VM host suitable for specification of "Server Recovery".

- If the [HA] checkbox is selected

Choose a VM host with spare server settings.

[Citrix Xen]

When you choose "VM pool" for the VM host to use, choose a suitable VM pool based on the specified image. A VM host which can use the image specified on VM management software must be contained in the VM pool.

[OVM for x86 3.x]

When you choose something other than "Automatic" as "VM host", choose a suitable VM pool based on the specified image. A VM host which can use the image specified on VM management software must be contained in the VM pool.

#### Resource release

Specify whether add the CPU and memory of the VM guests allocated to the L-Server to the total of the VM pool, when the power of the L-Server is OFF.

When the [Automatic (when powered off)] checkbox is checked, the CPU and memory of VM guests allocated to L-Servers cannot be calculated as the total usage amount of VM pools.

For details, refer to "8.11 Advisory Notes for Virtual L-Server Usage" in the "Setup Guide CE".

#### Boot Location

Decide whether the physical location of servers to be allocated to the L-Server can be changed.

- Fixed

Starts the L-Server on the same VM host that operated last time. Move the L-Server between servers to start it on a separate VM host.

- Relocate at startup

Automatically selects the optimal VM host when the L-Server is started. When [VM host] is specified, select VM hosts from the range.



#### Note

When RHEL-Xen is specified for the VM type, select [Fixed].

#### Server Redundancy

Specify the server redundancy to allocate to the L-Server. To enable redundancy, select the [HA] checkbox.

[KVM] [OVM for x86 2.2] [Citrix Xen] [OVM for x86 3.x]

- If the [HA] checkbox is selected

The HA function is located on an enabled VM host.

When there is no VM host for which the HA function has been enabled, the L-Server for which a configuration definition has already been created cannot be started.

- If the [HA] checkbox is not selected

The HA function will be preferentially located on a disabled VM host.

However, the HA function will place a VM guest on an enabled VM host in the following cases:

- The HA function is not located on a disabled VM host
- There is no available CPU or memory
- The status, power status, and maintenance mode of other VM hosts are not suitable.

[Solaris Zones] [OVM for SPARC]

- If the [HA] checkbox is selected

It is located on a VM host with a spare server configured.

When there are no VM hosts with a spare server configured, the L-Server for which a configuration definition has already been created cannot be started.

- If the [HA] checkbox is not selected

It will be preferentially located on a VM host without a spare server configured.

However, in the following cases the VM guest will be located on a VM host with a spare server configured:

- There are no VM hosts without a spare server configured
- There is no available CPU or memory
- The status, power status, and maintenance mode of other VM hosts are not suitable.

## Information

If the HA function is located on an enabled VM host, the HA function of the server virtualization software will be enabled.

When a problem occurs on the physical server that the VM host is operating on, the virtual machine can be recovered by restarting it on a VM host that is operating normally.

[Hyper-V]

In Hyper-V environments this setting is ignored, and VM guests are always located on clustered VM hosts.

[KVM]

In RHEL-KVM environments this setting is ignored, and set as "none", since there are no server recovery functions on Hypervisor.

## Note

When KVM or RHEL-Xen is selected for the VM type, because server recovery cannot be enabled, do not select the [HA] checkbox.

## Alive Monitoring

Configure alive monitoring as enabled or disabled.

The following operations are performed if you select the [HA] checkbox.

[Xen] [KVM] [OVM for x86 2.2] [Solaris Zones] [Citrix Xen] [OVM for x86 3.x] [OVM for SPARC]

The alive monitoring configuration is not displayed.

## Exclusion

Enter when not operating the virtual machine on the same VM host as another virtual machine.

For example, when performing load-balanced work using multiple virtual machines, you can set exclusive operation to ensure that the work continues in a degenerate state because only one virtual machine stops when a physical server fails. Specify an L-Server name

or resource folder name that you have operating privileges for.  
The virtual machine of the specified L-Server is allocated to different physical servers.

If you specify a resource folder name, one's own L-Server can be included in the resource folder. In the following cases, the L-Server may be allocated to the same physical server, regardless of whether exclusive operation is specified:

- If no other VM hosts that meet the conditions for exclusive operation can be found, such as when there are no VM hosts in the VM pool that have enough free space to install an L-Server
- If the HA function or automatic re-installation function (examples: VMware HA or VMware DRS) of the VM product is enabled

### Note

When an operation that puts a resource that has been configured for exclusive operation outside the access scope of users, the name of the resource will only be displayed on the screen for changing specifications or definitions.

### Startup priority

With L-Servers, when performing batch power operations in a resource folder or a tenant, configure the priority for the L-Server.

Set a number between 1 and 256. Smaller values indicate higher priority. If omitted, "128" is set.

When not performing batch power operations, check the [Exclude from batch power operations] checkbox.

## 16.3.3 [Disk] Tab

---

### Disk

Click the [Add] button, and specify the following items for each disk.

#### Size \* Number of Disks

- Size

Enter a number with up to one decimal place, in units of gigabytes. Values of 0.1 or larger can be specified.

[VMware] [Hyper-V] [Citrix Xen]

Specify a number between 0.1 and 2048.

[OVM for x86 2.2]

Specify the size within the range of 1 to *the\_resource\_size\_supported\_by\_virtualization\_software*.

### Information

When creating an L-Server, even if the size of the system disk is specified, if the specified size differs from that of the deployed cloning image, the size will be changed to that of the deployed cloning image.

[OVM for x86 3.x]

Specify the size within the range of 1 to *the\_resource\_size\_supported\_by\_virtualization\_software*.

- Number

Clicking the [Add] button will display the [Disk Definitions] dialog, then specify the number of disks to add. Specify a number 1 or larger.

The number of data disks that can be configured differs depending on the VM type.

[VMware]

A maximum of 55 data disks can be specified.

[Hyper-V]

A maximum of 59 data disks can be specified.

[Xen]

A maximum of 251 data disks can be specified.

[KVM]

A maximum of 16 data disks can be specified.

[OVM for x86 2.2]

The number of data disks which can be specified differs according to the virtualization types of the selected images.

- For HVM (Hardware Virtual Machine): 7
- For PV (Para Virtualization): 59

[Solaris Zones (Solaris 10)]

Do not specify data disks.

[Citrix Xen]

A maximum of 13 data disks can be specified.

[OVM for x86 3.x]

The number of data disks which can be specified differs according to the virtualization types of the selected images.

- For HVM (Hardware Virtual Machine): 2
- For PV (Para Virtualization): 102
- PV HVM (Apply PV drivers to Hardware Virtual Machine): 105

[OVM for SPARC]

A maximum of 63 data disks can be specified.

## Resource type

Specify the disk to allocate to the L-Server.

Select from the following items.

- Automatic assignment

Select a suitable virtual storage resource from those registered in the appropriate storage pool. Create the specified size of disk resources, and allocate them to the L-Server. Set [Automatic] for the default value.



### Note

When there are storage pools with and without Thin Provisioning attributes configured that have the same priority, the storage pool that will be given priority is decided based on definition files.

For details on definition files, refer to "8.1 Definition Files Commonly Shared when Creating Virtual L-Servers" in the "Setup Guide CE".

- Storage pool

Select a virtual storage resource registered in the specified storage pool. Create the specified size of disk resources, and allocate them to the L-Server.

- Virtual storage

Displays virtual storage resources such as datastores as a list.

Select from the displayed virtual storage resources.

Create the specified size of disk resources from the specified virtual storage resource, and allocate them to the L-Server.

When using the virtual storage resource on which the Thin Provisioning attributes are configured, the disk resource can be created specifying a size exceeding the actual disk space.

- Disk

When specifying search conditions, the following relevant resources are displayed in a list.

- The LUN created in advance
- Disk resources created from virtual storage

Select from the displayed disk resources.

The specified disk resources are allocated to the L-Server.



## Note

[VMware] [Hyper-V]

When creating a virtual L-Server with a cloning image specified, the provisioning attribute of the cloning image takes preference over the provisioning attribute of the storage pool.

## Information

[VMware]

When the attribute of the storage pool in which the virtual storage is registered is Thick Provisioning, the format of the disk to allocate to the L-Server cannot be specified. The default format of server virtualization software will be used. When creating a virtual machine on server virtualization software, the format displayed at the top of the list is the default format.

[Hyper-V]

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, perform an additional configuration change.

Saved disk resources that are created from virtual storage can only be connected to the L-Server when using Microsoft(R) System Center 2012 Virtual Machine Manager or later.

Disk resources can be specified if the disk number [No.] is 1 or larger.

After selecting [Disk] from the resource type to use, resources that are displayed in the "Resource List" can be filtered by entering the search conditions and clicking the [Search] button.

## Note

When the creation of an L-Server with saved disks specified fails, if a virtual machine remains on VM management software, remove the saved disks from the virtual machine before deleting the virtual machine from VM management software. When a virtual machine is deleted without taking removing saved disks, the saved disks are also deleted. Disks on virtual machines can be identified using the disk number (No.) specified when creating an L-Server.

For details, refer to "Message number 67390" or "Message number 67392" in "Messages".

[OVM for SPARC]

Select disk storage from the resource pool to create the disk resource. Select one of Automatic, Storage pool, or Disk.

[KVM]

- When specifying disk resources during creation an L-Server with multiple disks defined, specify the disk resource for all disks. Creation of an L-Server might fail if the disk resource is only specified for some disks.

When a disk resource that can be used by one VM host is divided and registered in multiple storage pools, specify storage pool for "Resource type". Creation of the L-Server might fail when an unused disk resource has been divided among two or more storage pools.

- Both disk resources created automatically from virtual storage resources and disk resources created beforehand are allocated to the L-Server.

The storage resources selected when [Automatic] or [Storage Pool] is specified for "Resource type" differ depending on the cloning image selected for image on the [General] tab.

For details, refer to "Storage Resources to be Selected" in "8.6.6 Creating L-Servers" in the "Setup Guide CE".

[Solaris Zones]

The disk resources that can be selected differ depending on the selected cloning image.

- When coordinating with BladeLogic (Solaris 10)

Automatic, Storage pool, or Disk

- When not coordinating with BladeLogic (Solaris 11)

Automatic, Storage pool, or Virtual storage

Do not select disk resources that are used by Solaris 11 VM hosts.

[OVM for x86 2.2]

The total size of resources is not displayed for the virtual storage in the resource list.

[OVM for x86 3.x]

The system disk cannot be changed using "Automatic", as the disks are created from the same virtual storage as the specified images.

## 16.3.4 [Network] Tab

---

Specify the following items.

### Network to connect

Configure a network resource to connect.

Clicking the [Select] button displays the [Select a Network Resource] dialog.

If the [OK] button is clicked while a network resource is selected, the network resource to connect is displayed.

The number of NICs that can be configured differs depending on the VM type.

[VMware]

0 to 10

[Hyper-V]

0 to 8

[Xen]

0 to 15

[KVM]

0 to 8

[OVM for x86 2.2]

1 to 8

[Solaris Zones] [OVM for SPARC]

0 to 8

[Citrix Xen]

0 to 7

[OVM for x86 3.x]

1 to 8

### IP address (Optional)

Specify the IP address to allocate to the L-Server. To manually specify the IP address to allocate to the L-Server, enter the IP address.



### Note

[Citrix Xen] [OVM for x86]

When cloning image customization is disabled, the IP addresses allocated to L-Servers are not automatically configured in the guest OSs.

When cloning image customization is enabled, the IP addresses allocated to L-Servers are automatically configured in the guest OSs.

---

### DNS server

Specify the DNS server.



## Note

[Hyper-V]

IP addresses can be automatically configured, on the following guest OSs on which the integrated services are installed.

- Microsoft(R) Windows Server(R) 2012 R2
- 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) 8.1
- Microsoft(R) Windows(R) 8
- Microsoft(R) Windows(R) 7
- Microsoft(R) Windows Vista(R)

## 16.3.5 [OS] Tab

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.

[VMware]

For details on the [OS] tab, refer to "8.2.9 [OS] Tab Configuration" in the "Setup Guide CE".

[Hyper-V]

For details on the [OS] tab, refer to "8.3.9 [OS] Tab Configuration" in the "Setup Guide CE".

[KVM]

For details on the [OS] tab, refer to "8.6.8 [OS] Tab Configuration" in the "Setup Guide CE".

[Solaris Zones]

For details on the [OS] tab, refer to "8.7.8 [OS] Tab Configuration" in the "Setup Guide CE".

[OVM for SPARC]

For details on the [OS] tab, refer to "8.8.7 [OS] Tab Configuration" in the "Setup Guide CE".

[Citrix Xen]

For details on the [OS] tab, refer to "8.9.8 [OS] Tab Configuration" in the "Setup Guide CE".

[OVM for x86 3.x]

For details on the [OS] tab, refer to "8.10.8 [OS] Tab Configuration" in the "Setup Guide CE".



## Information

[VMware] [Hyper-V] [KVM] [Solaris Zones] [OVM for SPARC] [Citrix Xen] [OVM for x86 3.x]

### 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. Use the UTF-8 character code for OS property definition files.

Use the OS property definition file for VM products.

It is necessary to indicate the required parameters between VM management software in the 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

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. Enter each line in the following format.

<i>Key = Value</i>
--------------------

## Definition File Items

[VMware]

Refer to "8.2.9 [OS] Tab Configuration" in the "Setup Guide CE".

[Hyper-V]

Refer to "8.3.9 [OS] Tab Configuration" in the "Setup Guide CE".

[KVM]

Refer to "8.6.8 [OS] Tab Configuration" in the "Setup Guide CE".

[Solaris Zones]

Refer to "8.7.8 [OS] Tab Configuration" in the "Setup Guide CE".

[OVM for SPARC]

Refer to "8.8.7 [OS] Tab Configuration" in the "Setup Guide CE".

[Citrix Xen]

Refer to "8.9.8 [OS] Tab Configuration" in the "Setup Guide CE".

[OVM for x86 3.x]

Refer to "8.10.8 [OS] Tab Configuration" in the "Setup Guide CE".



# Chapter 17 L-Server Operations

This chapter explains how to operate L-Servers.

L-Servers linked with configured physical servers or virtual machines can also be operated.

However, the operations which can be carried out differ depending on the configuration of the L-Server.

For how to link a configured physical server or a configured virtual machine to an L-Server, and the possible operations, refer to "[Chapter 18 Linking L-Servers with Configured Physical Servers or Virtual Machines](#)".

## Available Operations

L-Servers can perform the following operations:

Table 17.1 Power operations

Operation	Physical L-Server	Virtual L-Server										Reference
		VMware	Hyper-V	RHEL-Xen	OVM for x86 2.2	RHEL-KVM	Solaris Zones		OVM for SPARC	Citrix XenServer	OVM for x86 3.x	
							Solaris 10	Solaris 11				
Starting an L-Server (*1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Refer to " <a href="#">17.1.1 Starting an L-Server</a> ".
Stopping an L-Server (*1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	For details, refer to " <a href="#">17.1.2 Stopping an L-Server</a> ".
Restarting an L-Server (*1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Refer to " <a href="#">17.1.3 Restarting an L-Server</a> ".
Starting all L-Servers in a resource folder (*1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Refer to " <a href="#">Starting an L-Server in a Resource Folder</a> " in " <a href="#">17.1.4 Batch Power Operation of L-Servers in Resource Folders</a> ".
Stopping all L-Servers in a resource folder (*1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Refer to " <a href="#">Stopping an L-Server in a Resource Folder</a> " in " <a href="#">17.1.4 Batch Power Operation of L-Servers in Resource Folders</a> ".
Restarting all L-Servers	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Refer to " <a href="#">Restarting an</a> ".

Operation	Physical L-Server	Virtual L-Server										Reference
		VMware	Hyper-V	RHEL-Xen	OVM for x86 2.2	RHEL-KVM	Solaris Zones		OVM for SPARC	Citrix XenServer	OVM for x86 3.x	
							Solaris 10	Solaris 11				
in a resource folder (*1)												<a href="#">L-Server in a Resource Folder</a> in "17.1.4 Batch Power Operation of L-Servers in Resource Folders".

\*1: Configuration of server virtualization software is necessary depending on the functions. For details, refer to "9.2.1 Configuration Requirements" in the "Design Guide VE".

Table 17.2 Modifying

Operation	Physical L-Server	Virtual L-Server										Reference
		VMware	Hyper-V	RHEL-Xen	OVM for x86 2.2	RHEL-KVM	Solaris Zones		OVM for SPARC	Citrix XenServer	OVM for x86 3.x	
							Solaris 10	Solaris 11				
Modifying specifications	Yes	Yes	Yes	Yes	Yes	Yes	Yes (*1, *2)	Yes	Yes (*1, *2)	Yes (*3, *4)	Yes (*4, *5)	Refer to <a href="#">"17.2.1 Modifying Specifications"</a> .
Modifying the basic information	Yes	Yes	Yes	Yes	Yes	Yes	Yes (*1, *2)	Yes	Yes (*1, *2)	Yes	Yes	Refer to <a href="#">"17.2.2 Modifying the Basic Information"</a> .
Attaching and detaching disks	Yes (*6)	Yes	Yes	Yes	Yes	Yes	No	Yes (*7)	Yes (*1)	Yes (*8)	Yes (*8)	Refer to <a href="#">"17.2.3 Attaching and Detaching Disks"</a> .
Increasing disk capacity	No	Yes	Yes	No	No	No	No	No	No	No	No	Refer to <a href="#">"17.2.6 Increasing Disk Capacity"</a> .
Sharing disks between L-Servers	Yes (*6)	No	No	Yes	No	No	No	No	No (*9)	No	No	Refer to <a href="#">"17.2.4 Sharing Disks Between L-Servers"</a> .
Modifying network resource settings	Yes	Yes	Yes (*10)	Yes (*10)	Yes (*10)	Yes (*10)	Yes (*10)	Yes (*10)	Yes (*10)	Yes (*10)	Yes (*10)	Refer to <a href="#">"17.2.5 Modifying Network"</a>

Operation	Physical L-Server	Virtual L-Server										Reference
		VMware	Hyper-V	RHEL-Xen	OVM for x86 2.2	RHEL-KVM	Solaris Zones		OVM for SPARC	Citrix XenServer	OVM for x86 3.x	
							Solaris 10	Solaris 11				
												<a href="#">Resource Settings</a> ".

\*1: When a VM host not managed with server management software is used, operation and changes are not possible.

\*2: Registration of server management software is necessary.

\*3: Modification of the following items cannot be performed using the ROR console, while powering on.

- Number of CPUs
- CPU Performance
- Memory Size

\*4: The OS type cannot be changed.

\*5: Modification of the following items cannot be performed using the ROR console, while powering on.

- Number of CPUs
- Memory Size

\*6: Only possible when using SAN boot.

\*7: Detaching of disks is not possible. However, it is possible from the global zone.

Use the following procedure to detach disks from a global zone.

1. In the global zone, execute the following command:

```
#/usr/sbin/zoncfg -z VM_name "remove fs dir=Mount_point" <RETURN>
```

In *VM\_name*, specify the VM guest name that can be confirmed on the ROR console.

In *Mount\_point*, specify the device path to the disk that can be confirmed as an attribute of the L-Server. (Example: /rcx/disk001)

2. Reboot the non-global zone corresponding to the L-Server.
3. In the global zone, execute the following command:

```
#/usr/sbin/zfs list <RETURN>
```

4. In the global zone, execute the following command:

```
#/usr/sbin/zfs destroy File_system <RETURN>
```

*File\_system* can be confirmed using the following method.

The data set name is displayed in the NAME field output by the zfs list command.

The format of the data set name corresponding to the disk resource generated by Resource Orchestrator is the following part corresponding to the virtual storage:

```
zpool_name/rcx/VM_guest_name/disk_on_the_device_pathXXX
```

Specify the data set name corresponding to the disk of Resource Orchestrator as the file system.

\*8: Attaching and detaching of disks cannot be performed using the ROR console, while powering on.

\*9: Cannot set with this product. Set up the shared disk on the VM host, after creating the L-Server.

\*10: IP addresses and network resources of virtual L-Servers can only be changed when the server's status is defined.

Table 17.3 Using the L-Server console

Operation	Physical L-Server	Virtual L-Server										Reference
		VMware	Hyper-V	RHEL-Xen	OVM for x86 2.2	RHEL-KVM	Solaris Zones		OVM for SPARC	Citrix XenServer	OVM for x86 3.x	
							Solaris 10	Solaris 11				
Using the L-Server console	Yes	Yes	Yes	No	No	No	No	No	No	No	No	Refer to "17.3 Using the L-Server Console".

Table 17.4 Deleting an L-Server

Operation	Physical L-Server	Virtual L-Server										Reference
		VMware	Hyper-V	RHEL-Xen	OVM for x86 2.2	RHEL-KVM	Solaris Zones		OVM for SPARC	Citrix XenServer	OVM for x86 3.x	
							Solaris 10	Solaris 11				
Deleting an L-Server	Yes	Yes	Yes	Yes	Yes	Yes	Yes (*1, *2)	Yes	Yes (*1, *2, *3)	Yes	Yes	Refer to "17.4 Deleting".

\*1: When a VM host not managed with server management software is used, operation and changes are not possible.

\*2: Registration of server management software is necessary.

\*3: An L-Server with a disk shared with another L-Server cannot be deleted.

Table 17.5 Cloning Image Operations

Operation	Physical L-Server	Virtual L-Server										Reference
		VMware	Hyper-V	RHEL-Xen	OVM for x86 2.2	RHEL-KVM	Solaris Zones		OVM for SPARC	Citrix XenServer	OVM for x86 3.x	
							Solaris 10	Solaris 11				
Collecting cloning images	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes (*1)	Refer to "17.5.1 Collecting and Registering".
Viewing cloning images	Yes	Yes	Yes	Yes	Yes	Yes	Yes (*2)	Yes	Yes (*2)	Yes	Yes	Refer to "17.5.2 Viewing".
Unregistering cloning images	Yes	Yes	Yes	Yes	Yes	Yes	Yes (*2)	Yes	Yes (*2)	Yes	Yes	Refer to "17.5.3 Unregistration".
Deleting cloning images	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Refer to "17.5.4 Deleting".

\*1: The image storage destination cannot be specified when collecting cloning images. The images are stored using the same virtual storage as the system disks of virtual L-Servers for collection.

\*2: When a VM host not managed with server management software is used, operation and changes are not possible.



Table 17.6 Snapshots, and Backup and Restoration of L-Servers

Operation	Physical L-Server	Virtual L-Server										Reference
		VMware	Hyper-V	RHEL-Xen	OVM for x86 2.2	RHEL-KVM	Solaris Zones		OVM for SPARC	Citrix XenServer	OVM for x86 3.x	
							Solaris 10	Solaris 11				
Collection of snapshots	No	Yes	Yes	No	No	No	No	No	No	Yes (*1, *2)	No	Refer to "Collection" of "17.6.1 Snapshot".
Snapshot restoration	No	Yes	Yes	No	No	No	No	No	No	Yes	No	Refer to "Restoration" of "17.6.1 Snapshot".
Snapshot deletion	No	Yes	Yes	No	No	No	No	No	No	Yes	No	Refer to "Deletion" of "17.6.1 Snapshot".
System image backup	Yes	No	No	No	No	No	No	No	No	No	No	Refer to "Backup" of "17.6.2 Backup and Restore".
System image restoration	Yes	No	No	No	No	No	No	No	No	No	No	Refer to "Restoration" of "17.6.2 Backup and Restore".
System image deletion	Yes	No	No	No	No	No	No	No	No	No	No	Refer to "Deletion" of "17.6.2 Backup and Restore".

\*1: Single quotes (') cannot be used for comments.

\*2: When virtual L-Servers are powered on, collection of snapshots of disks cannot be performed using the ROR console.

Table 17.7 Migration between VM Hosts

Operation	Physical L-Server	Virtual L-Server										Reference
		VMware	Hyper-V	RHEL-Xen	OVM for x86 2.2	RHEL-KVM	Solaris Zones		OVM for SPARC	Citrix XenServer	OVM for x86 3.x	
							Solaris 10	Solaris 11				
Moving L-Servers between VM hosts (migration)	No	Yes	Yes	Yes	Yes	Yes	Yes (*1, *2)	No	Yes (*1, *2)	Yes	Yes	Refer to "17.7 Migration between VM Hosts".

\*1: When a VM host not managed with server management software is used, operation and changes are not possible.

\*2: Registration of server management software is necessary.

Table 17.8 Allocating and releasing resources

Operation	Physical L-Server	Virtual L-Server										Reference
		VMware	Hyper-V	RHEL-Xen	OVM for x86 2.2	RHEL-KVM	Solaris Zones		OVM for SPARC	Citrix XenServer	OVM for x86 3.x	
							Solaris 10	Solaris 11				
Allocating resources to L-Servers	Yes	Yes	Yes	Yes	Yes	Yes	Yes (*)	Yes	Yes (*)	Yes	Yes	Refer to <a href="#">"17.8.2.1 Allocating Resources"</a> .
Releasing resources from L-Servers	Yes	Yes	Yes	Yes	Yes	Yes	Yes (*)	Yes	Yes (*)	Yes	Yes	For details, refer to <a href="#">"17.8.2.2 Releasing Resources"</a> .

\* Note: When a VM host not managed with server management software is used, operation and changes are not possible.

Table 17.9 Changing physical server usage

Operation	Physical L-Server	Virtual L-Server										Reference
		VMware	Hyper-V	RHEL-Xen	OVM for x86 2.2	RHEL-KVM	Solaris Zones		OVM for SPARC	Citrix XenServer	OVM for x86 3.x	
							Solaris 10	Solaris 11				
Changing physical server usage	Yes	No	No	No	No	No	No	No	No	No	No	Refer to <a href="#">"17.9 Changing Physical Server Usage"</a> .

Table 17.10 Exporting and Importing Virtual L-Servers

Operation	Physical L-Server	Virtual L-Server										Reference
		VMware	Hyper-V	RHEL-Xen	OVM for x86 2.2	RHEL-KVM	Solaris Zones		OVM for SPARC	Citrix XenServer	OVM for x86 3.x	
							Solaris 10	Solaris 11				
Exporting a virtual L-Server	No	Yes	No	No	No	No	No	No	No	No	No	Refer to <a href="#">"17.10 Exporting and Importing Virtual L-Servers"</a>
Importing a virtual L-Server	No	Yes	No	No	No	No	No	No	No	No	No	

 Note

- Operations for an L-Server included in an L-Platform using the ROR console and commands have limits. Use of the console and moving of an L-Server (migration) between VM hosts are only possible when using the ROR console. Use of commands and moving of an L-Server (migration) between VM hosts are only possible when using the ROR console.
- When an L-Platform is included in a resource folder or a tenant, the L-Server under the L-Platform is not the target of batch power operations.

- When operating a physical server or a VM guest related to an L-Server using the server tree on the ROR console or using commands, consider also the effects on L-Servers.
- For virtual L-Servers with the OS type "Other", there is a possibility that the operation will not be reflected on the guest OS.

[OVM for SPARC]

- Since a non-global zone constructed on the Solaris Zone is also influenced when power operations or migration are performed on the virtual L-Server on which a Solaris Zone has been created on a guest domain, check the extent of impact before performing such operations.

---

## 17.1 Power Operations

This section explains the power operations of L-Servers.

### 17.1.1 Starting an L-Server

---

This section explains how to startup an L-Server.

Use the following procedure to start an L-Server:

1. Right-click the target L-Server in the orchestration tree, and select [Power]-[ON] from the popup menu.

The confirmation dialog is displayed.

2. Click the [OK] button.

The L-Server is started.

On an L-Server for which only a configuration definition has been created (defined), server and disk resources will be allocated, and after image deployment is performed (when a cloning image has been specified), the L-Server will be started.

On an L-Server which has been released (preserved), server resources will be allocated and started.

For details on the statuses when configuration definitions have been created (defined), servers have been released (preserved), and resources have been allocated (allocated), refer to "[17.8 Allocating and Releasing Resources to L-Servers](#)".

From the command-line, execute `rcxadm lserver start`.

For details on the `rcxadm lserver start` command, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".



#### Point

When "Boot Location" of virtual L-Server is "Relocate at startup", for the selection condition of VM host of a start place, refer to "Selection of L-Server Deployment Location" in "2.2.3 L-Server" in the "Design Guide CE".



#### Note

- From virtual L-Servers to which resources have been allocated (allocated) or from which servers have been released (preserved), a startup command is sent out to VM guests even in the following cases.
  - CPU or memory resources of the VM host on which VM guests are located are running out, and the destination VM host does not exist (When [Boot Location] is [Relocate at startup])
  - CPU or memory resources of the VM host on which VM guests are placed are running out (When [Boot Location] is [Fixed])

As sufficient CPU or memory resources cannot be secured on the VM host, an error will occur during L-Server startup. In this case, confirm the output message, and then take corrective action.
- When using tenants to segregate resources, the startup of L-Servers may be limited.

For details, refer to "[Chapter 21 Resource Folder Operations](#)".

[VMware]

- When starting the L-Server, sufficient overhead memory may not be secured, and starting of the L-Server may fail.  
In this case, confirm the output message, and then take corrective action.

[OVM for SPARC]

- When executing power operations of L-Servers, binding of resources is also executed.
- This product carries out auto-save of the configuration information when an L-Server is started.

When you disable the auto-save function of configuration information in this product, add a definition to the definition file which configures the execution of configuration information preservation.  
Refer to "8.8.1 Creating Definition Files" in the "Setup Guide CE".

## 17.1.2 Stopping an L-Server

This section explains how to stop an L-Server.

Use the following procedure to stop an L-Server.

1. Right-click the target L-Server in the orchestration tree, and select [Power]-[OFF] from the popup menu.  
The confirmation dialog is displayed.
2. Click the [OK] button.  
The L-Server is stopped.

Use the following procedure to stop forcibly.

1. Right-click the target L-Server in the orchestration tree, and select [Power]-[OFF (Forced)] from the popup menu.  
The confirmation dialog is displayed.
2. Click the [OK] button.  
The L-Server is stopped forcibly.

### Point

When the L-Server is registered as a VM host, the VM guests running on the VM host will be turned off along with the L-Server.

The list of the VM guests that will be turned off is displayed in the dialog. However, if the VM guest is an L-Server which the logged in user does not have access permission for, the VM guest is not displayed in the list.

For L-Servers for which [Resource release] setting is configured, server resources are released.

For details on [Resource release], refer to "16.2.2 [Server] Tab" or "16.3.2 [Server] Tab".

From the command-line, execute `rcxadm lserver stop`.

For details on the `rcxadm lserver stop` command, refer to "3.6 rcxadm lserver" in the "Reference Guide (Command/XML) CE".

### Note

- If no OS is installed on the L-Server, the L-Server may not be stopped. In that case, perform a forced stop.

[OVM for x86 2.2]

- Depending on the presence or absence of the VirtualizationMethod attribute and the PV (Paravirtualized) driver of VM guests, stopping operations may cause a forced stop, and a forced stopping operation may cause a stop.

[OVM for SPARC]

- When the function is not supported by OVM for SPARC, stopping and rebooting of the L-Server cannot be performed.  
Depending on the statuses of virtual machines, either operate them directly, or perform a forced stop or a forced reboot.
- When an L-Server is stopped, this product also executes unbinding of resources.

- This product carries out auto-save of the configuration information when an L-Server is stopped.

When you disable the auto-save function of configuration information in this product, add a definition to the definition file which configures the execution of configuration information preservation.  
Refer to "8.8.1 Creating Definition Files" in the "Setup Guide CE".

---

### 17.1.3 Restarting an L-Server

---

This section explains how to restart an L-Server.

Use the following procedure to restart an L-Server.

1. Right-click the target L-Server in the orchestration tree, and select [Power]-[Reboot] from the popup menu.

The confirmation dialog is displayed.

2. Click the [OK] button.

The L-Server is restarted.

Use the following procedure to restart forcibly:

1. Right-click the target L-Server in the orchestration tree, and select [Power]-[Reboot (Forced)] from the popup menu.

The confirmation dialog is displayed.

2. Click the [OK] button.

The L-Server is restarted forcibly.



When the L-Server is registered as a VM host, the VM guests running on the VM host will be turned off along with the L-Server.

The list of the VM guests that will be turned off is displayed in the dialog. However, if the VM guest is an L-Server which the logged in user does not have access permission for, the VM guest is not displayed in the list.

From the command-line, execute `rcxadm lserver restart`.

For details on the `rcxadm lserver restart` command, refer to "3.6 rcxadm lserver" in the "Reference Guide (Command/XML) CE".



- If no OS is installed on the L-Server, the L-Server may not be restarted. In that case, perform a forced restart.

[OVM for x86 2.2]

- Depending on the presence or absence of the `VirtualizationMethod` attribute and the PV (Paravirtualized) driver of VM guests, restarting operations may cause a forced restart, and a forced restarting operation may cause a restart.

[OVM for SPARC]

- When the function is not supported by OVM for SPARC, stopping and rebooting of the L-Server cannot be performed. Depending on the statuses of virtual machines, either operate them directly, or perform a forced stop or a forced reboot.
- This product carries out auto-save of the configuration information when an L-Server is restarted. When you disable the auto-save function of configuration information in this product, add a definition to the definition file which configures the execution of configuration information preservation. Refer to "8.8.1 Creating Definition Files" in the "Setup Guide CE".

---

### 17.1.4 Batch Power Operation of L-Servers in Resource Folders

---

This section explains the batch power operations of L-Servers in resource folders.

When performing batch power operation of L-Server in resource folders, configure the startup priority settings for L-Servers in advance.

For priority order settings, configure from [Startup priority] of the [Modify an L-Server] dialog, or [Server] tab of the [Create an L-Server] dialog.

For details, refer to "[16.2 Creation of Physical L-Servers Using Parameters](#)" or "[16.3 Creation of Virtual L-Servers Using Parameters](#)".

## Note

- The batch operations for an L-Server in a tenant are only available for Basic mode.
- Users are advised to exclude virtual L-Servers on which Solaris zones have been created on a guest domain from the scope of batch power operations of L-Servers.  
Since a non-global zone created on a Solaris Zone is also influenced when power operations are performed on the virtual L-Server on which a Solaris zone has been created on a guest domain, check the extent of impact before performing such operations.  
When batch power operations of L-Servers are used in an environment where a Solaris zone has been created on a guest domain, set the priority of the virtual L-Server used to create the Solaris zone on the guest domain as higher than the priority of virtual L-Servers created in the Solaris zone. In addition, since it is carried out using the functions of virtual products, if a power operation fails, perform the power operation again for each L-Server.

## Starting an L-Server in a Resource Folder

Use the following procedure to start an L-Server in a resource folder.

1. Right-click the target resource folder or tenant in the orchestration tree, and select [Power]-[ON] from the popup menu.

The [Power On L-Servers] dialog is displayed.

### Point

A list of L-Servers that are targets of the power operation is displayed.

The display order is in descending order of priority.

Even if the list of L-Server is not displayed, the power supply can be operated.

2. Click the [OK] button.

L-Servers in a resource folder are started in the order of priority.

When all of the following conditions are met on an L-Server with a configuration definition already been created (defined), the L-Server will not be the target of powering on.

- The cloning image is specified
- Boot disks (system volumes) are dynamically created from virtual storage
- The L-Server is a virtual L-Server on RHEL-KVM

When an L-Server uses resources in another tenant, the L-Server will not be the target of powering on.

From the command-line, execute `rcxadm folder start`.

For details on the `rcxadm folder start` command, refer to "3.5 `rcxadm folder`" in the "Reference Guide (Command/XML) CE".

## Stopping an L-Server in a Resource Folder

Use the following procedure to stop an L-Server in a resource folder.

1. Right-click the target resource folder or tenant in the orchestration tree, and select [Power]-[OFF] from the popup menu.

The [Power OFF L-Servers] dialog is displayed.

## Point

---

A list of L-Servers that are targets of the power operation is displayed.  
They are displayed in order with low priority.  
Even if the list of L-Server is not displayed, the power supply can be operated.

---

2. Click the [OK] button.

L-Servers in a resource folder are stopped in the order of priority.

From the command line, execute `rcxadm folder stop`.

For details on the `rcxadm folder stop` command, refer to "3.5 `rcxadm folder`" in the "Reference Guide (Command/XML) CE".

## Restarting an L-Server in a Resource Folder

Use the following procedure to restart an L-Server in a resource folder.

1. Right-click the target resource folder or tenant in the orchestration tree, and select [Power]-[Reboot] from the popup menu.  
The [Reboot L-Servers] dialog is displayed.

## Point

---

A list of L-Servers that are targets of the power operation is displayed.  
The display order is in descending order of priority.  
Even if the list of L-Server is not displayed, the power supply can be operated.

---

2. Click the [OK] button.

L-Servers in a resource folder are restarted in the order of priority.

From the command-line, execute `rcxadm folder restart`.

For details on the `rcxadm folder restart` command, refer to "3.5 `rcxadm folder`" in the "Reference Guide (Command/XML) CE".

## 17.2 Modifying

---

This section explains how to perform L-Server configuration changes.

When modifying configurations for an L-Server for which only a configuration definition was created, refer to "[17.8.2.3 Modifying Configuration Definition Information](#)".

## Point

---

- Resource Orchestrator makes periodic queries to VM management software.
  - When the configuration of a virtual machine is modified using VM management software, periodic queries will reflect the changes on the virtual machines used by a virtual L-Server.
  - When addition, modification, or deletion of storage is performed using VM management software, changes to the configuration/status of storage of the virtual L-Server are detected.

- Resource Orchestrator makes periodic queries to storage devices.

When changes are made to storage using storage management software, the changes to the status of the storage on the physical L-Server are detected.

On virtual L-Servers, the following information is updated:

- L-Server Name (\*1)
- CPU Performance (\*2, \*3)
- Number of CPUs (\*2)

- Memory Capacity (\*4)
- VM Management Software Specific Information
- Operating System Type
- Server Redundancy (\*5)
- The Number of Disks
- Disk Index
- Disk Capacity
- Device Path
- Usage
- Type

\*1: Confirm the following for the virtual L-Server name and the VM name:

- When use of the same name is configured for both a virtual L-Server and a VM, performing the following operations makes the L-Server name match the VM name.
  - Creating an L-Server
  - Changing the name of L-Server name basic information  
[Solaris Zones (Solaris 11)]  
Changing the name of L-Server basic information does not change the VM name.
- When use of the same name is configured for both a virtual L-Server and a VM, performing the following operations makes the L-Server name match the VM name when VM information changes are detected.
  - Changing labels and comments of L-Server basic information
  - Changing L-Server Specifications

For the configuration to use the same name for both a virtual L-Server and a VM machine, refer to "[Table 17.17 List of Items Specified in the Definition File](#)" of "[17.8.1 Installation](#)".

\*2: [Solaris Zones]

CPU performance and the number of CPUs should be changed when the cap values of CPUs are changed, and when the resource pool for Solaris Zones used in non-global zone is changed as follows.

- When changing managed resource pools for Solaris Zones to unmanaged resource pools for Solaris Zones
- When changing unmanaged resource pools for Solaris Zones to managed resource pools for Solaris Zones

\*3: For details on the CPU performance and the number of CPUs for OVM for SPARC, refer to "Display of CPU Performance and the Number of CPUs for L-Servers" in "8.8.8 Advisory Notes for OVM for SPARC Usage" in the "Setup Guide CE".

\*4: When using VMware, the value to be reflected varies depending on the memory limit settings.

When Unlimited is set for the memory limit, the specified memory size is reflected.

When a particular value is specified for memory limit, that value is reflected.

When using Hyper-V, the value to be reflected varies depending on the dynamic memory settings.

When dynamic memory is enabled, the setting for the maximum memory is reflected.

When dynamic memory is disabled, the setting for the virtual machine memory is reflected.

\*5: Updated only when VMware FT is configured or released.

When attaching and detaching disks from a virtual machine are performed consecutively on VM management software, an event log regarding Storage Migration is output.

.....



Note

Network information and physical L-Servers are not updated.



When attachment or detachment of disks is performed using storage management software, the changes to the configuration of storage on the physical L-Server is not detected.

- For the created physical L-Server, reflect attachment or detachment of disks using the following procedure:
  - When a Disk has been Attached
    1. Detach the disk from the physical server using the storage management software.  
When the physical server is powered on, it is necessary to change the status of the disk to detach into unused in advance.
    2. Attach the disk to the physical L-Server.  
For details, refer to "[17.2.3 Attaching and Detaching Disks](#)".
  - When a Disk has been Detached  
Detach the disk from the physical L-Server.  
For details, refer to "[17.2.3 Attaching and Detaching Disks](#)".
- For a physical L-Server linked with a configured physical server, reflect attachment or detachment of disks using the following procedure:
  1. Cancel the link between the physical server and the physical L-Server.  
For details, refer to "[18.6 Releasing an L-Server](#)".
  2. Create a link between the physical server and the physical L-Server.  
For details, refer to "[17.8.1 Installation](#)".
- Even if modification of the L-Server configuration failed, part of the information may be successfully modified. In this case, it takes a while for the modified information to be reflected. The virtual machine information is reflected through periodic queries.

[KVM] [Solaris Zones (Solaris 10)]

Disk and Network information are not updated.

[Solaris Zones (Solaris 11)]

Network information is not updated.

[Xen] [OVM for x86 2.2]

Server, Disk, and Network information are not updated.



## 17.2.1 Modifying Specifications

---

This section explains how to modify L-Server specifications. Use the following procedure to modify L-Server specifications:

[Solaris Zones]

Calculate the cap value to configure for the non-global zone from the number of CPUs and the CPU performance.

For details, refer to "8.7.7 Creating L-Servers" in the "Setup Guide CE".

The specifications of an L-Server linked with a virtual machine on a VM host not managed with server management software cannot be modified from the ROR console. Modify them from the global zone.

### The Procedure when Using the GUI

1. 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.
2. Change the values.  
The current values for each item are displayed in the [Modify an L-Server] dialog. Items that have been changed are indicated with an asterisk ("\*") in front of the item.  
For details about the range of the value that can be specified, refer to "[16.2.2 \[Server\] Tab](#)" or "[16.3.2 \[Server\] Tab](#)".
3. Click the [OK] button.

When making changes while the power of the virtual L-Server is on, only the configuration of the virtual L-Server can be changed.

4. When changes were made while a virtual L-Server was powered on, follow the procedures for the OS's running on the virtual L-Server to have the changes recognized by the OS's.

## The Procedure From the Command Line

1. Execute `rcxadm lserver modify` or `rcxadm lserver set`.

For details on the `rcxadm lserver modify` command and the `rcxadm lserver set` command, refer to "3.6 rcxadm lserver" in the "Reference Guide (Command/XML) CE".

When making changes while the power of the virtual L-Server is on, only the configuration of the virtual L-Server can be changed.

2. When changes were made while a virtual L-Server was powered on, follow the procedures for the OS's running on the virtual L-Server to have the changes recognized by the OS's.

## Changeable Items

The items for which specifications can be changed differ depending on whether the L-Server is physical or virtual.

### - Changing Physical L-Server Specifications

The following items can be changed when the power status of the physical L-Server is OFF.

- FC path
- Boot Mode
- CPU Performance (\*)
- Number of CPUs (\*)
- Memory Size (\*)

\* Note: Can be specified when using blade servers. When you start the L-Server after setting "Resource release" (for allocating and releasing resources to and from L-Servers) and adjusting CPU and memory settings, a physical server will be selected according to the modified conditions.

### - Changing Virtual L-Server Specifications

The following items can be changed when the power status of the virtual L-Server is ON. For details, refer to the manuals of VM products.

- CPU Performance  
[OVM for SPARC]  
The CPU Performance cannot be changed.
- Number of CPUs
- Memory Size
- OS Type (When no images are not deployed)

[OVM for x86 2.2] [Solaris Zones] [OVM for SPARC] [Citrix Xen] [OVM for x86 3.x]  
The OS type cannot be changed, regardless of whether images are deployed or not.

[KVM]

When changing the specifications for the OS types (when images have not been deployed) of virtual L-Servers, for KVM it is necessary to perform settings based on the OS type that the user intends to install.

When the OS type differs from the OS installed on the virtual L-Server, operation is not guaranteed.

The items for which specifications can be changed while powered on differs depending on the VM product. Refer to "[Table 17.11 Items that can be changed while the power is on](#)" for details. In addition, changes to specifications cannot be made on Citrix XenServer while powered on.

Table 17.11 Items that can be changed while the power is on

Resource Name	Modification	VMware	Hyper-V	KVM	Solaris Zones		OVM for SPARC	OVM for x86 3.x
					Solaris 10	Solaris 11		
Number of CPUs	Add	Yes (*1)	No	No	Yes (*2)	Yes	Yes	No
	Detaching a Disk	No	No	No	Yes (*2)	Yes	Yes	No
CPU Performance	Add	Yes	Yes	Yes	Yes (*2)	Yes	No	Yes
	Detaching a Disk	Yes	Yes	Yes	Yes (*2)	Yes	No	Yes
Memory Size	Add	Yes (*1)	No	Yes	Yes (*2)	Yes	Yes	No
	Detaching a Disk	No	No	Yes	Yes (*2)	Yes	Yes	No
OS Type	Modification	No	Yes	Yes	No	No	No	No

\*1: Can be changed if memory/CPU hot plug is enabled. The memory/CPU hot plug is enabled on the virtual L-Server created by Resource Orchestrator.

\*2: The changed value will be enabled on the actual virtual machine after it is restarted.

[VMware] [Hyper-V] [Citrix Xen]

When CPU reserve, memory reserve, and initial memory capacity have been set for the L-Server, changing the CPU performance and memory size to values smaller than those values is not possible. To change these settings, use the command-line or VM management software. (\*)

[VMware]

When the memory size is changed, the limit value of memory is also changed.

However, when the limit value of memory has been set to "Unlimited", only the memory size is changed.

When changing the memory limit setting, use the VM management software to do so. (\*)

For details on the configuration method, refer to the manual of the VM management software.

When VMware FT has been configured on a virtual machine linked with a virtual L-Server, server redundancy settings cannot be modified.

Check whether the memory/CPU hot plug has been enabled from the VM management software if an existing VM guest is to be linked to a virtual L-Server.

If it is not enabled, enable the setting from the VM management software. Refer to the manual for the VM management software network device for information on how to enable the memory/CPU hot plug with the VM management software.

[Hyper-V]

When dynamic memory settings are changed from disabled to enabled, without specifying memory capacity or initial memory capacity for the L-Server, the values for the following items of the virtual machine will be same as the memory size.

- Initial Memory Capacity (StartupRAM)
- Maximum Memory

When using dynamic memory or memory weight, the VM host must be either of the following.

- Microsoft(R) Windows Server(R) 2008 R2 SP1 or later
- Microsoft(R) Windows Server(R) 2012 or later

SCVMM must be one of the following, either of which can manage the VM hosts.

- System Center Virtual Machine Manager 2008 R2 SP1 or later
- System Center 2012 Virtual Machine Manager or later

When dynamic memory is enabled and memory weight is specified, modification of an L-Server will fail unless the above-mentioned VM host and SCVMM have been prepared.

Changing of the maximum memory value of the dynamic memory setting while the power status is ON is not supported.

[KVM]

When memory\_hotplug is configured as false in a VM specific information definition file, the maximum memory size of the created L-Server is configured with the same value as memory size.

The memory size of an active L-Server cannot be modified when memory\_hotplug is "false".

[OVM for SPARC]

As CPUs are assigned per core, even when the CPU performance is specified, it will become the CPU performance of the physical server.

When a virtual L-Server has been stopped, memory size is reduced in increments of 4 MB by the VM management product.

When a virtual L-Server has been started, memory size is increased in increments of 256 MB by the VM management product.

Depending on the usage status of the memory on a virtual server, it may not be set to the specified memory size.

When the number of CPUs and memory size are changed, it is necessary to save configuration information on a service processor.

Resource Orchestrator performs auto-save when the number of CPUs or memory size are changed

When you disable the auto-save function of configuration information in this product, add a definition to the definition file which configures the execution of configuration information preservation. Refer to "8.8.1 Creating Definition Files" in the "Setup Guide CE".

In specification changes for the virtual L-Server, assign more resources to the guest domain than are contained in all of the non-global zones created on the Solaris Zone.

When fewer resources than the resources of all of the non-global zones constructed on the Solaris zone are assigned, the following phenomena may occur.

- It becomes impossible to start the non-global zone
- The performance of the non-global zone deteriorates

\* Note: The modified value is reflected on the configuration of the L-Server by periodic queries made to the VM management software. For details on reflection of L-Server configuration by periodic queries, refer to "[17.2 Modifying](#)".



## Note

Immediately after a snapshot is restored, there may be differences between the configuration of VM guests managed by L-Server and those managed by VM management software.

When changing CPU information, specify the CPU performance or number of CPUs registered for a VM host in the VM pool.

When using the overcommit function, a value greater than VM host's CPU performance can be specified.

The differences in VM guest configurations are reflected on the configuration of the L-Server by periodic queries made to the VM management software.

For details on reflection of L-Server configuration by periodic queries, refer to "[17.2 Modifying](#)".

When changing the values for server redundancy for an L-Server to which a virtual machine is already allocated, the virtual machine is not changed, only L-Server attributes are changed.

[Solaris Zones]

If the CPU's CAP value has not been set, both "Number of CPUs" and "CPU performance" must be changed when changing the CPU settings.

## 17.2.2 Modifying the Basic Information

---

This section explains how to modify the basic information of L-Servers. Use the following procedure to modify the basic information of L-Servers:

[Solaris Zones]

The basic information of an L-Server linked with a virtual machine on a VM host not managed with server management software cannot be modified from the ROR console. Modify it from the global zone.

## Note

---

- Immediately after a snapshot is restored, there may be differences between the configuration of VM guests managed by L-Server and those managed by VM management software.

The differences in VM guest configurations are reflected on the configuration of the L-Server by periodic queries made to the VM management software.

For details on reflection of L-Server configuration by periodic queries, refer to "[17.2 Modifying](#)".

- Changing an L-Server name changes the VM guest name on server virtualization software as well.

For associating an L-Server name with a VM guest name, refer to "[Association of an L-Server Name with a VM Guest Name](#)" in "[16.1 Creation Using an L-Server Template](#)".

[Solaris Zones (Solaris 11)] [OVM for SPARC]

VM guest names are not changed.

- To change an L-Server name, the L-Server must be stopped.

When the L-Server power status is on, the L-Server name cannot be changed.

- Change the names of physical L-Servers when the power status of the L-Server is OFF.

When the physical L-Server power status is on, the L-Server name cannot be changed. For virtual L-Servers, only when the VM product is VMware, can the L-Server name can be changed while the L-Server power status is on. For details, refer to the manuals of VM products.

[KVM]

When snapshot exist, the names of L-Servers cannot be changed.

---

1. Right-click the target L-Server in the orchestration tree, and select [Change Settings]-[Basic Information] from the popup menu.

The [Resource Change Setting] dialog is displayed.

2. Change the items you want to modify.

3. Click the [OK] button.

The basic information of the L-Server is modified.

From the command-line, execute `rcxadm lserver modify`.

For details on the `rcxadm lserver modify` command, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".

## 17.2.3 Attaching and Detaching Disks

---

This section explains how to modify the disk configuration of an L-Server.

### Prerequisites

- For physical L-Servers, attachment and detachment of disks is only possible when using SAN boot.

- [Solaris Zones (Solaris 10)]

Attaching and detaching of disks is not possible from the ROR console.

However, it is possible from the global zone.

- [Solaris Zones (Solaris 11)]

Detaching of disks is not possible from the ROR console.

However, it is possible from the global zone.

For details on how to detach disks from the global zone, refer to "[Table 17.2 Modifying](#)".

- [OVM for SPARC]

A disk shared with another L-Server cannot be deleted. For guest domains, delete the disk shared with another L-Server (guest domain) from the VM host.

## Attaching a Disk

Use the following procedure to attach a disk to an L-Server:

1. Right-click the target L-Server in the orchestration tree, and select [Change Settings]-[Attach Disk] from the popup menu. The [Attach a New Disk] dialog is displayed.
2. Enter the following items:

### Size

Enter the disk size of the additional disk as a number with up to one decimal place, in units of gigabytes. "10" is initially displayed.

### Resource type

Specify the disk to allocate to the L-Server.

Select from the following items.

- Automatic assignment

Select the appropriate resources, and allocate storage pools and virtual storage resources or disk resources to the L-Server. Set "Automatic" for the default value.



When there are storage pools with and without Thin Provisioning attributes configured that have the same priority, the storage pool that will be given priority is decided based on definition files.

For details on definition files, refer to "8.1 Definition Files Commonly Shared when Creating Virtual L-Servers" in the "Setup Guide CE".

If dynamic LUN mirroring has been set in the virtual storage, a volume is also created on the ETERNUS storage in the remote site specified in the definition file.

If the ETERNUS storage in the remote site has been detected by Resource Orchestrator, it will be detected as a disk resource that was prepared beforehand, but do not register it to the storage pool.

- Storage pool

Select the appropriate resources, and allocate storage pools to the L-Server.

- Virtual storage

Displays virtual storage resources such as RAID groups or aggregates as a list.

Select from the displayed virtual storage resources.

Create the specified size of disk resources from the specified virtual storage resource, and allocate them to the L-Server.

When using the virtual storage resource on which the Thin Provisioning attributes are configured, the disk resource can be created specifying a size exceeding the actual disk space.

- Disk

When specifying search conditions, the following relevant resources are displayed in a list.

- The LUN created in advance
- Disk resources created from virtual storage

Select from the displayed disk resources.

The specified disk resources are allocated to the L-Server.

### [KVM]

When "Automatic" or "Storage Pool" is specified, the storage resource that is selected differs depending on the disk type of the system disk used by the L-Server.

For details, refer to "Storage Resources to be Selected" in "8.6.6 Creating L-Servers" in the "Setup Guide CE".

## Search conditions

### Storage pool

Select the storage pool of the storage destination of the disk resource.

### Search size

Enter the lowest value of the disk size to be searched as a number with up to one decimal place, in units of gigabytes.

### Allocation status

Specify the status for the disk to allocate to the L-Server.

- Unallocated

Specify when selecting a disk resource that is not allocated to another L-Server.

- Allocated

Specify when selecting a disk resource that is allocated to another L-Server.

### Allocated L-Server

Specify an L-Server when sharing the disk resources.

### Disk name

Specify the name of the disk to be found.

- Begins with

Specify when searching for disks whose names begin with the specified string.

- Includes

Specify when searching for disks whose names include the specified string.

3. Click the [OK] button.

4. Make the disk available following the disk attachment procedure provided by the OS.

From the command-line, execute `rcxadm lserver attach`.

For details on the `rcxadm lserver attach` command, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".

## Information

For the maximum number of disks that can be added, refer to "[16.3.3 \[Disk\] Tab](#)".

[VMware] [Hyper-V]

Data disks are connected to the L-Server as SCSI disks. They are not connected as IDE disks.

[VMware]

When the attribute of the storage pool in which the virtual storage is registered is Thick Provisioning, the format of the disk to allocate to the L-Server cannot be specified. The default format of server virtualization software will be used. When creating a virtual machine on server virtualization software, the format displayed at the top of the list is the default format.

[OVM for x86 2.2]

Specify the following items when connecting data disks to an L-Server.

- When the L-Server is an HVM (Hardware Virtualized Machine)
  - System volume: `hda`
  - Data disks (First to seventh): `sda` to `sdg`
- When the L-Server is a PVM (Para-Virtualized Machine)
  - System volume: `xvda`
  - Data disks (First to fifty-ninth): `xvdb` to `xvdbh`

## Note

- When an L-Server is powered on, the disk to be attached to must be recognized by the L-Server. Follow the procedure provided by the OS.
- When using physical L-Servers, disks or networks cannot be attached to the L-Server that is using iSCSI boot.
- Saved disk resources which are created from virtual storage can only be attached to virtual L-Servers on Hyper-V when using Microsoft(R) System Center 2012 Virtual Machine Manager or later.
- The only disk resources that can be attached to a virtual L-Server on Hyper-V are disk resources that are not used for other virtual L-Servers.
- Saved disk resources cannot be attached to virtual L-Servers on Hyper-V from which snapshots have been collected.
- When attaching a disk resource to a virtual L-Server (Hyper-V), it is not possible to specify different virtual storage or storage pools for the system disk and data disk.

## Information

### Alias Name configuration

- When a disk that has been created from the ETERNUS virtual storage (RAID group, for example) when expanding disks, set the alias (if possible) based on the disk resource in the ETERNUS LUN.  
Refer to "[16.2 Creation of Physical L-Servers Using Parameters](#)".

### Physical L-Server Data Disk for iSCSI Boot

- When Using ETERNUS Storage

Using storage management software, the data disk can be accessed from managed servers by defining LUNs of the iSCSI boot disk and of the data disk in the same Affinity group.

- When Using NetApp Storage

Using storage management software, the data disk can be accessed from managed servers by defining LUNs of iSCSI boot disk and of the data disk in the same igroup.

## Detaching a Disk

Use the following procedure to detach a disk allocated to an L-Server:

1. Right-click the target L-Server in the orchestration tree, and select [Change Settings]-[Detach Disk] from the popup menu. The [Detach a Disk] dialog is displayed.
2. Select or enter the following items:

#### Resource List

Select the disk resource to remove from "Resource List". Disk resources other than system disks are displayed in the list.

Delete the selected disk resource (for Physical L-Servers and for Hyper-V Virtual L-Servers)

If a disk resource that has been created from the virtual storage is selected in the [Resource List], then setting can be made with the following option buttons when reducing disks.

#### Yes

The disk resources are deleted when they are reduced.

#### No

Disk resources are not deleted when reducing, and they are registered in the same storage pool as the virtual storage they were created from.



### Detach disks (for Virtual L-Servers)

When detaching disks, check the [Detach disks.] checkbox.

### Detach disks when the L-Server is running

When detaching disks while the L-Server is powered on, check the [Detach disks when the L-Server is running.] checkbox.

3. Click the [OK] button.



### Note

- When using RHEL-KVM virtual L-Servers, the L-Server must be powered off in order to detach a disk.
- If a disk resource which was automatically created from virtual storage after collection of a snapshot is deleted from a RHEL-KVM virtual L-Server, restoration of the collected snapshot will fail.
- When using a virtual L-Server on RHEL-KVM, detaching a disk resource created automatically from a virtual storage deletes the content of the detached disk.
- When using a virtual L-Server on something other than RHEL-KVM and OVM for SPARC, the content of the detached disk is deleted. After checking the advisory notes in the displayed dialog, check the [Detach disks.] checkbox.
- If disks are detached while the server is powered on, it is necessary to change the status of the disk into unused in advance. After checking the advisory notes in the displayed dialog, check the [Detach disks when the L-Server is running.] checkbox.
- When the disk resource is a LUN created in advance or a disk resource for virtual L-Servers, it is recommended to delete the data on the disk, as the data is not deleted when the disk is detached. For details on how to delete data on the disks, refer to the cautionary notes of "[14.5 Storage Resources](#)".
- When using physical L-Servers, disks or networks cannot be detached from the L-Server that iSCSI boot is being adopted.
- If [No] is selected for [Detach Selections disks], this setting is only valid for disk resources when reducing. Specifying this does not allow indefinite saving of disk resources.
- If they are disk resources that were created with dynamic LUN mirroring, the disk resources on the local site and on the remote site are deleted simultaneously when the L-Server is deleted.
- The disk resources detached from a virtual L-Server on Hyper-V can only be saved when using Microsoft(R) System Center 2012 Virtual Machine Manager or later.
- When the snapshots are collected from a virtual L-Server on Hyper-V, detached disk resources cannot be saved.

From the command-line, execute `rcxadm lserver detach`.

To detach a disk from an L-Server while the power of the L-Server is on, specify the `-online` option command.

For details on the `rcxadm lserver detach` command, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".

### [Hyper-V]

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, perform an additional configuration change.

### [OVM for SPARC]

When performing addition or removal of disks, saving of VM guest configuration information is necessary.

This product performs auto-save of the configuration information when L-Servers are added or removed.

When you disable the auto-save function of configuration information in this product, add a definition to the definition file which configures the execution of configuration information preservation.

Refer to "8.8.1 Creating Definition Files" in the "Setup Guide CE".



### Information

- When not deleting detached disks from virtual storage when detaching them, the L-Server can be connected with the same operations as the LUNs that were detached in advance.

- When not deleting detached disks from virtual storage when detaching them, use the following procedure to delete the disk resources:
  1. Connect the disk resource to the L-Server.
  2. Select "Yes" in "Detach Selections disks" when detaching disks.  
Otherwise, delete the L-Server.

---

 **Note**

Immediately after a snapshot is restored, there may be differences between the configuration of VM guests managed by L-Server and those managed by VM management software.

The differences in VM guest configurations are reflected on the configuration of the L-Server by periodic queries made to the VM management software.

For details on reflection of L-Server configuration by periodic queries, refer to "[17.2 Modifying](#)".

If the disk configuration of a virtual machine is modified using VM management software, attaching and detaching disks to and from virtual L-Servers will be disabled.

[VMware]

- When changed to use a device path other than the following:
  - SCSI:0:0 - SCSI:0:6
  - SCSI:0:8 - SCSI:0:14
  - SCSI:1:0 - SCSI:1:6
  - SCSI:1:8 - SCSI:1:14
  - SCSI:2:0 - SCSI:2:6
  - SCSI:2:8 - SCSI:2:14
  - SCSI:3:0 - SCSI:3:6
  - SCSI:3:8 - SCSI:3:14
- When changed to use Raw Device Mapping

[Hyper-V]

- When changed to use a device path other than the following:
  - IDE:0:0
  - SCSI:0:1 - SCSI:0:14
  - SCSI:1:0 - SCSI:1:14
  - SCSI:2:0 - SCSI:2:14
  - SCSI:3:0 - SCSI:3:14
- When changed to use a path through disk or difference disk

[OVM for SPARC]

- When changed to use a device path or identifier information other than the following:
  - 0 - 63

[Citrix Xen]

- When changed to use a device path or identifier information other than the following:
  - 0 - 1
  - 4 - 15

[OVM for x86 3.x]

- When changed to use a device path or identifier information other than the following:
  - When HVM (Hardware Virtualized Machine) is used: 0, 2 - 3
  - When PVM (Para-Virtualized Machine) is used: 0, 2 - 103
  - When PVHVM (Para-Virtualized Hardware Virtual Machine) is used: 0, 2 - 106

In virtual L-Servers linked with a virtual machine, caution is necessary because all disks can be deleted.

Note that changing the device path for the system disk enables deletion of disks for all disks. Once a virtual L-Server is created, do not change the device path of the system disk using VM management software as doing so results in the following behavior.

- A hyphen ("-") is displayed for [Usage] in the [Disk Information] displayed on the [Resource Details] tab on the ROR console.
- Reduction of the size of the system disk will be possible.

When changing the disk type using the same device path from VM management software, perform the following procedure.

1. Delete a disk from the virtual machine using VM management software.
2. Confirm that the disk deleted in step 1 has been deleted as disk information of the L-Server on the ROR console.
3. On VM management software, add a disk to the virtual machine.

Here, changing the disk type refers to the following:

- Switching from a virtual disk to Raw Device Mapping, a pass-through disk, or a difference disk
- Switching Raw Device Mapping, a pass-through disk, or a difference disk to a virtual disk

When using VM management software to change the configuration of disk resources saved in a virtual machine that were created from virtual storage, the disk resources registered in the storage pool may be deleted.

When snapshots are collected from the virtual machine using VM management software, attaching disks to or detaching disks from the L-Server may fail.

---

## 17.2.4 Sharing Disks Between L-Servers

This section explains how to share disks between multiple L-Servers.

### Prerequisites

- Sharing of disks is possible when the managed servers and storage are shared using Fibre Channel connections.
- First disk (System Volume) cannot be shared between L-Servers.
- Control of simultaneous access to shared disks is performed by other applications, such as cluster systems.
- Disk sharing between L-Servers is only possible for physical L-Servers that are use SAN boot.
- For details about the virtualization type by which sharing the disk is supported, refer to "[Available Operations](#)".
- [OVM for SPARC]

With this product, configuration involving a disk shared between multiple L-Servers cannot be performed. Set up the shared disk on the VM host, after creating the L-Server.

### Installation

Use the following procedure to create new L-Servers and to share disks between L-Servers:

- Create an L-Server (First server)
  - Create an L-Server, referring to "[Chapter 16 Creating L-Servers](#)".

When creating an L-Server using the command, execute the `rcxadm lserver create` command.

For details on the `rcxadm lserver create` command, refer to "3.6 `rcxadm lserver`" and "15.3.1 Definition Information for Physical L-Servers (XML)" in the "Reference Guide (Command/XML) CE".

- Creating an L-Server (For a second or later server)

Create an L-Server. In this case, select the following:

- Select the disk to allocate to the L-Server.
- Select [Allocated] for [Allocation Status].
- Select the first L-Server created in "Creating an L-Server (For a first server)" as "Allocated L-Server".

When specifying these items as search conditions, connected shared disks can be filtered. For details, refer to "16.2.3 [Disk] Tab".

## Attaching Shared Disks

Use the following procedure to attach disk resources to L-Servers created in advance and to share the disks:

- Attaching shared disks to the first L-Server

To attach disks, use the procedure of "Attach new disks" in "17.2.3 Attaching and Detaching Disks".

- Attaching disks to share for a second (or later) L-Server

To attach disks, use the procedure of "Attach new disks" in "17.2.3 Attaching and Detaching Disks". In this case, select the following:

- Select the disk to allocate to the L-Server.
- Select "Allocated" for "Allocation Status".
- Select the first L-Server to which the shared disks have been attached as the "Allocated L-Server".

When specifying these items as search conditions, connected shared disks can be filtered. For details, refer to "16.2.3 [Disk] Tab".

## 17.2.5 Modifying Network Resource Settings

This section explains how to modify network resource settings.

The following items can be modified.

Table 17.12 Network Resource Items for Modification

Operation	L-Server Status						
	Physical L-Server			Physical L-Server (iSCSI Boot)	Virtual L-Server		
	Defined	Preserved	Allocated	All	Defined	Preserved	Allocated
IP address change (Admin LAN/public LAN) (*1)	Yes	Yes	Yes	Yes	Yes	Yes (*2)	Yes (*2)
Changing network resources to connect to a NIC or a NIC group	Yes	Yes	Yes	-	Yes	Yes (*2)	Yes (*2)
NIC addition and deletion	Yes	-	-	-	Yes (*4)	Yes (*5)	Yes (*5)
Changing untagged VLAN settings (use/not use)	Yes	Yes	Yes	-	-	-	-
Adding or deleting network resources to connect to a NIC or a NIC group	Yes	Yes	Yes	-	-	-	-

Operation	L-Server Status						
	Physical L-Server			Physical L-Server (iSCSI Boot)	Virtual L-Server		
	Defined	Preserved	Allocated	All	Defined	Preserved	Allocated
Redundancy modification (Example: Changing the combination of NIC1 and 2 to NIC3 and 4)	Yes	Yes (*3)	Yes (*3)	-	-	-	-
Redundancy addition (Example: Changing NIC1 to the combination of NIC1 and 2)	Yes	Yes (*3)	Yes (*3)	-	-	-	-
Redundancy deletion (Example: Changing the combination of NIC1 and 2 to NIC1 only)	Yes	Yes (*3)	Yes (*3)	-	-	-	-

\*1: Changing IP addresses across subnets is not possible.

\*2: Dependent on the type of VM product. For details, refer to "[Table 17.15 Modification of Network Resources and IP Addresses by VM Type \(Allocated State/Preserved State\)](#)".

\*3: Select "Admin LAN (MAC address 1)" of the physical server that the L-Server will be located on, as the admin LAN of the physical L-Server. When performing admin LAN redundancy for the physical L-Server, all NICs of the admin LAN for the physical server that the L-Server will be located on must be included.

\*4: Dependent on the type of VM product. Refer to "[Table 17.13 NIC Modification by VM Type \(Defined State\)](#)" for details.

\*5: Dependent on the type of VM product. Refer to "[Table 17.14 NIC Modification by VM Type \(Allocated State/Preserved State\)](#)" for details.

Table 17.13 NIC Modification by VM Type (Defined State)

Resource Name	Modification	VMware Hyper-V Solaris Zones OVM for SPARC OVM for x86 3.x OVM for x86 2.2	RHEL-KVM RHEL-Xen Citrix Xen
NICs	Addition and deletion	Yes	No

Table 17.14 NIC Modification by VM Type (Allocated State/Preserved State)

Resource Name	Modification	VMware Hyper-V RHEL-KVM	Solaris Zones OVM for SPARC OVM for x86 3.x Citrix Xen	RHEL-Xen OVM for x86 2.2
NICs	Add	Yes	No	No
	Deletion	Yes	No	No
	Addition of NIC definitions	No	Yes	No
	Deletion of NIC definitions	No	Yes	No

Table 17.15 Modification of Network Resources and IP Addresses by VM Type (Allocated State/Preserved State)

Resource Name	Modifying	VMware	Hyper-V RHEL-KVM RHEL-Xen Citrix Xen Solaris Zones OVM for SPARC OVM for x86 3.x OVM for x86 2.2
NICs	IP address	Yes	N/A
	Network resources	Yes	N/A

 **Note**

- Modifications to L-Server specifications have no effect on the settings of the OS installed on the L-Server. Modify the network settings of the OS referring to the IP address and network information of the modified L-Server.
- When changing the network configuration of a physical L-Server, the LPVID value of CNA is not automatically reflected.  
When [Function number expansion (Onboard)] is enabled, check the VLAN settings of the modified physical L-Server from [Network Settings] on the [Resource Details] tab, and change the LPVID of the CNA.
- For physical L-Servers, the position of the NIC used for the admin LAN cannot be changed.
- After deployment of L-Servers, do not change the labels for network resources using port groups on VMware.  
When the label for a network resource to use is changed accidentally, the new L-Server deployment will fail.

Use the following procedure to change network settings.

**When the L-Server status is "defined"**

1. Right-click the target L-Server in the orchestration tree, and select [Change Settings]-[Definition] from the popup menu.  
The [Modify L-Server's definition] dialog is displayed.
2. Use the [Network] tab to change network resource settings of the L-Server.

 **Information**

- For Physical L-Servers  
For details on operation of the [Network] tab, refer to "[16.2.4 \[Network\] Tab](#)".
  - For Virtual L-Servers  
For details on operation of the [Network] tab, refer to "[16.3.4 \[Network\] Tab](#)".
3. Click the [OK] button.

**When resources have not been allocated (preserved) or have been allocated (allocated) to the L-Server**

For Physical L-Servers

1. Right-click the target L-Server in the orchestration tree, and select [Change Settings]-[Network Configuration] from the popup menu.  
The [Change network configuration of an L-Server] dialog is displayed.

2. Enter the following items:

#### NICs

Clicking the [Add] button adds a network.

Select a network resource to connect with in the [Add a Network] dialog.



#### Information

- When adding a new NIC or NIC group, select the number of "(Undefined)" for [NIC] in the [Add a Network] dialog. When performing redundancy for the NIC, select the pair of NICs to use.

- When adding an already defined NIC or a network to connect with the NIC group, select the number of defined NICs for [NIC] in the [Add a Network] dialog.

Clicking the [Delete] button deletes the selected network.

If the number is not the NIC number specified when creating an L-Server, the [OK] button is not activated. When the [OK] button is not activated, click the [Add] button to configure undefined NICs.

#### Network

Click the [Change] button to select a network resource that is connected to a NIC or a NIC group.

#### IP address

Enter an IP address to set for the L-Server. If the IP address is not entered, an IP address is automatically allocated to the L-Server.

#### Untagged VLAN

Select whether or not to use untagged VLAN for a NIC or a NIC group.

3. Click the [OK] button.

4. When [Function number expansion (Onboard)] is enabled and network resource settings of the untagged VLAN have been modified, change the LPVID of the CNA.

5. Configure the network settings of the OS referring to the IP address and network information of the modified L-Server.

For details, refer to "7.8 Network Redundancy and VLAN Settings of L-Servers" in the "Setup Guide CE".

From the command-line, execute `rcxadm lserver modify`.

For details on the `rcxadm lserver modify` command, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".

#### For Virtual L-Servers

To modify network resources and IP addresses which are connected to a NIC or a NIC group, use the `rcxadm lserver modify` command. Using this command, it is possible to configure network resource settings for virtual L-Servers that match those of VM guests.

Use the `rcxadm lserver attach` and `detach` commands for adding and deleting NICs.

When adding NICs, configure the network settings of the OS based on the IP address of the NIC of the L-Server that was added.

For details on the `rcxadm lserver` command, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".

## 17.2.6 Increasing Disk Capacity

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This section explains how to increase the capacity of disks allocated to L-Servers.

### Prerequisites

- It is only possible to increase disk capacity when the VM type is VMware, or the target is a Hyper-V virtual L-Server.
- When linking a configured virtual machine to a virtual L-Server, disk capacity can be increased for L-Servers that can operate servers and disks.

- The disks of which the disk capacity can be increased are system disks and data disks. Only disks created using virtual storage are the targets of increase, and Raw Device Mapping (RDM), Pass-through Disks, and difference disks are not supported. When Raw Device Mapping (RDM), a Pass-through Disk, or a difference disk is connected to the virtual L-Server disk, the disk capacity cannot be increased even for disks created using virtual storage.

[VMware]

When a snapshot of an L-Server has been collected, it is not possible to increase the disk capacity.

[Hyper-V]

When a snapshot of an L-Server has been collected or difference disks are included, it is not possible to increase the disk capacity.

### Information

[Hyper-V]

When a value including a decimal point is specified for the increase in capacity, SCVMM will automatically round the value up. Therefore, when increasing the disk capacity for Hyper-V virtual L-Servers, specification of integers is recommended.

### Note

- Depending on the type of guest OS, the OS may not recognize the increased disk capacity, or it may not be usable. Refer to the manuals and technical references of the virtualization software, and confirm that use of increased disk capacity is possible.
- Additional operations from the guest OS are necessary to make the guest OS recognize the increased disk capacity. For details of the necessary operations, refer to the manual and technical references of each OS.
- When the attributes (Thin Provisioning/Thick Provisioning) of disks and the attributes (Thin Provisioning/Thick Provisioning) of the storage pools that the virtual storage those disks will use differ, a lack of sufficient disk capacity may be detected when processing is performed using VM management software.

[Hyper-V]

- Due to the specifications of SCVMM, when disk size is specified using a value including a decimal point, the value will automatically be rounded up. Therefore, when deploying L-Platforms or L-Servers, or performing batch or simultaneous deployment, a lack of sufficient disk capacity may be detected when deploying to SCVMM.
- It is only possible to increase disk capacity when a virtual L-Server is in the powered off state. If a virtual L-Server is powered on, the attempted operation will fail.

Increasing of disk capacity can only be performed using the `rcxadm lserver modify` command.

For details on the `rcxadm lserver modify` command, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".

## 17.3 Using the L-Server Console

This section explains how to use peripheral devices from an L-Server.

When installing an OS after creating an L-Server and performing L-Server maintenance, the L-Server console can be obtained.

When performing usual operations, or the console cannot be obtained, log in to an L-Server through the network.

### Example

#### Network Connection Example

[Windows]

Remote desktop connection

[Linux]

SSH connection



## Prerequisites for Console Connections

When using a console connection, the prerequisites differ depending on the server type of the L-Server used.

- For Physical L-Servers

When the hardware is PRIMERGY, and the iRMC video console redirection function can be used, connection to the console is possible.



For console connection, use functions of ServerView Operations Manager.

For details on ServerView Operations Manager, refer to "6.1.2.4 Required Software" in the "Overview".

- For Virtual L-Servers

On VMware and Hyper-V, when an admin client is installed, and communication between admin clients and VM hosts is possible, connection of the console is possible.



For console connection, use admin client functions. Check if the console connection is possible from the admin client in advance.

[VMware]

Normally, the admin server notifies the admin client of the IP address of the admin LAN of the VM host registered with the admin server to use as the connection destination for the console. For this reason, the console cannot be connected to by admin clients that exist on networks that are not connected to the admin LAN.

To connect to the console from a admin client that is connected only to the public LAN, in the definition file on the admin server, set the VM host connection destination that can be connected from the admin client. The admin server notifies of the VM host connection destination that can be connected from the public LAN and the admin client can connect to the console.



If the destination for connection of a public LAN that has been set for a VM host is specified in the definition file, a console connection from the admin LAN will be unavailable.

Further, the VM host connection can be specified for each tenant. The L-Server console connection stored in tenants makes requests to the VM host connection set in the definition file. One VM host can be shared by multiple tenants in an environment where there is a separate public LAN for each tenant.

### Preparations for using a console connection from a public LAN

Preparations are necessary in order to use a console connection from a public LAN.

For details, refer to "E.1 VMware" in the "Design Guide CE".

### Setting the VM host connection for each tenant

Set the VM host connection for when the console window for the L-Server stored in the tenant is started.

For details, refer to "8.2 VMware" in the "Setup Guide CE".

### Setting the console connection of VMware vSphere virtual L-Servers (VMware vSphere 5.1 or later)

- Setting the admin client

In order to use the console of VMware vSphere, VMware Remote Console Plug-in must be installed on the admin client beforehand.

For details, refer to "6.1.2.4 Required Software" in the "Overview".

The console of VMware vSphere communicates with the VM host where the L-Server operates using the proxy settings of the browser. Set the proxy setting of the browser to allow communication with the VM host where the L-Server operates.

- Setting the proxy server

When using the console of VMware vSphere through a proxy server, it is necessary to configure the proxy server so the admin client can communicate with VM host where the L-Server operates.

1. Configure the proxy server so the IP addresses and network addresses of admin clients are able to connect to the proxy server.
2. Configure the proxy server so the following port numbers used by the console connection of VMware vSphere 5.1 are able to connect to the proxy server.
  - 443
  - 902

For details of the proxy server settings, refer to the manual of the proxy server.

 Note

When the admin client OS is Windows, the 64-bit version of the browser cannot be used to connect to the console.

[Hyper-V]

Admin clients must be in the same domain as SCVMM or VM hosts. It is necessary to install the VMM management console for SCVMM that is of the same version as the SCVMM registered as VM management software.

 Note

When using console connection function in Firefox, it is necessary to upgrade JDK to 1.6 or later after ROR manager is installed.

## Console

This section explains the L-Server console connection.

Use the following procedure to connect the console:

1. Right-click the target L-Server in the orchestration tree, and select [Console Screen] from the popup menu.

The confirmation dialog is displayed.
2. When using a virtual L-Server, click the [OK] button.

The L-Server console window is displayed in another window.

 Note

- When using virtual L-Servers, it is necessary to permit the starting of the console screen using the policy settings of Java Plug-in.

Use the following procedure to permit the starting of the console screen:

1. When starting of the console screen is not allowed, the [Download] dialog of the Java policy setup script is displayed.
2. Click the [OK] button.

The Java policy setup script is downloaded. Save the file.
3. Execute the Java policy setup script to configure the settings for permitting the console screen startup.
4. After performing the configuration, close the web browser.

Log in to Resource Orchestrator again using a web browser, and the console screen can then be started from the ROR console.

[VMware]

When starting the console screen in the following environment, it is not necessary to configure policy settings of the Java Plug-in.

- VMware vSphere 5.1
- VMware vSphere 5.5
- VMware vSphere 6.0
- In cases where the following VM products are used for a virtual L-Server, starting the ROR console turns the L-Server "ON" when the selected L-Server was "OFF".
  - VMware vSphere 4.0
  - VMware vSphere 4.1
- For physical L-Servers, when opening the L-Server console screen at the second time or later, a window for iRMC management may be opened instead of the console screen.

If an iRMC management screen is displayed, close that screen and then start the console screen again.

For details, refer to "3.3 When Opening the Physical L-Server Console Screen, the iRMC Management Window may be Opened." in "Troubleshooting".

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## 17.4 Deleting

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This section explains how to delete an L-Server.

To delete an L-Server the L-Server must be stopped.

If an L-Server is deleted, the resources allocated to the L-Server are automatically made available for reuse.

1. Right-click the target L-Server in the orchestration tree, and select [Delete] from the popup menu.

The [Delete an L-Server] dialog is displayed.

2. Click the [OK] button.

The target L-Server is deleted.



- When deleting an L-Server, log off 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, recover the NetApp storage and return the system to cluster operation before re-commencing operations.
- When the disk resource is a LUN created in advance, a LUN for iSCSI boot, or a disk resource for virtual L-Servers, it is recommended to delete the data on the disk, as the data is not deleted when deleting the L-Server to which the disk resource is allocated. For details on how to delete data on the disks, refer to the cautionary notes of "[14.5 Storage Resources](#)".
- If they are disk resources that were created with dynamic LUN mirroring, the disk resources on the local site and on the remote site are deleted simultaneously when the L-Server is deleted.
- When deleting a virtual L-Server, the target L-Server will enter unknown status, and a warning message may be displayed. When the L-Server has been deleted, the warning message will disappear, so no corrective action is necessary.
- [OVM for SPARC]

An L-Server with a disk shared with another L-Server cannot be deleted. For guest domains, delete the disk shared with another L-Server (guest domain) from the VM host. Delete the L-Server after checking that the disk has been deleted in the detailed information of the L-Server.

Check the disk information of the L-Server using the GUI.

1. Display the ROR console.

2. Select the L-Server on the orchestration tree.
3. Check that the disk that was being shared is not displayed on the [Disk Information] on the [Resource Details] tab in the main panel.

---

From the command-line, execute `rcxadm lserver delete`.

For details on the `rcxadm lserver delete` command, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".

## 17.5 Cloning Image Operations

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This section explains how to collect and delete cloning images.

### When the OS is Linux

- Delete the line starting with "HWADDR=" defined in `/etc/sysconfig/network-scripts/ifcfg-ethX` (the *X* represents a number), before collecting images.
- On Redhat Enterprise Linux 6, the information for the MAC address is also registered in `/etc/udev/rules.d/70-persistent-net.rules`. Delete the virtual network interface definition information for `/etc/udev/rules.d/70-persistent-net.rules`, before collecting images.

### When the OS is Windows

Resource Orchestrator collects cloning images using Sysprep.

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

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

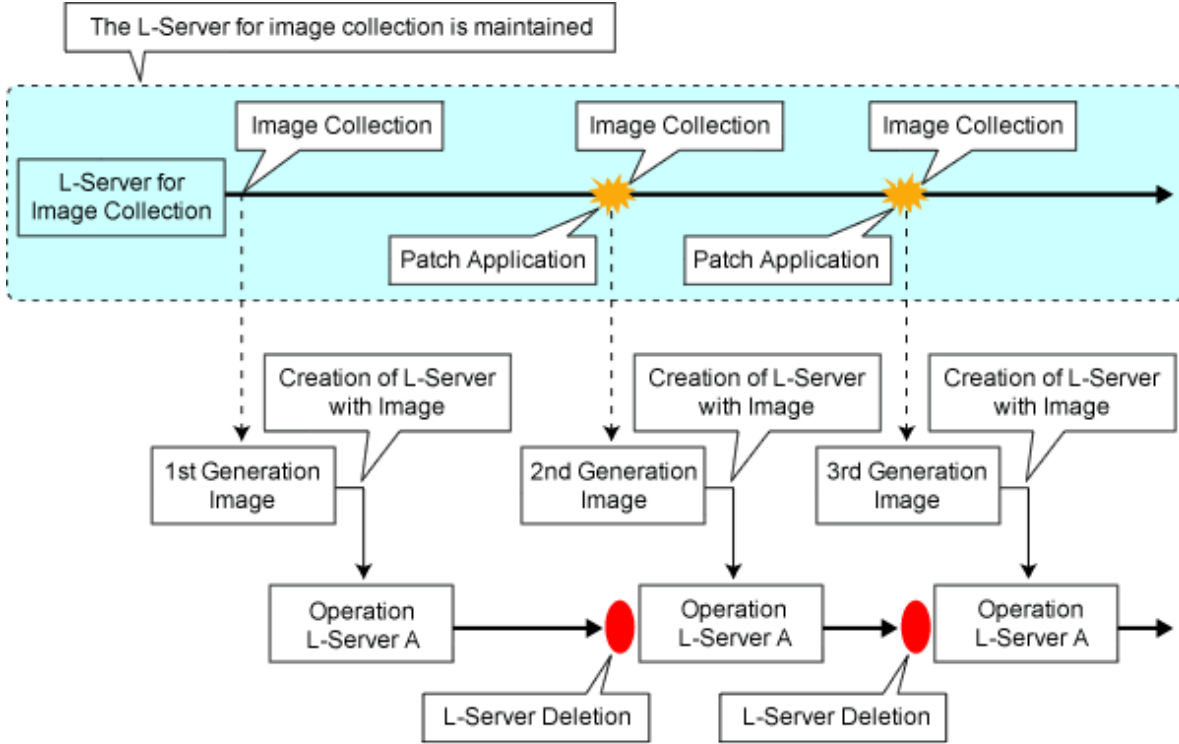
Cloning images cannot be collected four times or more from L-Servers to which cloning images have been deployed.

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

### Operation Methods for Cloning Image Collection

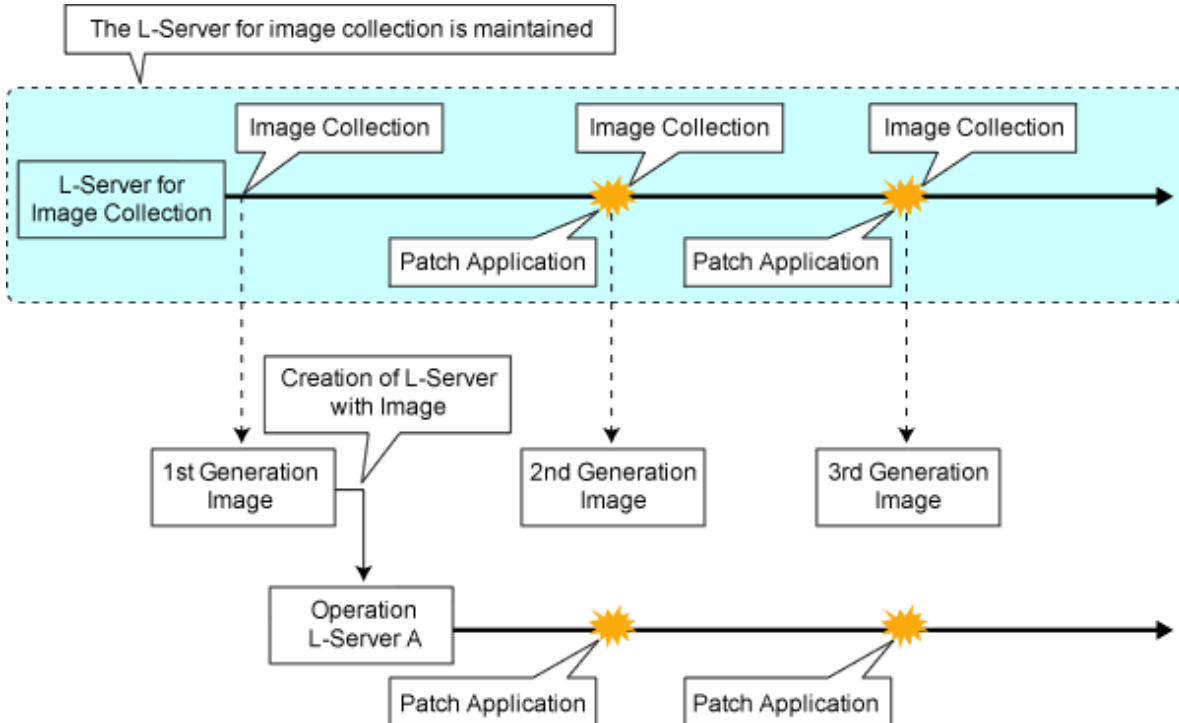
Use the following methods to collect cloning images.

Figure 17.1 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 17.2 When not Changing the Primary Server (2)



## 17.5.1 Collecting and Registering

This section explains how to collect cloning images.

Use the following methods to collect cloning images:

- Collecting Cloning Images from L-Servers with an OS Installed
- Collecting Cloning Images from Templates of Server Virtualization Software
- Registering the Server Management Software (BMC BladeLogic Server Automation) Package
- Registering Image Files Stored in the Cloning Image Folder on the Resource Orchestrator Manager

### Note

For physical L-Servers, agents must be registered before collecting cloning images.  
For details, refer to "7.6 Collecting and Registering Cloning Images" in the "Setup Guide CE".

Use the following method to collect cloning images:

## Collecting Cloning Images from L-Servers with an OS Installed

1. After installing an OS, right-click the target L-Server in the orchestration tree, and select [Cloning]-[Collect] from the popup menu.  
The [Collect a Cloning Image] dialog is displayed.
2. Perform the following settings:

### Note

- For physical L-Servers, the target L-Server must be operating when cloning images are being collected.
- Cloning images cannot be collected from a physical L-Server on which a VM host has been installed.
- For virtual L-Servers, the target L-Server must be stopped when cloning images are being collected.

## Cloning Image Name

### New

Enter a name to identify the collected cloning image.

For a cloning image name, enter a character string, beginning with an alphabetic character (upper or lower case), and containing up to 32 alphanumeric characters (upper or lower case) and underscores ("\_").

When there is already a cloning image of the same image type with the same name in the image pool a cloning image is being registered to, it will be registered as the next version of that cloning image.

However, for the following range of VM types, it is treated as being the same type of image.

- VMware, Hyper-V, OVM for x86 2.2, OVM for x86 3.x, Citrix Xen, Solaris Zones, OVM for SPARC
- KVM, Xen

[KVM]

Ensure that each image name differs depending on the image location type ("Virtual Disk", "Raw Disk").

For details on image location types, refer to "Image Location Type and Storage Location of Cloning Images" in "8.6.7 Collecting Cloning Images" in the "Setup Guide CE".

### Note

Use the following methods to collect cloning images:

- Collecting cloning images from physical servers with OSs installed
- Collecting cloning images from physical L-Servers with OSs installed
- Collecting cloning images from virtual L-Servers with OSs installed

- Collecting cloning images from templates of server virtualization software
- Registering the server management software (BMC BladeLogic Server Automation) package
- Registering image files stored in the cloning image folder on the Resource Orchestrator manager

Ensure that each cloning image collected using one of the above methods has a unique name in the same image pool.

[KVM] [Xen]

Ensure that the cloning image has a unique name.

## Update

Select when specifying the same name as that of a cloning image which has already been collected. Select the cloning image from the list.

Cloning images with the same name can be saved up until the maximum number of image versions.

The maximum number of image versions is three by default.

[KVM]

As the only cloning images that can be updated are those with the same image location type as the disk type of the system disk used by the target L-Server, only cloning images with the same image location type are displayed.

For details on image location types, refer to "Conditions for Collection and Updating of Cloning Images" in "8.6.7 Collecting Cloning Images" in the "Setup Guide CE".

## Image Configurations (for Virtual L-Servers with Hyper-V VM Type)

To collect cloning images involving data disks, check the "Collect all disks" checkbox. When not checked, only system disks will be collected.

## OS Settings on Deployment (for Virtual L-Servers of the Citrix Xen or OVM for x86 3.x VM Type) [Windows Manager]

To use customization of VM guests, check the "On (when deployed)" checkbox.

This item is only displayed when the OS type supports the customization function.

[Citrix Xen]

For details on the customization of VM guests, refer to "8.9.12 Customization Function of Guest OS" in the "Setup Guide CE".

[OVM for x86 3.x]

For details on the customization of VM guests, refer to "8.10.12 Customization Function of Guest OS" in the "Setup Guide CE".

## System type

To use customization of VM guests, select the system type of the guest OS.

This item is activated when the "On (when deployed)" checkbox of OS settings is checked.

- When the VM guest OS is a 32-bit operating system

Select "32-bit Operating System".

- When the VM guest OS is a 64-bit operating system

Select "64-bit Operating System".

## Image location (For Virtual L-Servers)

Select the storage location for cloning images. Clicking the [Select] button displays the [Select a Location for this Image] dialog.

Select the storage location, and click the [OK] button.

[OVM for x86 3.x]

The storage location for images which was specified in the [Collect a Cloning Image] dialog is disabled.

It is assumed that the virtual storage resource containing the L-Server for collecting cloning images has been specified.

## Destination Pool

Select the image pool to register cloning images in.

## Comment (Optional)

Enter a comment that identifies the cloning image.

Up to 128 characters other than percent signs ("%"), back slashes ("\), double quotes ("), and line feed characters can be specified.

3. Click the [OK] button.

Collected cloning images are stored in image pools.

Physical L-Servers are temporarily powered off while collecting cloning images.

When the [Cancel] button is clicked in the Recent Operations area, the confirmation dialog to quit the process is displayed.

From the command-line, execute `rcxadm image create`. For details on the `rcxadm image create` command, refer to "4.1 `rcxadm image`" in the "Reference Guide (Command/XML) CE".

Cloning images (identifiable by their name attribute) can be managed by image version.



## Note

For virtual L-Servers, the results of cloning image collection vary based on the disk configurations as follows.

[VMware]

When the target L-Server includes Raw Device Mapping (RDM) disks, the target disks are treated as virtual disks and the image will be collected.

[Hyper-V]

- When the target L-Server includes Pass-through disks, the image cannot be collected regardless whether "Collect all disks" is specified or not.
- When the target L-Server includes difference disks, the image will be collected including the difference disks by specifying "Collect all disks".
- When the target L-Server has snapshots, images cannot be collected. Even when the snapshots are deleted, images cannot be collected until the merge process of snapshot files is completed. Wait for a while until the merge process is completed and then collect images.

## Collecting Cloning Images from Templates of Server Virtualization Software

For details, refer to "[14.7.1 Virtual Image Resources](#)".



## Point

To perform maintenance of registered images (templates) using VM management software, it is necessary to place them in image maintenance mode. For details on placing images into image maintenance mode, refer to "6.4 Managing Images" in the "Operation Guide CE".



## Note

- When using MAK license authentication for activation in 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 three 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 network parameter auto-configuration function defined in a cloning image cannot be used for Resource Orchestrator.

When the target server of cloning image collection has a redundant NIC configured, release redundancy and then perform collection.



[VMware] [Hyper-V]

The disk space necessary for the collected cloning images can be confirmed from the following display.

- Resource list for image pools, or cloning image list in the [Resource Details] window
- Resource list for image resources, or version list in the [Resource Details] window

From the command-line, execute `rcxadm image list`. For details on the `rcxadm image list` command, refer to "4.1 `rcxadm image`" in the "Reference Guide (Command/XML) CE".

[Xen] [KVM] [OVM for x86 2.2]

The disk area necessary for extraction cannot be checked from collected cloning images.

For this reason, include the disk size in the cloning image name or the comment, and check the necessary disk area is available before extracting images.

[VMware]

For details on how to collect cloning images on VMware, refer to "8.2.8 Collecting Cloning Images" in the "Setup Guide CE".

[Hyper-V]

For details on how to collect cloning images on Hyper-V, refer to "8.3.8 Collecting and Deleting Cloning Images" in the "Setup Guide CE".

[Xen]

For details on how to collect cloning images on RHEL5-Xen, refer to step 3 in "8.4.6 Creating L-Servers" in the "Setup Guide CE".

[KVM]

For details on how to collect cloning images on RHEL-KVM, refer to step 3 in "8.6.6 Creating L-Servers" in the "Setup Guide CE".

[OVM for x86 2.2]

For details on how to collect cloning images on OVM for x86 2.2, refer to "8.5.7 Collecting Cloning Images" in the "Setup Guide CE".

[OVM for x86 3.x]

For details on how to collect cloning images on OVM for x86 3.x, refer to "8.10.7 Collecting and Registering Cloning Images" in the "Setup Guide CE".

[Citrix Xen]

For details on how to collect cloning images on Citrix Xen, refer to "8.9.7 Collecting and Registering Cloning Images" in the "Setup Guide CE".

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## Point

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[VMware]

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.

[Hyper-V]

Images are stored in the SCVMM library.

Specify a library which has sufficient available disk space to store the collected images.

When "Default" 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.

[Xen]

When "Default" is specified for the storage destination of images during cloning image collection, a virtual storage is automatically selected from the same storage pool as the virtual storage containing the target L-Server from which cloning images will be collected.

[KVM]

When "Default" is specified for the storage destination of images during cloning image collection, the disk is selected according to the disk type of the system disk used by the target L-Server, as follows:

- When the disk type of the system disk used by the target L-Server is "Raw Disk"

Disk resources accessible from the VM host are selected automatically from the same storage pool as the one where the system disk used by that L-Server is registered.

- When the disk type of the system disk used by the target L-Server is "Virtual Disk"

Virtual storage resources accessible from the VM host are selected automatically from the same storage pool as the one where the system disk used by that L-Server is registered.

[Citrix Xen]

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.

.....

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.

## Registering the Server Management Software (BMC BladeLogic Server Automation) Package

1. In the ROR console management software tree, right-click the target management software (BladeLogic), and select [Update] from the popup menu.

The BMC BladeLogic Server Automation information is updated, and the detected package is registered as a cloning image.

## Registering Image Files Stored in the Cloning Image Folder on the Resource Orchestrator Manager [Solaris Zones (Solaris 11)]

For details on how to register cloning images, refer to "8.7.5 Creating and Importing Cloning Images" in the "Setup Guide CE".

### 17.5.2 Viewing

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This section explains how to view cloning images.

By selecting the target image pool from the orchestration tree, and displaying the [Resource List] tab, the registered cloning images can be confirmed.

The details of cloning images can be confirmed by pressing the link of the name on the cloning image list.

[OVM for x86 2.2]

When an OVM for x86 image is selected in the Orchestration tree to display the [Resource Details] tab, the [OS] under [Image Information] is not displayed.

From the command-line, execute `rcxadm image list`.

For details on the `rcxadm image list` command, refer to "4.1 `rcxadm image`" in the "Reference Guide (Command/XML) CE".

### 17.5.3 Unregistration

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This section explains how to unregister cloning images.

Use the following procedure to unregister cloning images.

1. Right-click the target image pool in the orchestration tree, and select [Unregister] from the popup menu.

The [Unregister a Resource] dialog is displayed.

2. Click the [OK] button.

The cloning image is unregistered.

From the command-line, execute `rcxadm pool unregister`.

For details on the `rcxadm pool unregister` command, refer to "3.10 `rcxadm pool`" in the "Reference Guide (Command/XML) CE".



- .....
- When unregistering a cloning image, *a\_numeric\_value* is added at the end of the image name to change its name as follows:

Image name after unregistration: *Image\_name\_before\_unregistration\_Numeric\_value*

The image name will not be changed after unregistration.

Only the image names of the images collected according to "Collecting Cloning Images from L-Servers with an OS Installed" in "17.5.1 Collecting and Registering" are changed.

- When releasing registration, as image names will be changed, execute the rxcadm image list command to check the creation time and comment before performing unregistration. Images can be identified using this method.

For details on the rxcadm image list command, refer to "4.1 rxcadm image" in the "Reference Guide (Command/XML) CE".

- Unregistered images of virtual L-Servers can be used in the same way as when they are collected from templates of server virtualization software.

For details, refer to "17.5.1 Collecting and Registering".

- Before unregistering a cloning image, make sure that the image is not used in image information of L-Platform templates. Unregistering a cloning image that is used in image information causes the following effects.
  - On the image management window of the [Template] Tab, the corresponding image information becomes uneditable.
  - Deployment using the L-Platform template that uses the corresponding image information becomes impossible.
  - For reconfiguration of an L-Platform, addition of a server by using the corresponding image information becomes impossible.

---

## 17.5.4 Deleting

This section explains how to delete 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 target cloning image in the image pool, and select [Delete] from the popup menu.

3. Click the [OK] button.

The cloning image is deleted.

From the command-line, execute rxcadm image delete.

For details on the rxcadm image delete command, refer to "4.1 rxcadm image" in the "Reference Guide (Command/XML) CE".



[Hyper-V]

For details on how to delete cloning images on Hyper-V, refer to "8.3.8 Collecting and Deleting Cloning Images" in the "Setup Guide CE".

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## 17.6 Snapshots, and Backup and Restoration of L-Servers

This section explains how to perform snapshots, and backup and restore of an L-Server.

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### 17.6.1 Snapshot

This section provides an overview of snapshots for L-Servers.

Snapshot is the function that saves the state and configuration of an L-Server disk at the time the snapshot is taken. When using virtual L-Servers, the snapshot function of server virtualization software is used.

Restoring a collected snapshot restores the following L-Server parameters to their state when the snapshot was taken.

- Number of CPUs

- CPU Performance
- CPU Shares
- Memory Size
- Memory Shares
- Operating System Type
- Configuration and Size of the Disk
- Network
- OS Settings

## Information

The following parameters cannot be restored using the snapshot function of the server virtualization software. Therefore, change L-Server specifications to restore those parameters using their values at the time the snapshot was taken.

[VMware]

- CPU Reserved
- CPU Shares
- Memory Reserved
- Memory Shares

[Hyper-V]

- Operating System Type

These parameters may return to their values at the time that the snapshot was taken even when the restoration process is aborted. Check the L-Server parameters, and modify the specifications as necessary.

[KVM]

Restoring a collected snapshot restores the following L-Server parameters to their state when the snapshot was taken.

- Number of CPUs
- CPU Performance
- Memory Size
- Maximum Memory
- Disk Configuration
- Network
- OS Settings

The operations that can be performed differ depending on the disk configuration and power status of the L-Server.

Refer to "Snapshots" in "8.6.9 Advisory Notes for RHEL-KVM Usage" in the "Setup Guide CE" for details.

## Note

If the OS of the L-Server is Linux, the user name and password used when collecting the snapshot will be saved.

It is recommended to change the password after collecting a snapshot to maintain security.

[VMware]

CPU reservation performance and memory reservation capacity are not restored. Changing this value may prevent an L-Server from starting, depending on the amount of resources used by other VM guests on the same VM host.

[KVM]

Do not perform snapshot operations (collection/deletion) from the VM host. Snapshot operations performed from Resource Orchestrator may fail.

---

If multiple snapshots are collected of the same L-Server, the snapshots are managed by automatically adding version numbers to the snapshot file name starting from 1. If the number of snapshot versions exceeds the limit (standard limit is 3), the oldest snapshot will be deleted. Use the `rcxadm imagemgr` command to change the maximum number of snapshot versions.

For details on the `rcxadm imagemgr` command, refer to "5.9 `rcxadm imagemgr`" in the "Reference Guide (Command/XML) CE".

To collect a snapshot, it is recommended that the power of the L-Server is "OFF" to avoid any inconsistencies occurring in the data and file system on the disk.

When collecting a snapshot from an L-Server that is running, the L-Server must be configured in advance for live collection of snapshots.

For details on the settings required to collect a snapshot when the server is running, refer to the manual of the server virtualization software.

For details on operations using the `rcxadm image` command, refer to "4.1 `rcxadm image`" in the "Reference Guide (Command/XML) CE".

### Note

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Immediately after a snapshot is restored, there may be differences between the configuration of VM guests managed by L-Server and those managed by VM management software.

The differences in VM guest configurations are reflected on the configuration of the L-Server by periodic queries made to the VM management software.

For details on reflection of L-Server configuration by periodic queries, refer to "[17.2 Modifying](#)".

[Physical Servers]

When using physical L-Servers, snapshots cannot be used.

[Hyper-V]

When using Hyper-V, refer to "8.3.10 Advisory Notes for Hyper-V Usage" in the "Setup Guide CE".

[Xen]

When using RHEL5-Xen, snapshots cannot be used.

Collect L-Server snapshots using PRIMECLUSTER GDS.

For details, refer to "8.4.7 Advisory Notes for RHEL5-Xen Usage" in the "Setup Guide CE".

[Citrix Xen]

When using Citrix-Xen, snapshots cannot be used for powered on L-Servers.

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### Information

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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
- 
- 

## Collection

This section explains how to collect a snapshot.

1. Right-click the target L-Server in the orchestration tree, and select [Snapshot]-[Collect] from the popup menu.

The [Create a Snapshot] dialog is displayed.

2. Set the following items as necessary:

#### Comment

Enter a comment that identifies the snapshot.

Up to 128 characters other than percent signs ("%"), back slashes ("\ cant be specified.

[Citrix-Xen]

In addition, single quotes (') cannot be used in comments.

[KVM]

In addition, Japanese and double-byte characters cannot be used in comments.

3. Click the [OK] button.

The snapshot is collected.

From the command-line, execute rxcadm image snapshot.

For details on the rxcadm image snapshot command, refer to "4.1 rxcadm image" in the "Reference Guide (Command/XML) CE".

## Restoration

This section explains how to restore a snapshot.

To restore a snapshot, the L-Server must be stopped.

1. Right-click the target L-Server in the orchestration tree, and select [Snapshot]-[Restore] from the popup menu.

The [Restore a Snapshot] dialog is displayed.

2. Select the version of the snapshot to restore.

Confirm the content of the alert message displayed in the [Restore a snapshot] dialog, and check the "Restore the snapshot." check box.

3. Click the [OK] button.

The snapshot is restored.

Execute the rxcadm image restore command.

For details on the rxcadm image restore command, refer to "4.1 rxcadm image" in the "Reference Guide (Command/XML) CE".



### Note

- In the following cases, the specifications of the L-Server will not be modified. Use the server virtualization software to make changes as necessary.
  - When the VM guest corresponding to the L-Server to be restored has been migrated to a VM host that is not registered with Resource Orchestrator
  - When restoring a snapshot which was taken using:
    - Resource Orchestrator V2.2.2 or earlier
    - Resource Orchestrator V.2.3.0 without the following patches applied:
      - T005433WP-03 [Windows]
      - T005567LP-01 [Linux]
- Restoration Operations for Snapshots [KVM]

When performing restoration operations for snapshots, if the number of disk resources in the information of the snapshot and the number of disk resources of the L-Server used for restoration is different, the number of disk resources after the snapshot is restored will change.

For details, refer to "5.3 After the operation of restoring a snapshot for virtual L-Server, the number of disk resources changes. [KVM]" in "Troubleshooting".

## Deletion

This section explains how to delete unnecessary versions of snapshots.

1. Right-click the target L-Server in the orchestration tree, and select [Snapshot]-[Delete] from the popup menu.  
The [Delete a Snapshot] dialog is displayed.
2. Select the version of the snapshot to delete.
3. Click the [OK] button.

The snapshot is deleted.

From the command-line, execute `rcxadm image delete`.

For details on the `rcxadm image delete` command, refer to "4.1 `rcxadm image`" in the "Reference Guide (Command/XML) CE".

## 17.6.2 Backup and Restore

This section explains how to back up and restore L-Servers.

These functions are only provided for physical L-Servers.

Backup and restore of L-Servers is the function for performing backup and restoration of L-Server system images.

If multiple backups of the same L-Server are collected, the backups are managed by automatically adding version numbers to the backup file name starting from 1. If the number of snapshot versions exceeds the limit (standard limit is 3), the oldest snapshot will be deleted.

The content of the system disk of the L-Server is restored to the state when the system image was collected.



### Note

- Regardless of the boot environment (local/SAN/iSCSI) and RAID configurations, only the contents of the first disk (boot disk) recognized by the managed server's BIOS can be backed up and restored.

For a server using local boot with a SAN data configuration, it is necessary to configure the target disk of image operations.

For details, refer to "9.1.13 Changing Target Disks of Image Operations" in the "User's Guide VE".

The contents of other disks (data disks) cannot be backed up and restored. To properly backup and restore such data disks, it is recommended to use dedicated backup software, or the copy functions available in storage devices.

When the first disk contains multiple partitions (Windows drive, Linux/VMware partition), all partitions are backed up.

Table 17.16 Examples of system image backup and restore targets

Disk	Windows Disk Name	Windows Drive Name	Target of Backup and Restore
First	Disk 0	C:	Yes
		E:	Yes
Second	Disk 1	D:	No
		F:	No

- As managed servers are restarted during backup and restore operations, their applications should be stopped beforehand.
- Restore operations can only be performed for the servers from which a backup has been collected.
- When backups have been collected from a managed server with UMC enabled, perform the restore operation on the server with UMC enabled.
- The first partition must be a primary partition.
- Backups can be collected with the following file systems. Note that LVM (Logical Volume Manager) partitions are not supported.
  - NTFS
  - EXT3

- EXT4
- LinuxSwap

## Point

When Red Hat Enterprise Linux 7 is installed with default options, the file system is XFS.

- The operations for backup and restore of VM hosts differ depending on the server virtualization software used. For an explanation of the behavior differences that occur when VM guests are included in the VM host's boot disk, refer to "9.2.2 Functional Differences between Products" in the "Design Guide VE". If VM guests on the boot disk are not to be backed up (and restored), VM guest files should be moved to another disk.
- To preserve the configuration of the server virtualization software used, VM guests should be backed up at the same time as VM hosts. During backup, because the target VM host will be automatically set to VM maintenance mode, the VM host should be in a state that allows VM maintenance mode to be set.

When backing up a VM host in a high-availability configuration, all VM guests stored on shared disks should be migrated to another VM host beforehand.

After backing up the VM host, migrate the VM guests back to their original VM host.

Refer to the server virtualization software manual and "9.2.2 Functional Differences between Products" in the "Design Guide VE" for information on how to back up and migrate VM guests, or about the VM maintenance mode.

- To preserve the configuration of the server virtualization software used, VM guests backed up at the time of the VM host's backup should also be restored when restoring a VM host. Note that this is not required if no changes likely to alter the virtualization software configuration were made (e.g. changes such as addition or deletion of a VM guest, or changing the placeholder for VM guest definition files). During restore, because the target VM host will be automatically set to VM maintenance mode, the VM host should be in a state that allows VM maintenance mode to be set.

If the target VM host is in a high-availability configuration, all VM guests stored on shared disks should be migrated to another VM host beforehand.

After restoring the VM host, migrate the VM guests back to their original VM host.

Refer to the server virtualization software manual and "9.2.2 Functional Differences between Products" in the "Design Guide VE" for information on how to restore and migrate VM guests, or about the VM maintenance mode.

- Deleting a managed server will delete its backed up system images at the same time.
- It is not possible to backup, restore, or delete a system image from a managed server for which a system image (including different versions) is already being backed up, restored, or deleted.
- When restoring a system image on a server whose name was changed after the deployment of a cloning image, check that the "*server\_name*" displayed on the server resource tree and the System Image List match the new server name before restoring the system image.
- For managed servers on which the Watchdog function is enabled, backup or restore operations on that server may be aborted by an automatic restart or shutdown. The Watchdog is a function which automatically restarts or shuts down non-responsive servers when their operating system does not respond for a given period. Therefore, it is highly recommended to disable the Watchdog function before a backup or restore operation. For details on the Watchdog function, refer to the server manual.

- If the disk size of the source (backed up) server differs from that of the destination (restored) server, restore is possible only in cases where the disk size of the destination server is larger than that of the source server. In that case, unused disk space will remain on the destination server. To use this unused disk space, a partition should first be created from it.

Restoring a system image to a server on which the disk size is smaller than that of the source (backed up) server is not possible. This also applies to server switchover and failback operations that are based on backup and restore, as well as cloning operations.

Therefore, it is also necessary to ensure that spare servers of cloning destination servers have a large enough disk.

- When backing up or restoring system images, or collecting and deploying cloning images, up to four processes can be executed simultaneously. If four processes are already being executed, any additional image operations will enter a standby state.



Moreover, server switchover which is executed using the backup and restore method or any restore process performed during failback will also enter a standby state. When Auto-Recovery or manual switchover using the backup and restore method is used, limit the number of image operations (backup or restore of system images, or collection and deployment of cloning images) performed at the same time to 3.

- When using backup and restore for PRIMEQUEST servers, check that the boot option settings and BIOS settings of the target servers match. When the settings are different, execute the function after changing the settings so they match. For details on how to change boot options, refer to "[7.1.10 Changing Boot Options](#)".  
When using PRIMEQUEST 1000 Type2, disable the x2APIC mode of the UEFI.
- For the PRIMEQUEST 2000 series, backup and restore is only possible when using Windows managers. PXE boot is only supported by on-board LAN NICs.
- When the target managed server is Linux and the disk is recognized using the by-id name, the collected system image cannot be restored after changing disks.
- Not supported when using clustering software on physical L-Servers.
- To back up and restore L-Server system images, all of the following conditions must be met:
  - For Backup
    - The status of the L-Server is that in which resources have already been allocated (allocated)
    - The L-Server has been started
    - The L-Server has been registered as an agent
  - For Restoration
    - The status of the L-Server is that in which resources have already been allocated (allocated)

---

Use the following procedure for backup and restoration of system images:

## Backup

1. Right-click the target L-Server in the orchestration tree, and select [Backup/Restore]-[Backup] from the popup menu.  
The [Backup System Image] dialog is displayed.
2. Set the following items as necessary:
  - Comment**  
Enter a comment to identify the system image.  
Up to 128 characters other than percent signs ("%"), back slashes ("\ cant be specified.
3. Click the [OK] button.  
The system image is backed up.  
L-Servers are temporarily powered off while backing up the system image.  
The process status can be checked in the Recent Operations area of the ROR console. When the [Cancel] button is clicked in the Recent Operations area, the confirmation dialog to quit the process is displayed.

From the command-line, execute `rcxadm image backup`.

For details on the `rcxadm image backup` command, refer to "4.1 `rcxadm image`" in the "Reference Guide (Command/XML) CE".

## Restoration

1. Right-click the target L-Server in the orchestration tree, and select [Backup/Restore]-[Restore] from the popup menu.  
The [Restore System Image] dialog is displayed.

2. Select the version of the system image to restore.

Confirm the content of the alert message displayed in the [Restore System Image] dialog, and check the [Restore the system image.] check box.

3. Click the [OK] button.

The system image is restored.

The process status can be checked in the Recent Operations area of the ROR console. When the [Cancel] button is clicked in the Recent Operations area, the confirmation dialog to quit the process is displayed.

From the command-line, execute `rcxadm image restore`.

For details on the `rcxadm image restore` command, refer to "4.1 `rcxadm image`" in the "Reference Guide (Command/XML) CE".

## Deletion

This section explains how to delete unnecessary versions of backups of system images.

1. Right-click the target L-Server in the orchestration tree, and select [Backup/Restore]-[Delete a Backup] from the popup menu.

The [Delete a System Image] dialog is displayed.

2. Select the version of the system image to delete.

3. Click the [OK] button.

The backup of the system image is deleted.

From the command-line, execute `rcxadm image delete`.

For details on the `rcxadm image delete` command, refer to "4.1 `rcxadm image`" in the "Reference Guide (Command/XML) CE".

## 17.7 Migration between VM Hosts

---

This section explains how to move (migrate) an L-Server between servers.

[Physical Servers]

When using physical L-Servers, moving between servers (migration) cannot be used.

Use the following procedure to migrate between servers:

1. Right-click the target L-Server in the orchestration tree, and select [Migrate VM Guest] from the popup menu.

The [Migrate an L-Server] dialog is displayed.

2. Select the destination VM host from the destination VM host list. Only the VM hosts available for migration are displayed in the destination list.

3. Click the [OK] button.

From the command-line, execute `rcxadm lserver migrate`.

For details on the `rcxadm lserver migrate` command, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".



Select a destination VM host with available CPU capacity and memory. If there is insufficient CPU capacity or memory, migration between servers or starting of L-Servers may fail.

When specifying [Automatic selection] in the [Migrate an L-Server] dialog, the migration movement differs depending on the value of the [Resource type] for [VM Host] specified when creating the L-Server. This also applies to L-Servers for which overcommit settings have been configured.

- When [Automatic] is specified for [Resource type]

The migration is performed with a destination VM host selected from accessible VM pools.

In environments using overcommit, depending on whether or not overcommit settings have been configured for the L-Server, the migration is performed differently as follows:

- For L-Servers with Overcommit Configured

The migration is performed with a destination VM host selected from accessible resource pools with overcommit configured.

- For L-Servers without Overcommit Configured

The migration is performed with a destination VM host selected from accessible resource pools without overcommit configured.

For the selection conditions of VM hosts as the migration target, refer to "Selection of L-Server Deployment Location" in "2.2.3 L-Server" in the "Design Guide CE".

- When [VM Pool] is specified for [Resource type]

The migration is performed with a destination VM host selected from a VM pool.

For environments using overcommit, the same overcommit settings must be configured for both the L-Server and VM pools.

For the selection conditions of VM hosts as the migration target, refer to "Selection of L-Server Deployment Location" in "2.2.3 L-Server" in the "Design Guide CE".

- When [VM Host] is specified for [Resource type]

The migration will fail because the destination does not exist. For environments not using overcommit, the same overcommit settings must be configured for both the L-Server and the VM pool which the VM host belongs to.

Perform one of the following:

- Select a VM host from the list of the destination VM hosts, and then perform the operation again.
- In the [Modify an L-Server] dialog, change the value for "VM host" to "Automatic", and then perform server migration again.
- In the [Modify an L-Server] dialog, change the value for "VM host" to "Pool", check the resources to be allocated, and then perform server migration again when necessary.
- In the [Modify an L-Server] dialog, change the value for "VM host" to "VM host", check the resources to be allocated, and then perform server migration again when necessary.

If a VM host is specified for the destination VM host, the migration between servers will be performed regardless of overcommit settings.

The information set on the VM host to use can be checked using the following methods:

- Select the target L-Server in the orchestration tree, and check "Preserved resource" in the [Resource List] tab
- Select the target L-Server in the orchestration tree, and check "Current resource" in the [Resource Details] tab

Maintenance mode excludes the target VM host from the automatically selected target for migration of a virtual L-Server.

Migration by users is possible.

When performing movement between servers (migration), refer to the chapter of each VM type in "Appendix E Preparations for Creating a Virtual L-Server" in the "Design Guide CE".

[VMware]

In VMware, migration across clusters is treated as migration across resource pools. Such migration is performed within the same cluster (the same resource pool) because Resource Orchestrator does not manage VMware resource pools.

For details on VMware resource pools, refer to the "vSphere Resource Management Guide" of VMware.

[Solaris Zones]

When an L-Server is located on a VM host with a spare server configured, migration cannot be performed.

When an L-Server is located on a VM host without a spare server configured, migration can be performed to another VM host without a spare server configured that is sharing the disk.

[OVM for SPARC]

Disk resources need to be allocated to all disks of the L-Server when performing migration of an L-Server. Also, the VM hosts which satisfy all of the following conditions are candidates for migration destinations.

- VM hosts that are sharing disk resources allocated to an L-Server
- VM hosts with the same spare server configuration as the VM host

When an L-Server is migrated to a specified VM host using one of the following methods, after migration the L-Server may not be linked with disk resources, or disk information may not be updated.

- Migrating an L-Server between servers from the server tree on the ROR console
- Migrating an L-Server between servers using a command and specifying the destination VM host.

When [Automatic] is specified, the L-Server does not migrate to the VM host in which the L-Server (guest domain) which is sharing the disk allocated to the L-Server exists.

When the following VM host is specified as the migration destination for a powered on L-Server, the operation is dependent on the specifications of OVM for SPARC.

- A VM host on which another powered on L-Server (guest domain) which is sharing the disk exists

## Information

When using virtual L-Servers, the VM Home Position of ROR VE can be used for migration. For details, refer to "15.3 VM Home Position" in the "User's Guide VE".

## 17.7.1 Forced Migration between VM Hosts

This section explains the procedure for forced migration between servers of a virtual L-Server operating on a VM host in case the VM host hardware fails.

This function is supported when using RHEL-KVM.

### 1. Items to be checked before executing forced migration

- Check if VM guest automatic startup settings are disabled on the migration source VM host.
- The power status of the migration source VM host is in stopped status.

## Note

It is necessary to check if the migration source VM host has been stopped. If the VM guest is specified while the migration source VM host is operating, the L-Server disk data may be damaged as the VM guest will be mounted twice.

### 2. Execution of forced migration

Execute the `rcxadm lserver migrate` command with the `-force` option specified.

For details on the `rcxadm lserver migrate` command, refer to "3.6 rcxadm lserver" in the "Reference Guide (Command/XML) CE".

### 3. Post processing after executing forced migration

- a. Place the migration source VM host into maintenance mode, complete the hardware maintenance and then delete the VM guest definitions allocated to the virtual L-Server that was forcibly migrated. Directly delete them from the VM host.

## Note

Do not start the VM guest before deleting it. When the migrated VM guest is also operating on the migration target VM host, the L-Server disk data may be damaged as the VM guest will be mounted twice.

- b. Release maintenance mode.
- c. Use the `virsh` command to delete the VM guest definitions. [KVM]

For details on the `virsh` command, refer to the following section in the "Virtualization Administration Guide".

- Chapter 14. Managing guests with virsh

```
URL: https://access.redhat.com/site/documentation/en-US/
Red_Hat_Enterprise_Linux/index.html
```

## 17.8 Allocating and Releasing Resources to L-Servers

---

This section explains how to allocate resources to, and release resources from, L-Servers.

Even if there are no resources to allocate to L-Servers, flexible configuration and operation, such as creating only L-Server definitions in advance, is possible.

[Solaris Zones (Solaris 10)] [OVM for SPARC]

When a virtual machine created on a VM host not managed with server management software is linked to an L-Server, "Allocating and Releasing Resources to L-Servers" is set according to the value of the definition file. After linking a virtual machine to an L-Server, it cannot be modified.

For details on definition files, refer to "[17.8.1 Installation](#)".

Configure the following settings, when creating an L-Server.

- Create an L-Server definition

If only creating an L-Server definition, configure "None (Definition only)", when creating an L-Server.

For details, refer to "[16.2.1 \[General\] Tab](#)" and "[16.3.1 \[General\] Tab](#)".

Only IP addresses/MAC addresses/WWNs are allocated to the created L-Server, and "[defined]" is displayed.

- Automatically release server resources for L-Servers

If releasing server resources when the L-Server is turned off, set [Resource release] during L-Server creation.

For details, refer to "[16.2.2 \[Server\] Tab](#)" and "[16.3.2 \[Server\] Tab](#)".

When the power of an L-Server for which this setting is configured is turned off, "[preserved]" is displayed.

### Note

When sharing resources on the same physical server between L-Servers using the usage change function, set [Resource release] on the L-Server where the server resource is allocated.

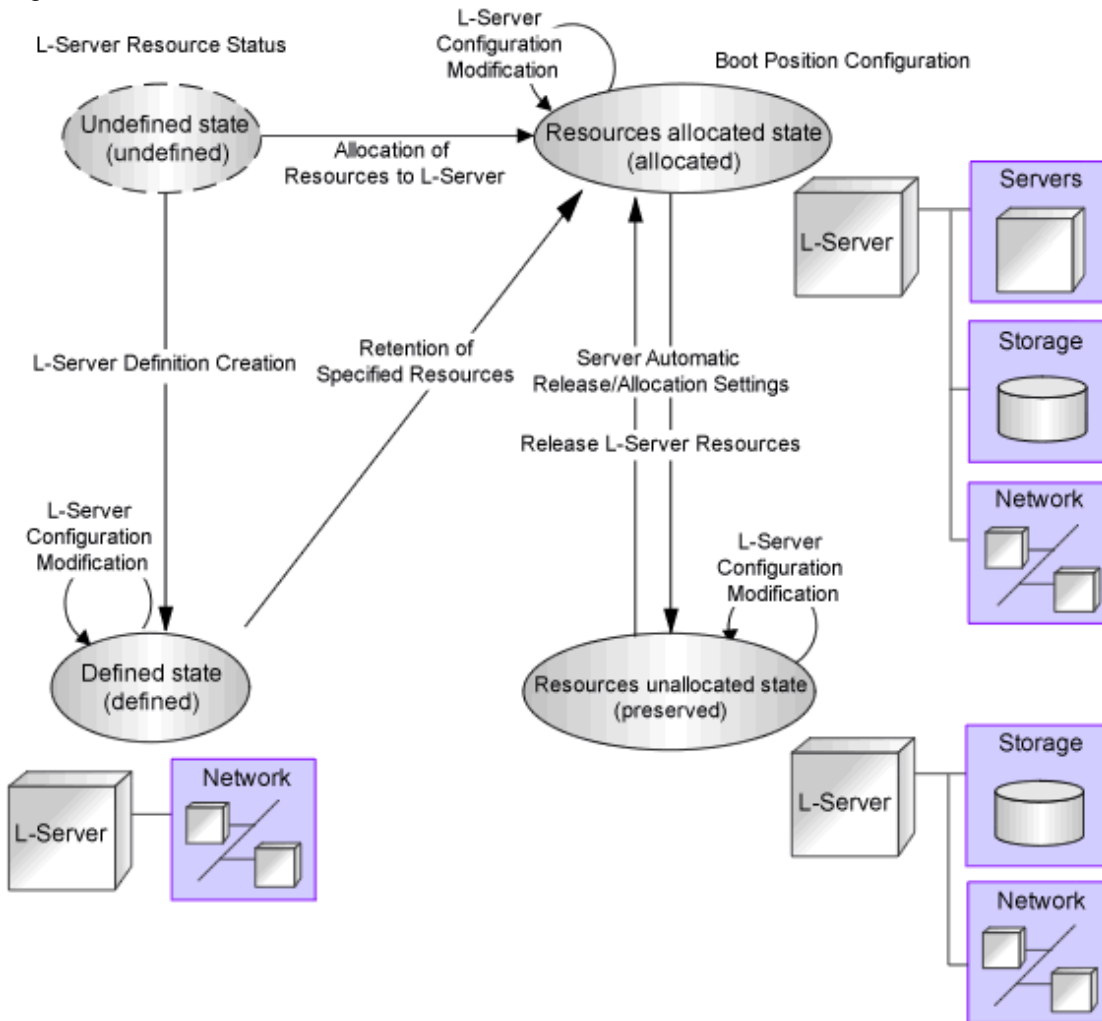
When the server resources are allocated to an L-Server for which [Resource release] is not configured, the server resources cannot be shared.

### Note

For an L-Server from which VM guests have been deleted using server virtualization software, "unknown" is displayed for the resource allocation status.

For details, refer to "3.9 When the Status is "unknown", Operations of a Virtual L-Server Fail." in "Troubleshooting".

Figure 17.3 State Transition of L-Servers



L-Servers can be deleted when their status is something other than "undefined" (specifications have not been defined).

## 17.8.1 Installation

By setting the values in the following definition file in advance, it is possible to change L-Server related behaviors and default values displayed on the [General] tab and [Server] tab when creating an L-Server.

For the values available for L-Server templates, when an L-Server template does not have values configured, the values of the definition file are adopted.

When creating an L-Server using commands, if the XML file of the L-Server does not have values configured, the values of the definition file are adopted.

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

*l\_server.rcxprop*

## Definition File Format

For the definition file, write each line in the following format:

*Key = Value*

## Definition File Items

Specify the following items.

Table 17.17 List of Items Specified in the Definition File

Item	Key	Value	Remarks
Allocating resources	allocate_after_create	true false	<ul style="list-style-type: none"> <li>- When also allocating resources during L-Server creation Specify "true".</li> <li>- When only creating an L-Server definition Specify "false".</li> </ul> <p>If left blank, "true" is set. It will be set using the default values of [Resource allocation] on the [General] tab.</p>
Repurpose	auto_preserved	true false	<ul style="list-style-type: none"> <li>- When releasing server resources while an L-Server is turned off Specify "true".</li> <li>- When not releasing server resources while an L-Server is turned off Specify "false".</li> </ul> <p>If left blank, "false" is set. It will be set as the default value of [Resource release] on the [Server] tab. It can be specified using an L-Server template.</p>
Numbering VM names	vm_name_suffix	true false	<ul style="list-style-type: none"> <li>- When using VM names in the format of "<i>Virtual_L-Server_Name-Number</i>" Specify "true".</li> </ul> <p>For details on numbering, refer to "<a href="#">Association of an L-Server Name with a VM Guest Name</a>" in "<a href="#">16.1 Creation Using an L-Server Template</a>".</p> <p>When 1,000 or more L-Servers are deployed, <i>Number</i> is a four digit numerical value.</p> <ul style="list-style-type: none"> <li>- When using the same name for both a virtual L-Server and a VM when not using numbering Specify "false".</li> </ul> <p>If left blank, "true" is set. Switching the value for this item does not automatically change existing virtual L-Server names or VM names. This item only affects when creating a virtual L-Server, when modifying general information or specifications of a virtual L-Server, and when creating a link between a configured virtual machine and an L-Server. The names of L-Servers created with "false" set for this item will automatically change when VM names are</p>

Item	Key	Value	Remarks
			changed. However, the VM name must conform to the naming conventions for L-Servers.
Management of an allocated IP address	reserve_ip_address	true/false	When the function to take over IP addresses allocated to a virtual machine is used when the virtual machine that has been configured is linked to an L-Server, specify "true". If left blank, "false" is set. In addition, there are prerequisites for taking over IP addresses that have been allocated to a virtual machine. For details, refer to " <a href="#">18.4.1 Preparations</a> ".

## 17.8.2 Operations

This section explains how to allocate resources to, and release resources from, L-Servers and how to modify configuration definition information.

### 17.8.2.1 Allocating Resources

When an L-Server is started, resources are allocated to it.

For details on how to start an L-Server, refer to "[17.1.1 Starting an L-Server](#)".

When an L-Server is first started, server and disk resources are allocated to it. When cloning images are specified, deployment of images is also performed.

When server resources of L-Servers have been released, server resources will be allocated.

### 17.8.2.2 Releasing Resources

When stopping an L-Server, server resources will be released.

For details on how to stop an L-Server, refer to "[17.1.2 Stopping an L-Server](#)".

Methods for releasing server resources differ depending on whether the server is a physical L-Server or virtual L-Server.

- Physical L-Server

The physical server that was used for the L-Server will be released.

- Virtual L-Server

VM guests that are created on VM hosts are excluded from the target for calculation of the total amount of VM host usage.

### 17.8.2.3 Modifying Configuration Definition Information

To modify an L-Server for which a configuration definition has been created (defined), use the following procedure.

When changing the L-Server deployed when creating an L-Platform, use the `rcxadm lserver modify` command to modify the configuration for alive monitoring.

1. Right-click the target L-Server in the orchestration tree, and select [Change Settings]-[Definition] from the popup menu.

The [Modify L-Server's definition] dialog is displayed.

2. Change the items to modify.

For details on setting values in the [Modify L-Server's definition] dialog, refer to "[Chapter 16 Creating L-Servers](#)".

3. Click the [OK] button.

The L-Server configuration definition information is modified.



From the command-line, execute `rcxadm lserver modify`.

For details on the `rcxadm lserver modify` command, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".



When modifying the configuration definition for an already defined L-Server that has been updated from an earlier version, alive monitoring is disabled. When enabling alive monitoring, modify the configuration of the L-Server again.

## 17.9 Changing Physical Server Usage

---

This section explains how to change physical server usage.

Changing server usage is the function for preparing more L-Servers than physical servers and is used by switching the startup L-Server. This function enables effective use of server resources as the physical server can be changed depending on the period and situation.

The boot disk and IP address of the L-Server are stored, even while other L-Servers use the physical server.

This function can be used when an L-Server is actually a physical server. When using virtual machines, multiple L-Servers can be located on a single VM host without any specific configuration, giving the same effects as changing the physical server.

The following two methods are available:

- Use multiple L-Servers, switching between them, on a single physical server

The physical server that starts the L-Server is always the same.

- Use multiple L-Servers, switching between them, on unused physical servers in a server pool

The physical server allocated to the L-Server will change depending on the available spare servers in a server pool.

### 17.9.1 Configuring L-Servers for Usage Change

---

This section explains how to change L-Server settings for usage change.

The operations differ depending on whether the configuration definition has already been created (defined), or if resources have already been allocated (allocated).

- When the status of an L-Server for which a configuration definition has already been created (defined)

Refer to "[17.9.1.1 When only the Configuration Definition \(defined\) is Created](#)".

- When the status of an L-Server is that resources have already been allocated (allocated)

Refer to "[17.9.1.2 When Resources are Already Allocated \(allocated\)](#)".

#### 17.9.1.1 When only the Configuration Definition (defined) is Created

This section explains configuration and operation when only the configuration definitions have been created (defined) for the L-Server.

#### Settings

Repeat the following procedure the same number of times as the number of physical servers that are used for usage change.

1. Create and Register Each Resource

Create and register each resource.

Perform resource creation and registration, referring to "[Chapter 5 Registering Resources](#)" and "[Chapter 14 Registering Resources in Resource Pools](#)".

2. Create an L-Server

Create an L-Server for which only the configuration definition (defined) is created, referring to "[Chapter 16 Creating L-Servers](#)".

Perform the following configuration:

- Set [Deploy] for image deployment from the select a cloning image section of the [General] tab.

- Check the [None (Definition only)] checkbox on the [General] tab.
- Check the [Automatic (when powered off)] checkbox of [Resource release] on the [Server] tab.

## Operation

The operation method is shown below.

- When using multiple L-Servers, switching between them, on a single physical server

Usage can be changed by repeating the following procedure.

1. Check the Physical Server and L-Server of the Source L-Server for Usage Change

2. Stop the Source L-Server for Usage Change

Stop L-Servers operating on physical servers that are required for change usage.

For details, refer to "[17.1.2 Stopping an L-Server](#)".

3. Start the Destination L-Server for Usage Change

For details, refer to "[17.1.1 Starting an L-Server](#)".

After changing the configuration, the L-Server before changing cannot be operated, until the new L-Server has finished starting.

- When using multiple L-Servers, switching between them, on unused physical servers in a server pool

Usage can be changed by repeating the following procedure.

1. Confirm the Server Pool

Confirm whether an unused physical server exists in the server pool.

2. Start the Destination L-Server for Usage Change

For details, refer to "[17.1.1 Starting an L-Server](#)".

After changing the configuration, the L-Server before changing cannot be operated, until the new L-Server has finished starting.

### 17.9.1.2 When Resources are Already Allocated (allocated)

This section explains configuration and operation when resources have been allocated to the L-Server.

## Settings

Perform step 1 the same number of times as the number of physical servers that are used for usage change.

1. Create and Register Each Resource

Perform resource creation and registration, referring to "[Chapter 5 Registering Resources](#)" and "[Chapter 14 Registering Resources in Resource Pools](#)".

2. Create an L-Server (First server)

Create an L-Server for which resources are already allocated (allocated), referring to "[Chapter 16 Creating L-Servers](#)".

Perform the following configuration:

- Set [Deploy] for image deployment from the select a cloning image section of the [General] tab.
- Do not check the [None (Definition only)] checkbox from the [General] tab.
- Check the [Automatic (when powered off)] checkbox of [Resource release] on the [Server] tab.

3. Change L-Server Configuration

**When using multiple L-Servers, switching between them, on a single physical server**

Repeat the following procedure the same number of times as the number of physical servers that are used for usage change.

a. Create and Register Each Resource

Perform resource creation and registration, referring to "[Chapter 5 Registering Resources](#)" and "[Chapter 14 Registering Resources in Resource Pools](#)".

b. Release the resources of the source L-Server for usage change

Resources are released while the resource details of the source L-Server for usage change are preserved.

For details, refer to "[17.8.2.2 Releasing Resources](#)".

c. Create an L-Server

Create an L-Server for which resources are already allocated (allocated), referring to "[Chapter 16 Creating L-Servers](#)".

Perform the following configuration:

- Set [Deploy] for image deployment from the select a cloning image section of the [General] tab.
- Do not check the [None (Definition only)] checkbox from the [General] tab.
- Check the [Automatic (when powered off)] checkbox of [Resource release] on the [Server] tab.

**When using multiple L-Servers, switching between them, on unused physical servers in a server pool**

Repeat the following procedure the same number of times as the number of physical servers that are used for usage change.

a. Create and Register Each Resource

Perform resource creation and registration, referring to "[Chapter 5 Registering Resources](#)" and "[Chapter 14 Registering Resources in Resource Pools](#)".

b. Confirm the Server Pool

Confirm whether an unused physical server exists in the server pool.

When an L-Server is allocated to all physical servers in the specified server pool, release a physical server from an L-Server.

c. Release the resources of the source L-Server for usage change

Resources are released while the resource details of the source L-Server for usage change are preserved.

For details, refer to "[17.8.2.2 Releasing Resources](#)".

d. Create an L-Server

Create an L-Server for which resources are already allocated (allocated), referring to "[Chapter 16 Creating L-Servers](#)".

Perform the following configuration:

- Set [Deploy] for image deployment from the select a cloning image section of the [General] tab.
- Do not check the [None (Definition only)] checkbox from the [General] tab.
- Check the [Automatic (when powered off)] checkbox of [Resource release] on the [Server] tab.

## Operation

The methods for operating physical servers after usage changes are as follow.

Perform the procedure before performing any operations.

- When using multiple L-Servers, switching between them, on a single physical server

Usage can be changed by repeating the following procedure.

1. Confirm the Physical Servers to Use
2. Stop the Source L-Server for Usage Change

Stop L-Servers operating on physical servers that are required for change usage.

For details, refer to "[17.1.2 Stopping an L-Server](#)".

3. Start the Destination L-Server for Usage Change

For details, refer to "[17.1.1 Starting an L-Server](#)".

After changing the configuration, the L-Server before changing cannot be operated, until the new L-Server has finished starting.

- When using multiple L-Servers, switching between them, on unused physical servers in a server pool

Usage can be changed by repeating the following procedure.

1. Confirm the Server Pool

Confirm whether an unused physical server exists in the server pool.

2. Start the Destination L-Server for Usage Change

For details, refer to "[17.1.1 Starting an L-Server](#)".

After changing the configuration, the L-Server before changing cannot be operated, until the new L-Server has finished starting.

## 17.9.2 Operation

---

The methods for operating physical servers after usage changes are as follow.

Perform the procedure given in "[17.9.1 Configuring L-Servers for Usage Change](#)" before performing any operations.

- When using multiple L-Servers, switching between them, on a single physical server

Usage can be changed by repeating the following procedure.

1. Stop the Source L-Server for Usage Change

Stop L-Servers operating on physical servers that are required for change usage.

For details, refer to "[17.1.2 Stopping an L-Server](#)".

2. Start the Destination L-Server for Usage Change

For details, refer to "[17.1.1 Starting an L-Server](#)".

After changing the configuration, the L-Server before changing cannot be operated, until the new L-Server has finished starting.

- When using multiple L-Servers, switching between them, on unused physical servers in a server pool

Usage can be changed by repeating the following procedure.

1. Confirm the Server Pool

Confirm whether an unused physical server exists in the server pool.

2. Start the Destination L-Server for Usage Change

Start the destination L-Server for usage change.

For details, refer to "[17.1.1 Starting an L-Server](#)".

After changing the configuration, the L-Server before changing cannot be operated, until the new L-Server has finished starting.

### Point

- Usage cannot be changed, while the L-Server is stopped temporarily during L-Server restart.
- When power operation has been performed directly on the physical server using the ROR console or commands, without performing power operation of the L-Server, the L-Server that was last operated will start.
- If the last L-Server that was operated has already been started on another physical server, its status will change so there is no boot disk and it will fail to start.

## 17.9.3 Releasing Configuration

---

This section explains how to release configurations of the L-Server for usage change.

### 1. Change L-Server Configuration for Fixed Operation

Clear the [Automatic (when powered off)] checkbox of [Resource release] in the [Modify an L-Server] dialog, and click the [OK] button.

For details, refer to "[17.2.1 Modifying Specifications](#)".

### 2. Delete Unnecessary L-Servers

When unnecessary L-Servers exist, use the procedure in "[17.4 Deleting](#)" to delete them.

## 17.10 Exporting and Importing Virtual L-Servers

---

This section explains how to export and import virtual L-Servers.

### 17.10.1 Overview of Export and Import of Virtual L-Servers

---

This section explains the overview of export and import of virtual L-Servers.

A virtual L-Server can be exported to migrate a VM guest to an external Cloud Service.

In addition, a virtual hard disk of a virtual machine can be exported from Resource Orchestrator in another environment or an external cloud service and then imported as a virtual L-Server.

The OS types of virtual L-Servers that can be exported and imported are the English versions and Japanese versions of the following.

[VMware]

- Windows Server 2012 R2
- Windows Server 2012
- Windows Server 2008 R2
- Windows Server 2008
- Windows Server 2003

#### 17.10.1.1 Prerequisites for Export and Import

Export and import of virtual L-Servers is performed by installing the VM converter on a Windows machine that is accessible using the admin LAN in the following environment:

- A VM host with a virtual L-Server to be exported, or a VM host on which an imported virtual L-Server is to be saved
- A server on which a Resource Orchestrator manager has been installed

Configure name resolution that uses a hosts file or a DNS server so the Windows machine can be accessed using the host name (FQDN) of the VM host and Resource Orchestrator manager.

The VM Converter can be installed on the following Windows OSs.

- Windows Server 2012 R2
- Windows Server 2012
- Windows Server 2008 R2
- Windows 8.1
- Windows 8

- Windows 7

## Execution Conditions

- Export and import can be performed by Infrastructure Administrators and Dual-Role Administrators.
- Export can only be performed while the virtual L-Server is stopped.

Do not operate a virtual L-Server from VM management software while exporting it.

- The number of export/import operations which can be performed at the same time is affected by restrictions on parallel operation of the virtual software being used, network bandwidth, and the CPU resources of the computer. Two or less operations at the same time is recommended.

## Supported VM hosts

The following VM hosts are supported.

- VMware

## About Disk Configuration

- The exported file will be in the following format:
  - VMDK format, the standard virtual machine disk format of VMware
- Virtual L-Servers that have multiple disks are exported in multiple files.
- Virtual L-Servers that have snapshots are exported with the difference disk merged.
- Virtual L-Servers that use Raw Device Mapping (RDM) cannot be exported.
- The supported file format for import is as follows:
  - VMDK format, the standard virtual machine disk format of VMware
- Only system volume VMDK files can be imported. Virtual machines comprised of multiple VMDK files cannot be imported.



### Note

- The following work might become necessary before or after exporting a virtual L-Server in a cloud environment with a different VM type. Check the advisory notes of the destination cloud service and then perform migration.
  - Uninstallation of VMware Tools on the virtual L-Server
  - Installation of the necessary agent and driver in the destination cloud service
  - Network configuration
- The following work might become necessary before or after importing a virtual L-Server in a cloud environment with a different VM type. Check the advisory notes of the destination cloud service and then perform migration.
  - Uninstallation of the agent and driver necessary for the source cloud service
  - Installation of VMware Tools on the virtual L-Server
  - Network configuration
- To import data disks, operations from VM management software or server virtualization software are necessary. For operation procedures, refer to the manuals for the VM management software.

## 17.10.1.2 Preparation of VM Converter

The setup program of the VM Converter (SetupVMConverter.exe) is stored in the following folder of the Resource Orchestrator manager.

[Windows Manager]

*Installation\_folder*\SVROR\Manager\opt\FJSVrcxmr\sys\VMConverter

Store the setup program in an arbitrary folder on the Windows machine, execute it and install the program.

At this time, when an earlier version of the VM Converter has been already installed, the VM converter is updated to the current version of the setup program. Therefore, it is not necessary to uninstall earlier versions of the VM Converter.

It is necessary to install the following products beforehand to use the VM Converter.

- .NET Framework 3.5
- .NET Framework 4
- VC++ (Visual Studio 2012) Runtime (x86)

<http://www.microsoft.com/en-us/download/details.aspx?id=30679>

If the above software has not been installed correctly, error messages related to the software will be displayed.

Change the PowerShell execution policy to RemoteSigned. Start the PowerShell console using administrator privileges and execute the following:

```
>Set-ExecutionPolicy -ExecutionPolicy RemoteSigned <RETURN>
```

After changing the execution policy, the PowerShell console that was started using administrator privileges is no longer necessary.

Uninstallation of the VM Converter can be performed from [Programs and Features] in the control panel.

Uninstalling the VM converter does not delete the export management information that can be used if the VM converter is reinstalled. To delete this information, delete the following folder and all files in it:

%LOCALAPPDATA%\Fujitsu\Resource Orchestrator\VMConverter

## 17.10.2 Exporting

---

This section explains how to export a virtual L-Server.

The VM converter provides the function for exporting virtual L-Servers from the GUI and the CLI.

The export function for virtual L-Servers exports a selected virtual L-Server to the specified folder.

### 17.10.2.1 Preparations for Exporting the VM Converter

#### Installing the VM Converter Agent Program

In preparation for importing the virtual machine at the migration destination, the virtual machine to be exported must have the VM Converter agent program installed beforehand.

The installer for the agent program is stored in the installation folder of VM Converter:

*VM\_Converter\_installation\_folder*\VMConverter\Agent\x86\TransportAgent.msi

*VM\_Converter\_installation\_folder*\VMConverter\Agent\x64\TransportAgent.msi

Select the installer that supports the OS bit mode of the target virtual machine to export and execute it on the virtual machine to install the agent program.

## Note

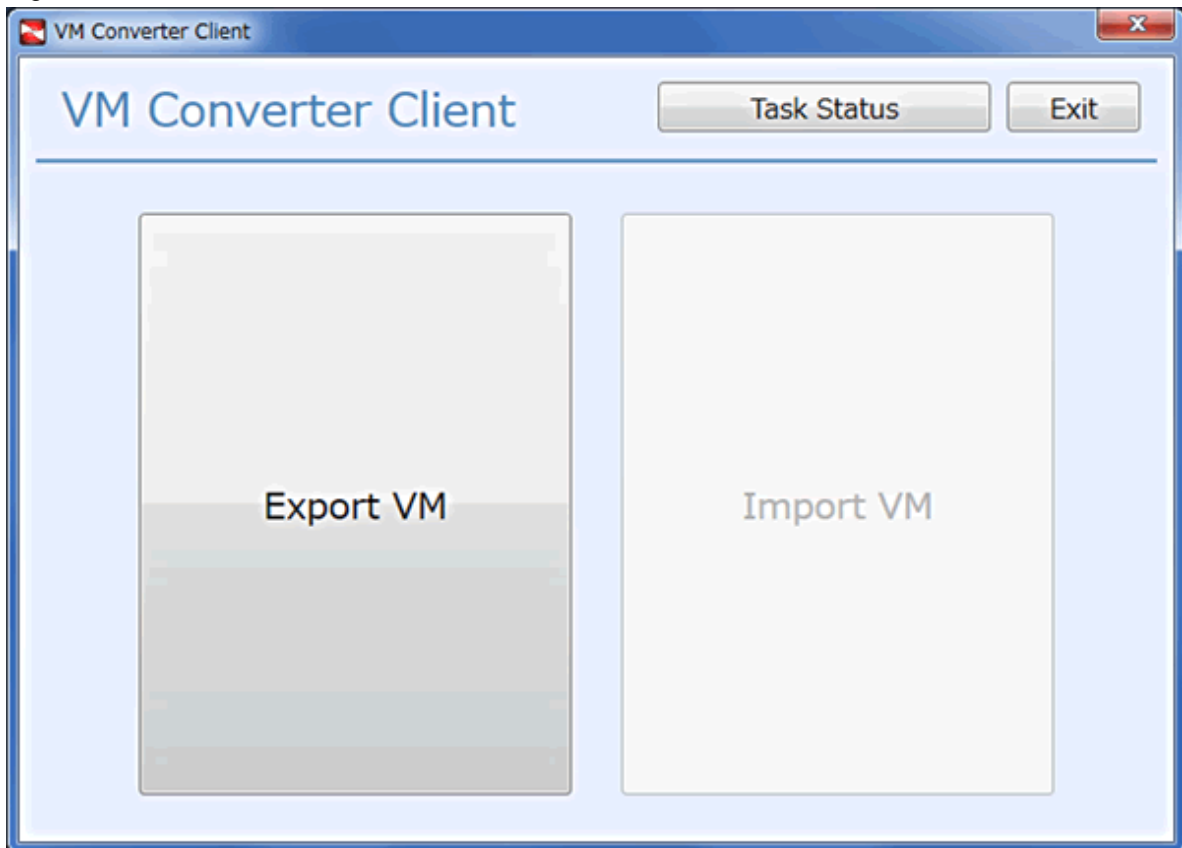
The agent program is included in V1.1.0 and later versions of VM Converter.  
When performing import, ensure that V1.1.0 or a later version of VM Converter is used.

### 17.10.2.2 Exporting Using the VM Converter GUI

It is possible to use the CLI of the VM Converter to start the export and obtain the progress report of the export process (task) of the target L-Server.

1. When the VM Converter is started from the start menu, the home screen that has export, import, and task progress display buttons is displayed.

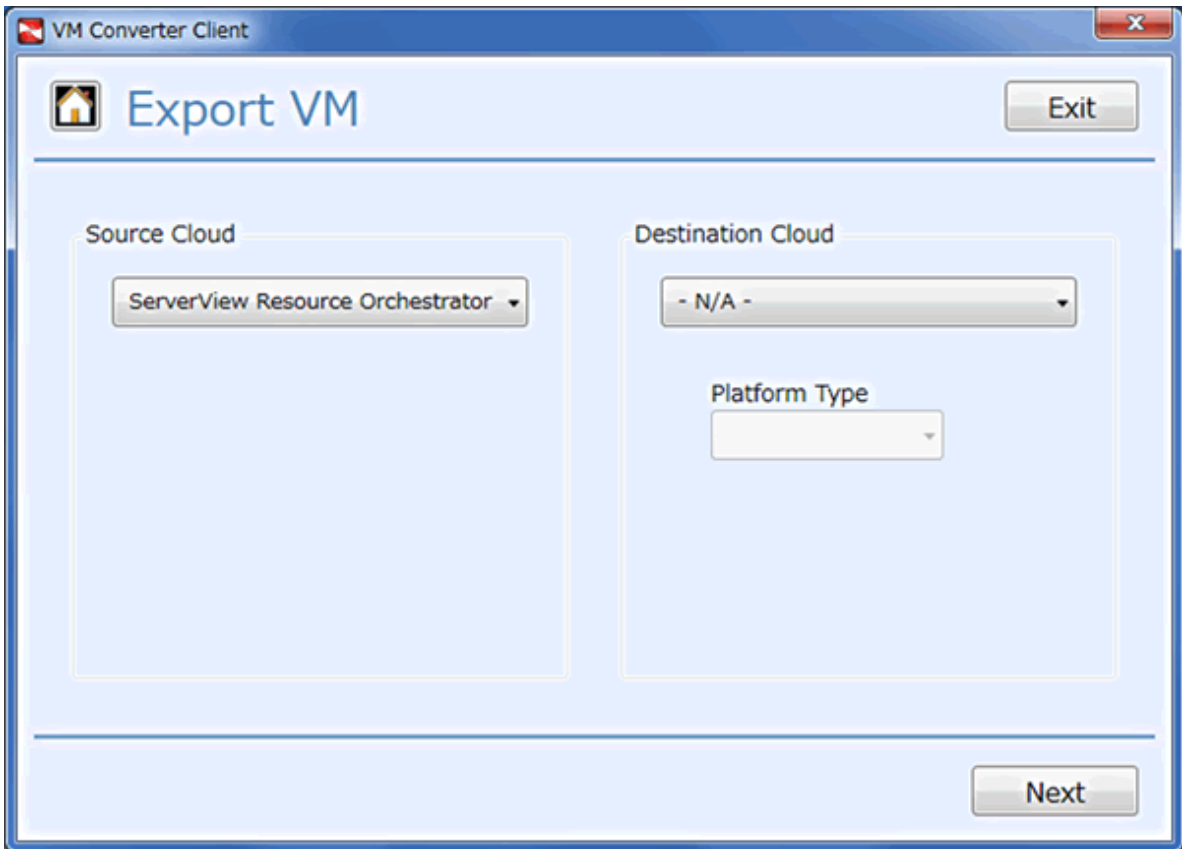
Figure 17.4 Home





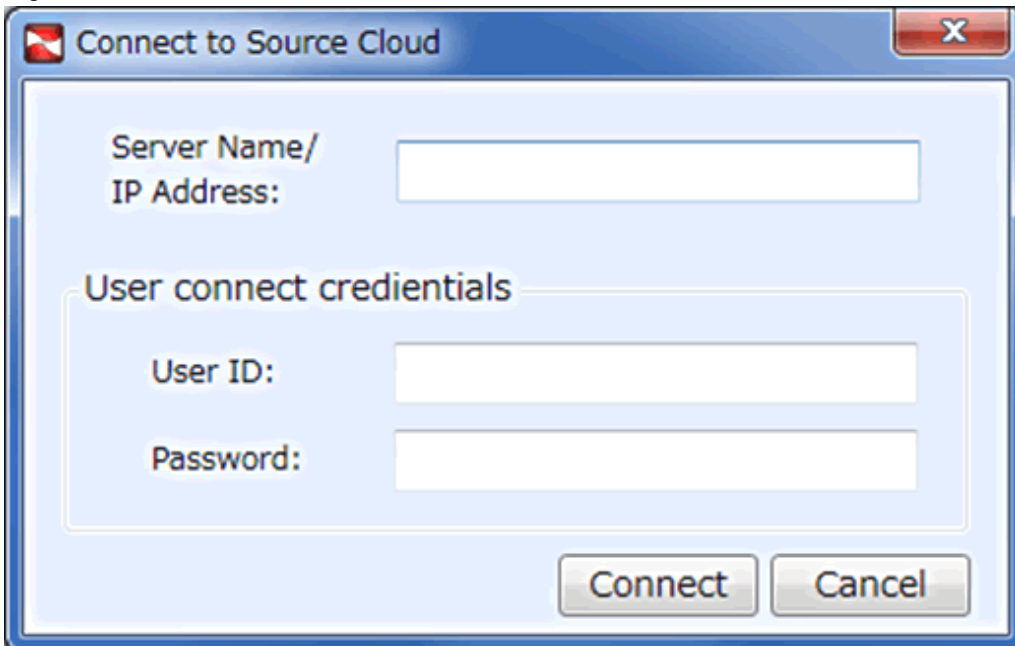
2. Select the source cloud system and the destination cloud system. If not specifying the destination cloud, select N/A.

Figure 17.5 Select a Cloud



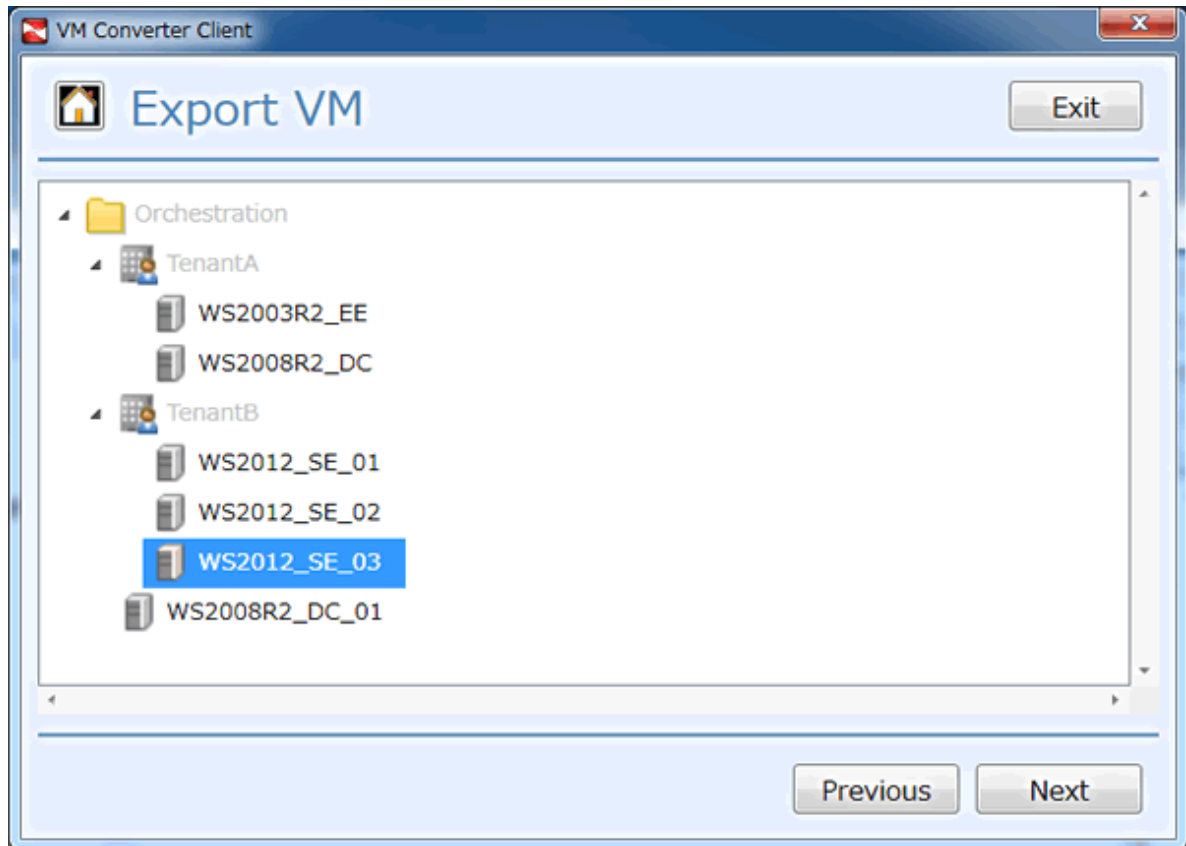
3. Enter account information of the source cloud system.

Figure 17.6 Enter Account Information



4. The virtual L-Server list of the tenant corresponding to the logon account is displayed. Select the virtual L-Server to export. At this time, only one L-Server can be selected.

Figure 17.7 Select a Virtual L-Server



5. Input the account information of the VM host that the selected virtual L-Server is on.

Figure 17.8 Enter VM Host Information

VM Converter Client

Export VM

Exit

Credential for VMHost

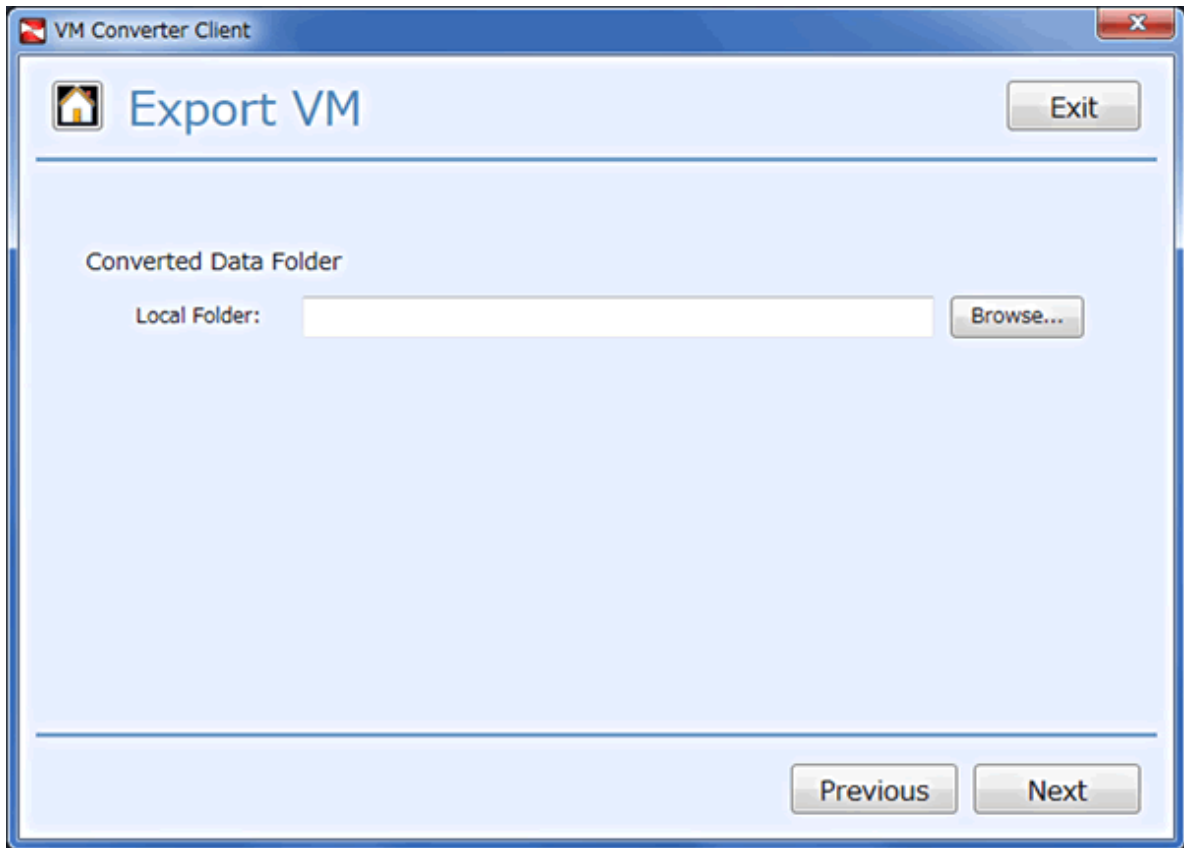
User ID:

Password:

Previous Next

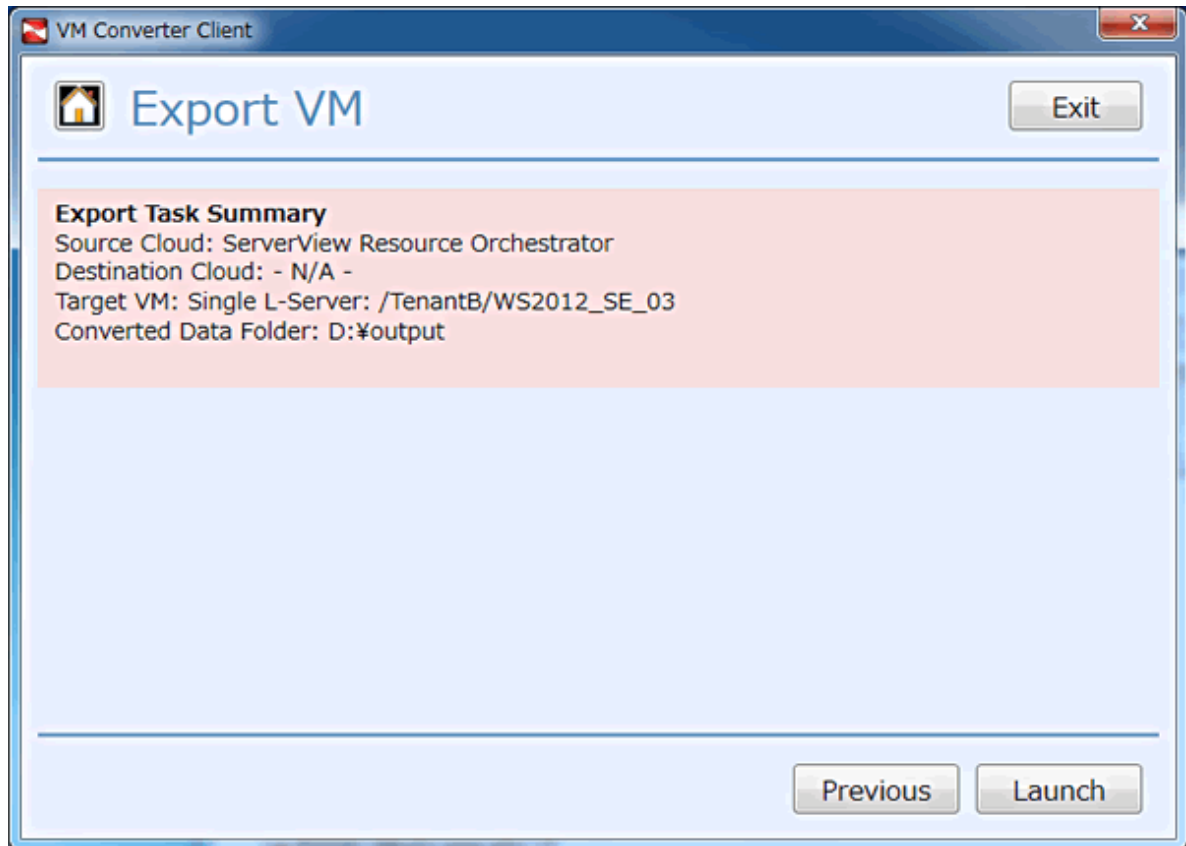
- Specify the folder used to store the exported files. A meta information file for the virtual L-Server will also be generated and stored with the exported files in this folder.

Figure 17.9 Specify the File Storage Folder



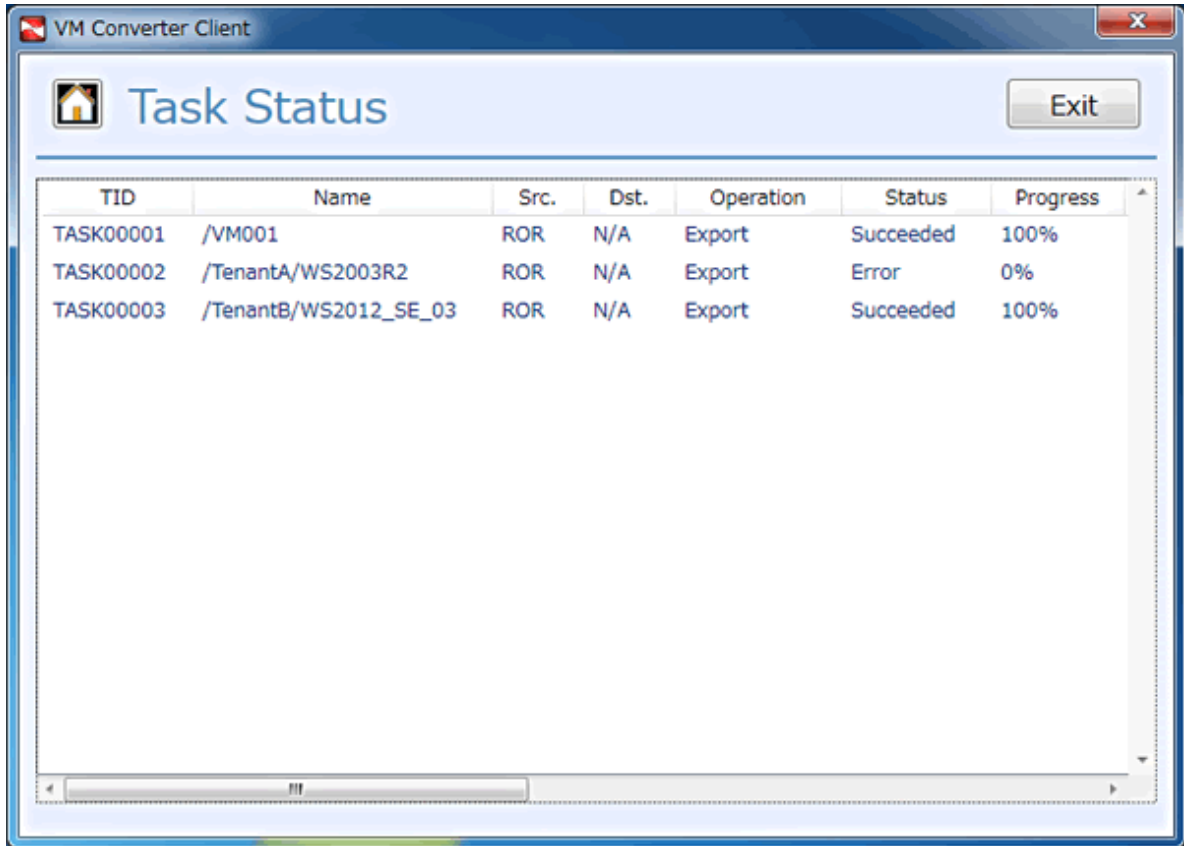
7. Check the displayed confirmation screen and then click the [Launch] button. Afterwards, the home screen is displayed.

Figure 17.10 Confirmation Window



8. When the [Task Status] button is clicked on the home screen, the progress report screen is displayed. The content is automatically refreshed every 60 seconds.

Figure 17.11 Progress Window



For the parameters and explanations of each parameter output by the display function for task progress, see the table below.

Table 17.18 Parameters Output by the Display Function for Task Progress

GUI Parameter Name	CLI Parameter Name	Description
TID	TaskID	Task ID "TASK.5-digit value"
Name	VMName	Name of the virtual L-Server being exported
Src.	SourceCloudType	Source cloud name - When exporting "ROR" - When importing "N/A"
Dst.	DestinationCloudType	Destination cloud name - When exporting "N/A" - When importing "ROR"
Operation		Process phase: "Export" or "Import"

GUI Parameter Name	CLI Parameter Name	Description
Status		Status of the task Initializing Running Succeeded Error Aborted
Progress		Ratio of task progress (percentage)
Start Time		Time task was started (yyyy/MM/dd HH:mm:ss)
End Time		Time task finished (yyyy/MM/dd HH:mm:ss)
Message		<ul style="list-style-type: none"> <li>- When Status is Initializing, Running, or Succeeded <ul style="list-style-type: none"> <li>- When exporting  The name of the storage folder for the file being exported or processed</li> </ul> </li> <li>- When importing <ul style="list-style-type: none"> <li>- The name of the virtual machine which has been imported or is being processed</li> </ul> </li> <li>- When Status is Error or Aborted  An error message regarding the export or import process</li> </ul>

### 17.10.2.3 Exporting Using the VM Converter CLI

Starting the export and obtaining the progress report of the export process (task) of the target L-Server is possible using the CLI of the VM Converter.

CLI is provided as the following cmdlet in Windows PowerShell 2.0 or later.

To use cmdlets, it is necessary to execute the Import-Module command and import the module manifest file in advance.

The PowerShell module manifest file is in the following folder.

`VM_Converter_installation_folder\VMConverter\Client\PowerShell\Fujitsu.VMConverterClient.psd1`

Move to the above folder and execute the Import-Module command.

```
Import-Module .\Fujitsu.VMConverterClient.psd1
```

The syntax of the cmdlet is as follows.

Login to the Source Cloud

```
>Connect-SourceCloud -SourceCloudType String -SourceServer String -SourceServerUserName String -SourceServerPassword String <RETURN>
```

cmdlet Name	Description	Parameters				Output (Return Value)
		Parameter Name	Type	Mandatory	Description	
Connect-SourceCloud	Log in to source cloud system.	SourceCloudType	String	True	Specify the source cloud type. Only "ROR" can be specified.	None
		SourceServer			Specify the server name of the source cloud using its FQDN name or IP address. Only Resource Orchestrator manager servers are supported.	
		SourceServerUserName			Specify the user ID for logon to the source server.	
		SourceServerPassword			Specify the user password for logon to the source server.	

#### Logout from the Source Cloud

```
>Disconnect-SourceCloud -SourceCloudType String <RETURN>
```

cmdlet Name	Description	Parameters				Output (Return Value)
		Parameter Name	Type	Mandatory	Description	
Disconnect-SourceCloud	Logs out from the source cloud system.	SourceCloudType	String	True	Specify the source cloud type. Only "ROR" can be specified.	None

#### Obtain VM list from the Source Cloud

```
>Get-VMList -SourceCloudType String <RETURN>
```

cmdlet Name	Description	Parameters				Output (Return Value)
		Parameter Name	Type	Mandatory	Description	
Get-VMList	Obtains the VM list from the source cloud.	SourceCloudType	String	True	Specify the source cloud type. Only "ROR" can be specified.	Hashtable (VM list) Name: Current folder name Value: VM names (comma separated)

#### Start Export Task

```
>Start-ExportTask -SourceCloudType String [-SourceServer String] -SourceVMName String -SourceServerUserName String [-SourceServerPassword String] -VMHostUserName String -VMHostPassword String -DestinationCloudType String -OutFolderPath String [-Wait switch] <RETURN>
```



cmdlet Name	Description	Parameters				Output (Return Value)
		Parameter Name	Type	Mandatory	Description	
Start-ExportTask	Starts the export task.	SourceCloudType	String	True	Specify the source cloud type. Only "ROR" can be specified.	Task ID (String)
		SourceServer		False	Specification is not necessary if already logged in.  Specify the admin server name of the source cloud using its FQDN name or IP address. Only Resource Orchestrator manager servers are supported.	
		SourceVMName		True	Specify the name of the VM to export (the VM name on the source cloud)	
		SourceServerUserName		False	Specification is not necessary if already logged in.  Specify the user ID for logon to the source server.	
		SourceServerPassword			Specification is not necessary if already logged in.  Specify the user password for logon to the source server.	
		VMHostUserName		True	Specify the user ID for logon to the VM host of the VM to be exported.	
		VMHostPassword			Specify the password for logon to the VM host of the VM to be exported.	
		DestinationCloudType			Specify the destination cloud type. Only "N/A" can be specified.	
		OutFolderPath			Specify the folder used to store the exported files. A local folder or a shared folder on another machine that can be accessed by this tool can be specified.	
		Wait	Switch	False	Specify this if you want to wait until the export task ends.  In general, the command will be returned immediately after the task starts but	

cmdlet Name	Description	Parameters				Output (Return Value)
		Parameter Name	Type	Mandatory	Description	
					specifying this option makes it wait until the task ends.	

### Update Task Status and Display

```
>Update-ConvertTask [-Show] <RETURN>
```

cmdlet Name	Description	Parameters				Output (Return Value)
		Parameter Name	Type	Mandatory	Description	
Update-ConvertTask	Updates the managed task status.  (Updates the task database)	Show	Switch	False	If specified, the updated task status is shown.	None

For the parameters and explanations of each parameter output by the display function for task progress, refer to "[Table 17.18 Parameters Output by the Display Function for Task Progress](#)".

## 17.10.3 Importing

This section explains how to import a virtual L-Server.

The VM converter provides the function for importing virtual L-Servers from the CLI.

The virtual L-Server import function is comprised of the following three functions:

- Import of a virtual hard disk of a virtual machine that was exported from Resource Orchestrator in another environment or an external cloud service, into a VM host.
- Linking of a virtual machine that was imported into a VM host with a virtual L-Server.
- Import of a linked virtual L-Server into the specified L-Platform.

### Note

Targets of virtual L-Server linking and import to L-Platform operations from the CLI using the VM converter are as follow:

- Virtual machines imported using the above import function
- Virtual L-Servers linked with the virtual machine mentioned above

### 17.10.3.1 Preparations for Import Using the VM Converter CLI

#### Installing the VM Converter Agent Program

The virtual machine to be imported must have the VM Converter agent program installed beforehand.

Install the VM Converter agent program before exporting the target virtual machine from the source location.

The installer for the agent program is stored in the installation folder of VM Converter:

*VM\_Converter\_installation\_folder\VMConverter\Agent\x86\TransportAgent.msi*  
*VM\_Converter\_installation\_folder\VMConverter\Agent\x64\TransportAgent.msi*

Select the installer that supports the OS bit mode of the target virtual machine and execute it on the virtual machine to install the agent program.

### Note

The VM Converter agent program must be installed on the virtual machine at the source location.

After the agent program is installed, export the virtual machine.

## Confirmation and Design of a Virtual L-Server, Tenant, and L-Platform

In order to use the three functions provided by VM Converter, confirm or define the following information beforehand:

### Items to Confirm/Define Before Importing a Virtual Machine

- The IP address of vCenter Server that manages the destination VM host (Confirm)
- The login name and password for vCenter Server that manages the destination VM host (Confirm)
- The IP address of the destination VM host (Confirm)
- The name of the datastore on the destination VM host (Confirm)
- The name of the virtual machine in the destination VM host (Define beforehand)
- The disk size of the virtual machine (Define beforehand)
- The disk image format of the virtual machine (Define beforehand)
- The full path to the vmdk file to be imported (Confirm)

### Items to Confirm/Define Before Linking a Virtual Machine with a Virtual L-Server

- The name of the tenant to which the virtual L-Server will be deployed (Confirm)
- The name of the virtual L-Server (Define beforehand)

### Items to Confirm Before Importing a Virtual L-Server into an Existing L-Platform

- The destination L-Platform ID (Confirm)
- The disk image ID to be set for the virtual L-Server (Confirm)
- The name of the tenant to which the virtual L-Server is deployed (Confirm)
- The user name of the tenant administrator of the tenant to which the virtual L-Server is deployed (Confirm)

### Information

The disk image ID to be set for the virtual L-Server can be confirmed on the [Image] tab on the [Template] tab of the ROR console. It can be also confirmed using the `cfmg_listimageinfo` command.

For details on the command, refer to "9.9 `cfmg_listimageinfo` (Displaying Image Information List)" in the "Reference Guide (Command/XML) CE".

## Creation of Definition files of Configuration Information/Unique Information of the Virtual Machine to be Imported

The configuration information (the number of CPUs and memory size) and unique information (NIC count, NIC connection destination, host name, and network information) of the virtual machine to be imported should be specified during the import process. The configuration and unique information of the virtual machine at the migration source is not inherited.

### Creation of a VM Configuration File

Enter the configuration information (the number of CPUs and the memory size) for the virtual machine to be imported in the VM configuration file.

For details on the VM configuration file, refer to "[VM configuration file](#)".

### Creation of a Customization file

Enter the information specific to the virtual machine to be imported (i.e. computer name and network information) in the customization file.

For network information, confirm an IP address which can be allocated from the address pool of Resource Orchestrator beforehand and enter it in this file.

For details on the customization file, refer to "[customization file](#)".

## Editing of the Definition File Required for Linking a Virtual L-Server

To assign the IP address of Resource Orchestrator automatically when linking the imported virtual machine with a virtual L-Server, set "true" for `reserve_ip_address` in the following definition file:

### Location of the Definition File

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

### Definition File Name

```
l_server.rcxprop
```

### Content of the Definition File

```
reserve_ip_address=true
```

For details on definition files, refer to "[17.8.1 Installation](#)".

## 17.10.3.2 Importing Using the VM Converter CLI

The following operations can be performed from the CLI provided by the VM Converter:

- Starting the import of a virtual machine
- Obtaining of import process (task) progress statuses
- Linking of an imported virtual machine with a virtual L-Server
- Importing of a Virtual L-Server into an L-Platform

CLI is provided as the following cmdlet in Windows PowerShell 2.0 or later.

To use cmdlets, it is necessary to import the module manifest file in advance. The PowerShell module manifest file is in the following folder.

```
VM_Converter_installation_folder\VMConverter\Client\PowerShell\Fujitsu.VMConverterClient.psd1
```

Move to the above folder and execute the `Import-Module` command.

```
Import-module .\Fujitsu.VMConverterClient.psd1
```

The syntax of the cmdlet is as follows.

Login to the Destination Cloud

```
> Connect-DestinationCloud -DestinationCloudType String -DestinationServer String -
DestinationServerUserName String -DestinationServerPassword String <RETURN>
```

cmdlet Name	Description	Parameters				Output (Return Value)
		Parameter Name	Type	Mandatory	Description	
Connect-DestinationCloud	Logs in to the destination cloud.	DestinationCloudType	String	True	Specify the destination cloud type. Only "ROR" can be specified.	None
		DestinationServer			Specify the server name of the destination cloud using its FQDN name or IP address. Only Resource Orchestrator admin servers are supported.	
		DestinationServerUserName			Specify the user ID for login to the destination server.	
		DestinationServerPassword			Specify the user password for login to the destination server.	

Logout from the Destination Cloud

```
> Disconnect-DestinationCloud -DestinationCloudType String <RETURN>
```

cmdlet Name	Description	Parameters				Output (Return Value)
		Parameter Name	Type	Mandatory	Description	
Disconnect-DestinationCloud	Logs out from the destination cloud system.	DestinationCloudType	String	True	Specify the destination cloud type. Only "ROR" can be specified.	None

Start Import Task

```
> Start-ImportTask -SourceCloudType String -DestinationCloudType String -
VMManagementServerAddress String -VMHostAddress String -VMHostDatastore String -VMName String
-VMManagementServerUserName String -VMManagementServerPassword String -TargetPath String [-
```

**VMDiskSize** *String* [-**VMDiskFormat** *String*] -**VMConfigFile** *String* -**VMCustomizeFile** *String* [-**Wait Switch**] <RETURN>

cmdlet Name	Description	Parameters				Output (Return Value)
		Parameter Name	Type	Mandatory	Description	
Start-ImportTask	Starts the import task.	SourceCloudType	String	True	Specify the source cloud type. Only "N/A" can be specified.	Task ID (String)
		DestinationCloudType			Specify the destination cloud type. Only "ROR" can be specified.	
		VManagementServerAddress			Specify the IP address of the vCenter server that manages the VM.	
		VMHostAddress			Specify the ESX/ESXi host on which the VM will be stored.  Specify IP address when you register ESX/ESXi in vCenter by IP address. Specify VM host name when you register ESX/ESXi in vCenter by VM host name.	
		VMHostDatastore			Specify the datastore name in the ESX/ESXi host on which the VM will be stored.	
		VMName			Specify the imported VM name (the VM name on the destination VM host).	
		VManagementServerUserName			Specify the user ID for login to the vCenter server.	
		VManagementServerPassword			Specify the user password for login to the vCenter server.	
		TargetPath		Specify the full path name of the vmdk file to be imported.  A path to a local folder or a shared folder on another machine that can be accessed by this tool can be specified.		
VMDiskSize		False	Specify the disk size of the imported VM in GB. (*) Up to one decimal place			

cmdlet Name	Description	Parameters				Output (Return Value)
		Parameter Name	Type	Mandatory	Description	
					can be specified. Necessary when a vmdk file is specified using the TargetPath option.	
		VMDiskFormat			Select one of the following as the disk format of the imported disk: <ul style="list-style-type: none"> <li>- thin  Secures disk space equivalent to the existing data. The file size is increased each time data is written to the free space of the virtual disk.</li> <li>- thickeager  Initially secures file size equivalent to the disk capacity. Any free space is filled with "0".</li> <li>- thicklazy  Initially secures file size equivalent to the disk capacity. When data is written to the free space for the first time, that space is filled with "0". Necessary when a vmdk file is specified using the TargetPath option.</li> </ul>	
		VMConfigFile		True	Specify the full path name of the VM configuration file.	
		VMCustomizeFile		True	Specify the full path name of the customization file.	
		Wait		False	Specify this if you want to wait until the import task ends. In general, the command will be returned immediately after the task starts but specifying this option makes it wait until the task ends.	

\* Note: Specify a disk size larger than the exported VM disk size.

Update Task Status and Display

```
>Update-ConvertTask [-Show] <RETURN>
```

cmdlet Name	Description	Parameters				Output (Return Value)
		Parameter Name	Type	Mandatory	Description	
Update-ConvertTask	Updates the managed task status. (Updates the task management database)	Show	Switch	False	If specified, the updated task status is shown.	None

Start Linking of a Virtual Machine to the L-Server

```
> Start-VMtoLServer -VMName String -TenantName String -LServerName String <RETURN>
```

cmdlet Name	Description	Parameters				Output (Return Value)
		Parameter Name	Type	Mandatory	Description	
Start-VMtoLServer	Starts linking the VM to the L-Server.	VMName	String	True	Specify the VM name imported using Start-ImportTask.	None
		TenantName			Specify the name of the tenant to which the L-Server will be deployed.	
		LServerName			Specify the L-Server name.	

 Note

When the VM host is stopped during execution of this commandlet, linking is completed without the IP address allocated to the virtual L-Server. In that case, use the rxadm lserver modify command to allocate the IP address.

For details, refer to "3.6 rxadm lserver" in the "Reference Guide (Command/XML) CE".

Start Import of a Virtual L-Server into the L-Platform

```
>Start-LServertoLPlatform -DestinationServerUserName String -DestinationServerPassword String -DiscImageId String -TenantAdmin String -TenantName String -LPlatformName String -LServerName String [-LPlatformApiPort String ] <RETURN>
```



cmdlet Name	Description	Parameters				Output (Return Value)
		Parameter Name	Type	Mandatory	Description	
Start-LServertoLPlatform	Starts importing an L-Server to the L-Platform.	DestinationServerUserName	String	True	Specify the user ID for login to the destination server.	None
		DestinationServerPassword			Specify the user password for login to the destination server.	
		DiscImageId			Specify the disc image ID for the L-Server.	
		TenantAdmin			Specify the user name of the tenant administrator of the tenant that was specified when linking to the L-Server.	
		TenantName			Specify the tenant name specified using Start-VMtoLServer.	
		LPlatformName			Specify the destination L-Platform ID.	
		LServerName			Specify the target L-Server name specified using Start-VMtoLServer.	
		LPlatformApiPort	False	Specify the port number where the L-Platform API is running.  If omitted, port number 8014 is used.		

### 17.10.3.3 Definition Files for Importing Using the VM Converter CLI

#### VM configuration file

By specifying a VM configuration file using the VMConfigFile option of the Start-ImportTask cmdlet, it is possible to configure the virtual machine to be imported.

VM configuration files must be created in XML format as in the following example:

Use the UTF-8 character code for this file.

Sample File Name

*VM\_Converter\_installation\_folder\VMConverter\Client\sample\import\_vmconfig.xml*




#### Example

```
<?xml version="1.0" encoding="utf-8"?>
<Config>
  <VmVersion>vmx-08</VmVersion >
```

```

<OSType ovfType="1" vmwType="winNetEnterpriseGuest"/>
<Processor numCPUs="2"/>
<Memory sizeInMB="2048"/>
<DiskController type="lsilogic"/>
<NetworkInterfaces>
  <NicType>E1000</NicType>
  <NetworkInterface>
    <Connection>Virtual Network #1</Connection>
  </NetworkInterface>
  <NetworkInterface>
    <Connection>Virtual Network #2</Connection>
  </NetworkInterface>
</NetworkInterfaces>
</Config>

```

Element	Attributes	Description	Mandatory
Config	-	The root element.	Yes
VmVersion	-	<p>Specify the virtual machine version.</p> <p>[VMware]</p> <p>Check the version of the virtual machine to be imported, then specify the version using the format "vmx-***". (** is a two-digit integer)</p> <p> <b>Example</b></p> <hr/> <ul style="list-style-type: none"> <li>- When the virtual machine version is 7, specify "vmx-07"</li> <li>- When the virtual machine version is 8, specify "vmx-08"</li> <li>- When the virtual machine version is 10, specify "vmx-10"</li> </ul> <hr/> <p>If you are not sure of the virtual machine version, do not specify the VMVersion element. If omitted, it is automatically set by the destination VM host.</p>	No
OSType	ovfType vmwType	<p>Specify the guest OS type.</p> <ul style="list-style-type: none"> <li>- For ovfType, specify "1".</li> <li>- For vmwType, specify the text string appropriate for the OS of the import target VM, referring to "Table 17.19 OS Types of Import Target VM and Strings to Specify".</li> </ul>	Yes
Processor	numCPUs	Specify the total number of CPUs for the virtual machine.	Yes
Memory	sizeInMB	Specify the memory size of the virtual machine in MB.	Yes
DiskController	type	<p>Specify the SCSI controller type. The following values can be specified.</p> <p>lsilogic, buslogic, lsilogicsas, VirtualSCSI</p> <p>If omitted, it is automatically set by the destination host.</p>	No
NetworkInterfaces			Yes
NicType		<p>Specify the NIC type. The following values can be specified.</p> <p>E1000e, E1000, VmxNet3, VmxNet2, PCNet32</p> <p>If omitted, it is automatically set by the destination host.</p>	No
NetworkInterface			Yes
Connection		Specify the name of the virtual network to be connected.	Yes

For elements that are not mandatory, it is necessary to not describe the tags themselves.

Table 17.19 OS Types of Import Target VM and Strings to Specify

OS of the Import Target VM	String to Specify
Windows Server 2003, Standard Edition (32bit)	winNetStandardGuest
Windows Server 2003, Standard Edition (64 bit)	winNetStandard64Guest
Windows Server 2003, Enterprise Edition(32bit)	winNetEnterpriseGuest
Windows Server 2003, Enterprise Edition (64 bit)	winNetEnterprise64Guest
Windows Server 2003, Datacenter Edition(32bit)	winNetDatacenterGuest
Windows Server 2003, Datacenter Edition (64 bit)	winNetDatacenter64Guest
Windows Server 2008 (32bit)	winLonghornGuest
Windows Server 2008 (64bit)	winLonghorn64Guest
Windows Server 2008R2	windows7Server64Guest
Windows Server 2012	windows8Server64Guest
Windows Server 2012 R2	windows8Server64Guest

### Note

Specify a virtual machine version supported by the destination host.

When importing a virtual machine, if a version different from the source virtual machine is specified, the imported virtual machine may not operate correctly.

### customization file

By specifying the customization file using the VMCustomizeFile option of the Start-ImportTask cmdlet, it is possible to configure the unique information when importing a virtual machine.

This file must be specified when importing a vmdk file.

Customization files must be created in XML format as in the following example:

Use the UTF-8 character code for this file.

Sample File Name

*VM\_Converter\_installation\_folder\VMConverter\Client\sample\import\_customize.xml*

### Example

```
<?xml version="1.0" encoding="utf-8"?>
<Customization version="1">
  <ComputerName>comp01</ComputerName>
  <Interfaces>
    <Interface mode="static">
      <Connection>Virtual Network #1</Connection>
      <Name>Business LAN</Name>
      <IPv4Address>10.1.1.4</IPv4Address>
      <IPv4SubnetMask>255.255.255.0</IPv4SubnetMask>
      <IPv4Gateway>10.1.1.1</IPv4Gateway>
      <DNSServer>10.1.2.8</DNSServer>
      <DNSServer>10.1.3.10</DNSServer>
    </Interface>
  </Interfaces>
</Customization>
```

```

</Interface>
<Interface mode="static">
  <Connection>Virtual Network #2</Connection>
  <Name>Management LAN</Name>
  <IPv4Address>192.168.10.24</IPv4Address>
  <IPv4SubnetMask>255.255.255.0</IPv4SubnetMask>
  <IPv4Gateway>192.168.10.1</IPv4Gateway>
</Interface>
</Interfaces>
</Customization>

```

Element	Parent Element	Value	Mandatory
Customization	-	The root element. version: Specify "1" (fixed value).	Yes
ComputerName	Customization	Specify the computer name. If omitted, no modification is made.	No
Interfaces	Customization	The list of NIC settings.	Yes
Interface	Interfaces	Configure for each NIC. Mode: Specify "static".	Yes
Connection	Interface	Specify which virtual network is connected to the target. It must match the element with the same name as the VM configuration file.	Yes
Name	Interface	Specify the network connection name. If omitted, the network connection name is automatically set by the OS.	No
IPv4Address	Interface	Specify the IPv4 address. Specify an IP address that can be allocated from the address pool of the Resource Orchestrator manager.	Yes
IPv4SubnetMask	Interface	Specify the IPv4 subnet mask. Confirm and specify the address pool of the Resource Orchestrator manager.	Yes
IPv4Gateway	Interface	Specify the IPv4 default gateway address. Confirm and specify the address pool of the Resource Orchestrator manager.	Yes
DNSServer	Interface	Specify the address of the DNS server.	No

For elements that are not mandatory, it is necessary to not describe the tags themselves.

## VM Migration Engine Configuration File

When executing the Start-ImportTask cmdlet, it is possible to modify the operations performed during import of virtual machines using the VM migration engine configuration file. If this file does not exist, the default operation is performed.

VM migration engine configuration files must be created in XML format as in the following example:

Use the UTF-8 character code for this file.

File name

*VM\_Converter\_installation\_folder\VMConverter\Engine\TransporterConfig.xml*



### Example

```

<?xml version="1.0" encoding="utf-8"?>
<configuration>
  <timeout>

```

```

    <WebService>100</WebService>
    <FindNic>300</FindNic>
    <InitSys>180</InitSys>
  </timeout>
</configuration>

```

Element	Description	Mandatory	Default Value (Seconds)
configuration	The root element.	Yes	-
timeout		-	
WebService	Specify the timeout value (in seconds) of the internal import process (Web service).  When "thickeager" is specified for the VMDiskFormat option, the import process may time out depending on the performance of the destination host.  In that case, set a larger value for WebService.	-	100
FindNic	Specify how long the agent program should wait for completion of NIC initialization in the imported virtual machine, using seconds for the value.  When a NIC is added or changed using the VM configuration file, it may take longer for the operating system to initialize NICs and setting of the values specified in individual configuration information files may fail.  In that case, set a larger value for FindNic.	-	300
InitSys	Specify how long the agent program should wait for completion of system initialization of the imported virtual machine, using seconds for the value.  When configuring NICs using individual configuration information files, configuration may not be performed correctly due to a conflict of this configuration process and the VMware Tools configuration process, depending on the timing.  If the NIC information from before migration remains on the virtual machine even after import is completed, change the InitSys value to a larger value before performing another import operation.	-	180

## 17.10.4 Advisory Notes Regarding Use of the VM Converter

- When using multiple instances of the GUI or CLI (PowerShell) and checking the progress of export or import tasks, it is necessary to start all processes using the same authority. If administrator authority and another authority are used, the tasks started with the other authority may be aborted.
- The task progress display function can display up to the last 20 export/import tasks.
- When performing export or import operations from the cmdlet, such operations are continued even when a cancel operation (such as pressing Ctrl + C or clicking the "x" button of the PowerShell window) is performed during the operation, because such operations are registered as tasks in the manager or host on the migration source and destination.  
For this reason, if the virtual machines and virtual L-Servers created by the operation are not necessary, wait for the operation to finish before deleting them.  
For details on the deletion procedure, refer to the manuals for Resource Orchestrator and the VM management software.

# Chapter 18 Linking L-Servers with Configured Physical Servers or Virtual Machines

This chapter explains how to link a configured physical server to a physical L-Server and how to link a configured virtual machine to a virtual L-Server.

## Information

It is possible to import L-Servers into the L-Platform management function.

For details, refer to "7.2.3 Importing to L-Platform" in the "Operation Guide CE".

## 18.1 Management Scope

The management scope varies depending on the resources used by the configured physical server or virtual machine.

After linking with L-Servers, resources such as servers, virtual machines, or disks can be operated using the L-Servers.

Depending on the resources which can be operated, L-Servers are referred to differently as follows:

### - L-Server for Server Operation

Refers to L-Servers that operate only servers.

#### - For Physical Servers

This applies when using the hardware listed in "[18.3.1 Manageable Hardware](#)".

#### - For Virtual Machines

This applies when using a physical server and when using server virtualization software.

- The hardware listed in "[18.3.1 Manageable Hardware](#)" and "[18.3.3 Manageable Storage](#)"

- The server virtualization software described in "[18.3.4 When Using Server Virtualization Software](#)"

### - L-Server for Server/Storage Operation

Refers to L-Servers that operate servers and disks.

#### - For Physical Servers

When linking a configured physical server to a physical L-Server, only "L-Server for Server Operation" is supported. "L-Server for Server/Storage Operation" cannot be created.

#### - For Virtual Machines

This applies when using a physical server and when using server virtualization software.

- The hardware listed in "[18.3.1 Manageable Hardware](#)" and "[18.3.3 Manageable Storage](#)"

- The server virtualization software described in "[18.3.4 When Using Server Virtualization Software](#)"

[Solaris Zones (Solaris 10)] [OVM for SPARC]

L-Servers linked with a virtual machine on a VM host not managed with server management software only support "L-Server for Server Operation".

## Note

- When disk and NIC information is successfully obtained from the configured physical server or virtual machine, that information is displayed. The output information for NICs differs depending on the L-Server type.

#### - For Physical L-Servers

- MAC address

- IP address (only for admin LAN)
- For Virtual L-Servers
  - MAC address (Media Access Control address)
  - IP address

There are preconditions for displaying IP addresses.

For details, refer to "[18.4.1 Preparations](#)".

- When admin server has been configured on a virtual machine, do not link that virtual machine to an L-Server.
- Configured physical servers with UMC enabled cannot be correctly linked with L-Servers. Disable UMC before performing server registration.

## 18.2 Available Range

The functional range available when a configured physical server or virtual machine is linked to an L-Server is as follows:

For the operation method for each function, refer to "[Chapter 17 L-Server Operations](#)".



### Note

The range of available functions differs according to the role of the user and user group who operate it. For details on roles and available operations, refer to "5.1.2 Roles and Available Operations" in the "Design Guide CE".

When a configured physical server or virtual machine is linked to an L-Server using infrastructure administrator privileges, it is created as a normal L-Server. Create a new L-Server when you want to create an L-Server for infrastructure administrators.

Table 18.1 Functional Range Available When Using a Configured Physical Server as an L-Server

L-Server Function	Type of L-Server		
	Physical Server Using VIOM	Physical Server Using HBA address rename	Other Physical Servers
Starting	Yes	Yes	Yes
Stopping	Yes	Yes	Yes
Restarting	Yes	Yes	Yes
Modifying specifications	Yes (*1)	Yes (*1)	Yes (*1)
Modifying the basic information	Yes	Yes	Yes
Collecting cloning images	Yes	Yes	No
Backup and Restore	Yes	Yes	No
Attaching and detaching disks	No	No	No
Sharing disks between L-Servers	No	No	No
Changing physical server usage	No	No	No
Server redundancy	Yes (*2)	Yes (*2)	No
Spare server configuration checks	Yes	No	No
Alive monitoring (ping monitoring)	Yes (*3)	Yes (*3)	No
Deploying the network information	No	No	No
Admin LAN multiple subnet names	Yes	Yes	Yes
Network redundancy, tagVLAN	No	No	No

L-Server Function	Type of L-Server		
	Physical Server Using VIOM	Physical Server Using HBA address rename	Other Physical Servers
Modifying network resource settings	No	No	No
Starting the console	Yes	Yes	No
Batch power operations	Yes	Yes	Yes
PXE boot	No	No	No
iSCSI boot	No	No	No
Allocating and releasing resources	No	No	No
Blade chassis high availability	No	No	No
Storage chassis high availability	No	No	No
Disaster Recovery	No	No	No
Deletion	Yes	Yes	Yes
Releasing an L-Server	Yes	Yes	Yes

\*1: The following items can be modified.

- Server redundancy, spare server selection methods, and spare server pools
- Startup priority

\*2: Configured physical servers for which server switchover has been already set cannot be managed. Enable server redundancy by modifying specifications.

\*3: The settings of ping monitoring for physical servers are inherited. However, settings for ping monitoring cannot be configured using XML or the GUI as a physical L-Server.

Table 18.2 Functional Range Available When Using a Configured Virtual Machine as an L-Server

L-Server Function	Type of L-Server	
	L-Server for Server Operation (*1, *2)	L-Server for Server/Storage Operation
Starting	Yes	Yes
Stopping	Yes	Yes
Restarting	Yes	Yes
Migration of L-Servers between servers (migration)	Yes (*3)	Yes (*3)
Modifying specifications	Yes (*4)	Yes (*4)
Modifying the basic information	Yes	Yes
Collecting cloning images	Yes (*5, *6, *7, *8)	Yes (*5, *6, *7, *8)
Attaching and detaching disks	No	Yes (*9, *10)
Increasing disk capacity	No	Yes (*5, *7, *11, *12)
Sharing disks between L-Servers (*13)	No	No
Snapshot collection and restoration	Yes (*5, *7, *12)	Yes (*5, *7, *12)
Allocating and releasing resources	Yes	Yes



L-Server Function	Type of L-Server	
	L-Server for Server Operation (*1, *2)	L-Server for Server/Storage Operation
Starting the console	Yes (*5, *7, *11, *12)	Yes (*5, *7, *11, *12)
Batch power operations	Yes	Yes
Disaster Recovery	Yes	Yes
Deleting an L-Server	Yes (*9)	Yes (*9)
Releasing an L-Server	Yes	Yes

\*1: For the following cases, it will be the L-Server for server operation.

- When disk configurations cannot be supported by an L-Server
- When only Raw Device Mapping (RDM), a pass-through disk(Pass-through Disk), and a difference disk are included
- When a configuration including device paths which are not described, Raw Device Mapping(RDM), a path through disk (Pass-through Disk), or difference disks are included
- When the non-global zone of Solaris containers is not managed using BMC BladeLogic Server Automation [Solaris Zones (Solaris 10)]
- When the virtual machine of OVM for SPARC is not managed using BMC Blade Logic Server Automation [OVM for SPARC]

For the following cases, it will be the L-Server for server and storage operation.

- When using storage listed in "[18.3.3 Manageable Storage](#)", and the device paths or identifier information for all disks that have been allocated to the virtual machine are found in the following list

[VMware]

- SCSI:0:1 - SCSI:0:6
- SCSI:0:8 - SCSI:0:14
- SCSI:1:0 - SCSI:1:6
- SCSI:1:8 - SCSI:1:14
- SCSI:2:0 - SCSI:2:6
- SCSI:2:8 - SCSI:2:14
- SCSI:3:0 - SCSI:3:6
- SCSI:3:8 - SCSI:3:14

For virtual machines on VM host of VMware which is not managed by VM management software, power operations (starting, stopping or restarting) and modification of basic information (label/comment configurations) can be performed.

[Hyper-V]

- SCSI:0:1 - SCSI:0:14
- SCSI:1:0 - SCSI:1:14
- SCSI:2:0 - SCSI:2:14
- SCSI:3:0 - SCSI:3:14

[OVM for SPARC]

- 1 - 63

[Citrix Xen]

- 1, 4 - 15

[Solaris Zones (Solaris 11)]

- /rcx/disk001 - /rcx/disk063

[OVM for x86 3.x]

- When HVM (Hardware Virtualized Machine) is used: 2 - 3
- When PVM (Para-Virtualized Machine) is used: 2 - 103
- When PVHVM (Para-Virtualized Hardware Virtual Machine) is used: 2 - 106

\*2: In the following cases, only power control (starting, stopping, and restarting) of L-Servers is possible from the ROR console.

- When the non-global zone of Solaris Zones (Solaris 10) is not managed using BMC BladeLogic Server Automation
- When the virtual machine of OVM for SPARC is not managed using BMC Blade Logic Server Automation

\*3: Datastores must be installed on shared disks, or disk resources must be shared between VM hosts.

\*4: When CPU performance and memory size have been specified, the settings cannot be changed into "Unlimited".

\*5: Solaris Zones are not supported.

\*6: For a system disk, use the following device path or identification information:

[VMware]

SCSI:0:0

When the virtual machine linked to the target L-Server includes Raw Device Mapping (RDM) disks, the target disks are treated as virtual disks and the image will be collected.

[Hyper-V]

IDE:0:0

When the virtual machine lined to the target L-Server includes Pass-through Disks, images cannot be collected.

When the virtual machine linked to the target L-Server includes difference disks, the image will be collected with the difference disks included.

[Citrix Xen] [OVM for x86 3.x]

0

When the information given above is not used for the system disk, the L-Server creation process that accompanies cloning image deployment may fail. For Hyper-V, datastore must be installed on a shared disk.

\*7: OVM for SPARC is not supported.

\*8: Collecting a cloning image from a virtual machine that is not highly available is not supported in Hyper-V environments.

\*9: Operation of OVM for SPARC L-Servers that share a disk with another L-Server and shared disks is not possible.

\*10: Solaris Zones (Solaris 10) are not supported. Detaching of disks in Solaris Zones (Solaris 11) is not supported.

\*11: Citrix Xen is not supported.

\*12: OVM for x86 3.x is not supported.

\*13: Cannot set with this product. Set up the disk to share, on the VM host.

## 18.3 Prerequisites

---

When linking a configured physical server to a physical L-Server, or when linking a configured virtual machine to a virtual L-Server, the available management scope varies depending on the configured hardware and software environments.

### 18.3.1 Manageable Hardware

---

When using the hardware listed in "Table-Required Hardware Conditions for Agents" in "6.2.1 All Editions" in the "Overview", only servers can be managed.

### 18.3.2 Manageable Servers

---

#### For Physical Servers

- Connected with a SAN.
- Has 2 HBA ports on the server.
- An agent has been registered.



## Note

- When not using VIOM or HBA address rename, disk information of connected SAN disks is not displayed.
- When using physical L-Servers linked with physical servers, server switchover cannot be performed.

### 18.3.3 Manageable Storage

---

Manageable storage differs depending on whether a physical server or a virtual machine is used.

#### For Physical Servers

When using the hardware listed in "Table-Required Hardware Conditions for Agents" in "6.2.1 All Editions" in the "Overview" and in the following cases, servers and storage can be managed. In other cases, only servers can be managed. EMC storage and Storage Servers running FalconStor NSS cannot be managed.

- When using the ETERNUS storage or NetApp storage listed in "Table-Storage Units that can be Connected with L-Servers on Physical Servers" in "6.2.3 Cloud Edition" in the "Overview"
- When using "Table-Fibre Channel Switches which can be used when Connecting Storage Units with L-Servers on Physical Servers" in "6.2.3 Cloud Edition" in the "Overview"
- When storage units are managed using the storage management software listed in "6.1.2.4 Required Software" in the "Overview"
- When one AffinityGroup is operated for one physical server
- The HBA port for the physical server must be the same as the HBA port that is configured in storage and is accessible to LUNs using that physical server.

#### For Virtual Machines

Settings differ according to the server virtualization software being used.

Disks shared between two or more VM hosts cannot be managed with Resource Orchestrator.

In the following cases, both servers and storage can be managed.

[VMware]

- Virtual machines are managed using VMware and vCenter Server
- Datastores are used, and the datastores are displayed in the storage tree as virtual storage
- SAN storage or NAS storage supported by VMware, excluding built-in disks on the server and iSCSI storage, is used
- The following device paths are used for data disks
  - SCSI:0:1 - SCSI:0:6
  - SCSI:0:8 - SCSI:0:14
  - SCSI:1:0 - SCSI:1:6
  - SCSI:1:8 - SCSI:1:14
  - SCSI:2:0 - SCSI:2:6
  - SCSI:2:8 - SCSI:2:14
  - SCSI:3:0 - SCSI:3:6
  - SCSI:3:8 - SCSI:3:14

## Note

When using Raw Device Mapping, or when using a device path other than those listed above, only servers can be managed.

For disks using any other device path, assign 56 or higher as the disk number.

When collecting a cloning image for deploying an L-Server, use SCSI:0:0 for the system disk.

### [Hyper-V]

- Virtual machines are managed using SCVMM
- MSFC has been added to VM hosts
- Cluster disks are configured as shared cluster volumes, and the shared volumes are displayed in the storage tree as virtual storage
- A SAN volume has been configured as a cluster disk
- SAN storage supported by Hyper-V, excluding built-in disks on the server and iSCSI storage, is used
- The following device paths are used for data disks
  - SCSI:0:1 - SCSI:0:14
  - SCSI:1:0 - SCSI:1:14
  - SCSI:2:0 - SCSI:2:14
  - SCSI:3:0 - SCSI:3:14

## Note

When using pass-through devices or difference disks, or when using a device path other than those listed above, only servers can be managed.

For disks using any other device path, assign 60 or higher as the disk number.

When collecting a cloning image for deploying an L-Server, use IDE:0:0 for the system disk.

Collecting a cloning image from a virtual machine that is not highly available is not supported.

### [Solaris Zones (Solaris 11)]

- The following device paths or identifier information are used for data disks
  - /rcx/disk001 - /rcx/disk063

### [OVM for SPARC]

- The following device paths or identifier information are used for data disks
  - 1 - 63

### [Citrix Xen]

- The storage repository is used and the storage repository is displayed on the storage tree as virtual storage.
- The following device paths or identifier information are used for data disks
  - 1, 4 - 15

## Note

When collecting a cloning image for deploying an L-Server, use 0 for the system disk.

### [OVM for x86 3.x]

- The storage repository is used and the storage repository is displayed on the storage tree as virtual storage.

- The following device paths or identifier information are used for data disks
  - When HVM (Hardware Virtualized Machine) is used: 2-3
  - When PVM (Para-Virtualized Machine) is used: 2-103
  - When PVHVM (Para-Virtualized Hardware Virtual Machine) is used: 2 - 106

### Note

When collecting a cloning image for deploying an L-Server, use 0 for the system disk.

### Note

Disks which are created in virtual storage which is not registered in the storage pool can also be operated. When managing the amount of resources in the virtual storage, register the virtual storage in the storage pool.

## 18.3.4 When Using Server Virtualization Software

Virtual machines of server virtualization software supported by Resource Orchestrator can be managed as virtual L-Servers in the following cases:

- When the virtual machine is managed by VM management software
- When a Solaris zone is used
- When OVM for SPARC is used.

For the server virtualization software supported by Resource Orchestrator, refer to "6.1.2.1 Required Basic Software" and "6.1.2.4 Required Software" in the "Overview".

Server virtualization software supported by this function is as follows:

- VMware
- Hyper-V
- Solaris Zones
- OVM for SPARC
- Citrix Xen
- OVM for x86 3.x

### Note

If the software in "6.1.2.4 Required Software" in the "Overview" is not installed, a new L-Server cannot be deployed on that VM host.

[VMware]

When using VMware, a virtual machine on a VM host which is not managed with VM management software can be linked to an L-Server. Power operations (starting up, stopping, and restarting) and modification of basic information (label/comments) can be performed for the L-Server.

[Hyper-V]

When using Hyper-V, a virtual machine on a VM host which is not managed with VM management software cannot be linked to an L-Server.

[Citrix Xen]

When using Citrix Xen, a virtual machine with no Home Server set cannot be linked to an L-Server.

[OVM for x86 3.x]

When using OVM for x86 3.x, links between a virtual machine and the L-Server on a VM host not managed with the VM management software is not supported.

---

## 18.4 Installation

---

This section explains the installation method to link a configured physical server to a physical L-Server, and the installation method to link a configured virtual machine to a virtual L-Server.

### 18.4.1 Preparations

---

#### Preparations

- Physical L-Server

For details, refer to the procedure in "D.2 Preparations for Servers" in the "Design Guide CE".

- Virtual L-Server

For details, refer to the procedure for each VM type in "Appendix E Preparations for Creating a Virtual L-Server" in the "Design Guide CE".



#### Point

---

When it meets all of the following conditions, an IP address that has been allocated in a virtual machine can be imported to L-Server.

1. The virtualization software is VMware.
2. The power status of the virtual machine is "ON".
3. VMware Tools is operating on the virtual machine and it detects its IP address.

Confirm the following on the virtualization software (vSphere Client).

- That the [VMware Tools] label on the [Summary] tab shows [OK]
- That the [IP Addresses] label on the [Summary] tab shows an IP address configured for the virtual machine

4. Only an IPv4 address is set for the NIC on the guest OS of a virtual machine.

Check that an IPv6 address has not been set.



#### Note

---

Note that if you add a NIC from the OS, an IPv6 address might be allocated automatically.

---

5. Resource Orchestrator detects the virtual machine

After the virtual machine is powered on, wait for six minutes.

6. The network resource meets all of the following conditions

- The network resource has been registered in a resource pool that the user can access.
- The IP address allocated to the virtual machine is included within the range of IP addresses of the network resource.
- The VLAN ID of the virtual machine is the same as that of the L-Server.
- Multiple network resources with same subnet address are not registered with different VLAN IDs.
- In environments where VLAN IDs cannot be acquired from virtual machines, only one network resource including the range of IP addresses allocated to a virtual machine is registered in an accessible resource pool.

In this case, ensure that there are not multiple network resources with the same range of IP addresses.

## Note

By Resource Orchestrator, when vSphere Distributed Switch (vDS) is used, VLAN IDs cannot be acquired from virtual machines. For details on the setup of vDS, refer to "E.1.4 Network Preparations" in the "Design Guide CE" and the manual of virtual software.

### 7. The VM host's network information has been updated.

On the virtual software (vSphere Client), network information is updated using the following procedure. This should be done for all the VM hosts.

- a. Click the [Hosts and Clusters] in the Inventory of category on the vSphere Client.
- b. Select the VM host to update the information for.
- c. Click the [Configuration] tab.
- d. Click the [Networking] link on the [Hardware] in the left side of the pane.
- e. Click the [Refresh] link on the top side of the pane and confirm to finish the update task

### 8. Reflect the current status of the VM management software on Resource Orchestrator

Execute the following command on the admin server.

[Windows Manager]

```
>Installation_folder\SVROR\Manager\bin\rxadm vmmgr refresh <RETURN>
```

[Linux Manager]

```
# /opt/FJSVrcvmr/bin/rxadm vmmgr refresh <RETURN>
```

## Setup

Register the resources of configured physical servers and VM hosts to Resource Orchestrator.

- When linking configured physical servers with physical L-Servers

When linking a configured physical server to an L-Server, perform the following procedure:

#### 1. Register Resources

- a. Register Storage Management Software
- b. Register Managed Servers

#### 2. Register Resources in Resource Pools

- a. Register physical server resources in a server pool.  
In the [Register Resources] dialog for the server pool, check the [Display servers with OS installed] checkbox and specify a physical server with an OS installed.
- b. Register the disks that are connected to the physical server to be linked with the L-Server in a storage pool.
- c. Register address set resources.  
Specify the scope including MAC/WWN addresses being used by the configured physical server.
- d. Register network resources.  
Specify the subnet address and subnet mask that includes the IP address used by the physical server to be linked with the L-Server.  
For details, refer to "14.3 Network Resources" and "14.3.1 Creating New Network Resources".

 **Note**

Do not include the IP address planned to be used by the L-Server to be linked with a physical server in [Exclusion IP range]. If such an IP address is included, it will not be imported.

- When linking configured virtual machines with virtual L-Servers

When linking a configured virtual machine to an L-Server, perform the following procedure:

1. Register Resources

- a. Register VM Management Software
- b. Register Managed Servers

2. Register Resources in Resource Pools

- a. Register VM host resources in a VM pool.

The overcommit attribute of the VM pool where the VM host is registered is set to L-Server.  
For details on creating a VM pool for overcommit, refer to "[Chapter 20 Resource Pool Operations](#)".

- b. Register the virtual storage and disks that are used for a virtual machine to be linked with the L-Server in a storage pool.

[Solaris Zones (Solaris 10)] [OVM for SPARC]

When a VM host not managed with server management software is used, it is not necessary to register virtual storage and disk resources.

- c. Register network resources.

Specify the subnet address and subnet mask that includes the IP address used by the virtual machine to be linked with the L-Server.

For details, refer to "[14.3 Network Resources](#)" and "[14.3.1 Creating New Network Resources](#)".

 **Note**

**When importing the IP address assigned to the virtual machine to an L-Server [VMware]**

Do not include the IP address planned to be used by the L-Server to be linked with a virtual machine in [Exclusion IP range]. If such an IP address is included, it will not be imported.

3. Management of an allocated IP address

Perform this when you import the IP address allocated to the virtual machine to an L-Server.

Refer to the "Point" of "[Preparations](#)" and check that the prerequisites are met.

For details on setup of management of an allocated IP address, refer to "[Table 17.17 List of Items Specified in the Definition File](#)" of "[17.8.1 Installation](#)".

 **Note**

When the virtual storage and disk resources that are used for a virtual machine to be linked with the L-Server are not registered in a storage pool, the amount of resources cannot be managed in the storage pool. However, the amount of resources can be linked with virtual L-Servers. Disks created on the virtual storage can be operated by the virtual L-Server.

## Confirmation

Perform the procedure described in "[18.4.2 For Physical Servers](#)" or "[18.4.3 For Virtual Machines](#)", and confirm the configured physical server or virtual machine linked to an L-Server, using the following procedure:



- Confirmation from the GUI

Select the L-Server in the orchestration tree, display the [Resource Details] tab, and check the information is displayed in [Controlled resources] on the [Status] table.

In [Controlled resources], the following text strings are displayed.

- When [Server] is displayed
  - Physical L-Server
  - A virtual L-Server that can operate a server
- When [Server,Storage] is displayed
  - A virtual L-Server that can operate a server or storage
- When [Server,Storage,Network] is displayed
  - A virtual L-Server with an IP address managed using Resource Orchestrator that can operate a server or storage

- Confirmation from the Command Line

Execute the `rcxadm lserver show` command and check that the scope of the controlled resources (ControlledResources) is displayed.

For details, refer to "3.6 rcxadm lserver" in the "Reference Guide (Command/XML) CE".

For the scope of controlled resources, the following text strings are displayed.

- When [Server] is displayed
  - Physical L-Server
  - A virtual L-Server that can operate a server
- When [Server,Storage] is displayed
  - A virtual L-Server that can operate a server or storage
- When [Server,Storage,Network] is displayed
  - A virtual L-Server with an IP address managed using Resource Orchestrator that can operate a server or storage

## 18.4.2 For Physical Servers

---

Use the following procedure to use a physical server as a physical L-Server:

1. When importing an L-Server into an L-Platform in an environment where an admin LAN with multiple subnets has been configured, before linking to the L-Server, create an admin LAN network resource with the subnet addresses including the IP address of the admin LAN for the physical server.
2. In the ROR console orchestration tree, right-click a physical server in the registered server pool, and select [Convert to L-Server] from the popup menu.

The [Convert to L-Server] dialog is displayed.

3. Enter the following items:

### L-Server Name

Enter a name for the L-Server.

When the physical server name starts with an alphanumeric character (upper or lower case) and consists of 64 or less characters, including alphanumeric characters (upper or lower case), underscores ("\_"), or hyphens ("-"), the physical server name is displayed as the default L-Server name.

Enter up to 64 characters beginning with an alphanumeric character (upper or lower case), and including alphanumeric characters (upper or lower case), underscores ("\_"), or hyphens ("-").

### Destination folder

Select a resource folder or a tenant to store L-Servers.

If omitted, the L-Server is stored in the root folder of the user that executed the operation.

#### Label (Optional)

Enter a label for the L-Server.

Enter a maximum of 32 characters.

#### Comment (Optional)

Enter any comments for the L-Server.

Enter a maximum of 256 characters.

4. Click the [OK] button.

The physical server becomes manageable as a physical L-Server.

From the command-line, execute `rcxadm lserver convert`.

For details on the `rcxadm lserver convert` command, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".

## 18.4.3 For Virtual Machines

---

Use the following procedure to use a virtual machine as a virtual L-Server:

1. In the ROR console orchestration tree, right-click a VM host in the registered VM pool, and select [Convert to L-Server] from the popup menu.

The [Convert to L-Server] dialog is displayed.

2. Enter the following items:

#### Batch Folder Settings (optional)

Select a resource folder or a tenant to store L-Servers.

If omitted, the L-Server is stored in the root folder of the user that executed linking between the virtual machine and the L-Server.

#### VM guests

Displays virtual machines that were created on the specified VM host, that have not been linked to L-Servers. In addition to the virtual machine name, the OS type, L-Server name, and destination folder are displayed.

When the virtual machine name starts with an alphanumeric character (upper or lower case) and consists of 64 or less characters, including alphanumeric characters (upper or lower case), underscores ("\_"), hyphens ("-"), or periods("."), the virtual machine name is displayed as the default L-Server name.

Select a virtual machine to use as a virtual L-Server.

To use all virtual machines registered on the specified VM host, click the [Select all] button.

#### Details (optional)

Set the L-Server name, label, comment, and destination folder.

Clicking the [Details] button displays the [VM Guest Setting] dialog.

For the information that can be specified for each item, refer to "[18.4.2 For Physical Servers](#)".

For the L-Server name, enter up to 64 characters beginning with an alphabetical character (upper or lower case), and including alphanumeric characters (upper or lower case), underscores ("\_"), periods("."), and hyphens ("-").

Enter the desired items and click [OK] to reflect the settings on the items displayed in the VM guest list.

3. Click the [OK] button.

The virtual machine becomes manageable as a virtual L-Server.

#### [VMware]

When the function to import an IP address allocated to a virtual machine is enabled, check that the IP address is displayed in the network information on the L-Server.

[VMware] [Hyper-V]

When an IP address is not displayed, an IP address can be set using the `rcxadm lserver modify` command.

For details on the `rcxadm lserver modify` command, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".

From the command-line, execute `rcxadm lserver convert`.

For details on the `rcxadm lserver convert` command, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".

## Note

When operating an admin server on a virtual machine on VMware or Hyper-V environment, do not link that virtual machine to an L-Server.

VMware FT secondary virtual machines cannot be linked with L-Servers.

For a virtual L-Server linked with a configured virtual machine, a hyphen ("-") is displayed for [Usage] in the [Disk Information] displayed on the [Resource Details] tab on the ROR console.

[VMware]

When the limit values of CPU/memory of a virtual machine linked with an L-Server have been set to "Unlimited", different methods are used for calculating the number of possible L-Servers and modifying L-Server specifications.

For details on the calculation method, refer to "[Max. Number of Possible L-Servers View](#)" in "[20.6 Viewing](#)".

For details on modifying specifications, refer to "[18.5 Changing Configuration](#)".

[Hyper-V]

When a virtual machine with a network adapter that has never been started before is linked with an L-Server, the MAC address the L-Server uses on the network might be set to "00:00:00:00:00:00". In that case, cancel the link between the virtual machine and L-Server and assign a static MAC address to that virtual machine using VM management software, or start the virtual machine, wait for 3 minutes, and then create the link with the L-Server.

[Solaris Zones]

- When the cap values of CPU/memory of a virtual machine linked with an L-Server have not been specified, a different method is used for calculating the number of possible L-Servers.  
For details on the calculation method, refer to "[Max. Number of Possible L-Servers View](#)" in "[20.6 Viewing](#)".
- When importing a Solaris Zone related to an L-Server into L-Platform management functions, it is necessary to add NIC information to the L-Server. Create a network resource if necessary, and then add NIC information.

Confirm the information of the VLAN and subnet of the network to which the NIC of the VM guest is to be imported. If the network resource corresponding to the combination of the VLAN and subnet already exists, there is no need to create a new network resource.

Otherwise, create a new network resource using the following procedure.

- a. In the ROR console orchestration tree, right-click the target network pool, and select [Create Network Resource].

When creating a new resource, select [New].

When creating a network resource using an already registered admin LAN subnet, select [Using existing admin subnet].

The [Create a network resource] dialog is displayed.

- b. Enter the necessary items to create the network resource.

- VLAN ID

When using a VLAN, enter its value. Otherwise, specify an arbitrary LAN which is not and will not be used by other existing network resources.

- Uplink port

Do not specify anything.

- Detail configuration

Do not configure anything.

For details on how to add NIC information to L-Servers, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".

[OVM for SPARC]

- For details on the CPU performance and the number of CPUs, refer to "Display of CPU Performance and the Number of CPUs for L-Servers" in "8.8.8 Advisory Notes for OVM for SPARC Usage" in the "Setup Guide CE".
- When importing an L-Server into L-Platform management functions, it is necessary to add NIC information to the L-Server. Create a network resource if necessary, and then add NIC information.
- When Solaris zones are constructed on the guest domain and the guest domain is registered as a VM host, virtual L-Servers linked with the guest domain cannot be imported to the L-Platform.
- The administrator (supervisor or dual-role administrators) who manages the entire system needs to manage the virtual L-Server which created the Solaris zone on the guest domain.
- Configurations which share a disk between multiple L-Servers cannot be performed using this product. Set up the disk to share, on the VM host.

[Citrix Xen]

When the CPU performance of the L-Server converted from a configured virtual machine on XenCenter is a hyphen ("-"), different methods are used for calculating the number of possible L-Servers.

For details on the calculation method, refer to "[Max. Number of Possible L-Servers View](#)" in "[20.6 Viewing](#)".

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## 18.5 Changing Configuration

This section explains how to change configurations of L-Servers linked to configured physical servers or virtual machines.

For details on configuration changes, refer to "[Chapter 7 Changing Resources](#)".

From the command-line, execute `rcxadm lserver modify`.

For details on the `rcxadm lserver modify` command, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".



### Note

Disks cannot be attached to or detached from L-Servers which cannot operate storage, nor can the disk capacity be increased.

In the following cases, the configuration of L-Servers cannot be changed.

- When the non-global zone of Solaris Zones (Solaris 10) or virtual machine of OVM for SPARC is not managed using BMC BladeLogic Server Automation

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## 18.6 Releasing an L-Server

This section explains how to revert the link between an L-Server and a configured physical server or virtual machine.

Use the following procedure to release the link to an L-Server.

1. Right-click the target L-Server in the orchestration tree, and select [Revert] from the popup menu.

The confirmation dialog is displayed.

2. Click the [OK] button.

The link between the L-Server and the configured physical server or virtual machine can be reverted.

From the command-line, execute `rcxadm lserver revert`.

For details on the `rcxadm lserver revert` command, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".

However, for L-Servers created using Resource Orchestrator, the link between the L-Server and a physical server or virtual machine cannot be reverted.

# Chapter 19 Resource Operations

This chapter explains how to perform resource operations with resource pools.

## 19.1 Registration

Use the following procedure to register a resource to a resource pool:

1. Right-click the target resource pool in the orchestration tree, and select [Register Resources] from the popup menu.  
The [Register Resources] dialog is displayed.
2. When a resource to register is a disk resource, click the [Search] button in the search condition area. The resources displayed in "Resource List" can be filtered by entering the virtual storage, size, and resource name and clicking the [Search] button.
3. Select the resource to register from the "Resource List".
4. Click the [OK] button.  
The resources are registered in the resource pool.



### Note

- When registering resources, directories and files that are necessary for performance monitoring are created on the server where the resources are registered. Refer to "8.6.9 Advisory Notes for RHEL-KVM Usage" in the "Setup Guide CE" for details.
- Virtual storage resources with Thin Provisioning attributes cannot be registered to storage pools for which Thin Provisioning attributes are not configured.
- Virtual storage resources with Thick Provisioning attributes cannot be registered to storage pools for which Thin Provisioning attributes are configured.
- Consider the following points, when registering an IPCOM VA in a network pool.
  - Converged Fabric must be registered with the manager.
  - It is necessary to register the information of links between IPCOM VA and IPCOM VX and the information of links between IPCOM VX and Converged Fabric.  
For details on how to register the link information, refer to "9.4.8.1 When Creating Network Configuration Information (XML Definition)" in the "Design Guide CE".
  - When registering IPCOM VA in the network pool of a tenant, it is necessary to match the VLAN ID (which may be indicated as S-TAG) of the IPCOM VX virtual machine interface definition to which IPCOM VA belong and the VLAN ID (which may be indicated as S-TAG) for the virtual fabric used for the tenant.
  - When registering IPCOM VA in a global pool, configure "2" for the S-TAG in the IPCOM VA interface.

- Creation of an L-Server with an image specified [OVM for SPARC]

In order to connect with an installation server, the admin LAN IP address is necessary when creating an L-Server with an image specified.

Therefore, create the network resources of the admin LAN in the pool within the user's access scope.

- Creation of address set resources with Global IP addresses

Create the address set resources with Global IP addresses using the `rcxadm addrset create` command.

For details on the `rcxadm addrset create` command, refer to "3.1 rcxadm addrset" in the "Reference Guide (Command/XML) CE".

## 19.2 Modifying

Use the following procedure to modify a resource registered in a resource pool.

1. Right-click the target resource in the orchestration tree, and select [Change Settings]-[Basic Information] from the popup menu.  
The [Resource Change Setting] dialog is displayed.

2. Change the items you want to modify.
3. Click the [OK] button.  
The resource settings are modified.

### Note

- When changing the subnet information for the L-Server to a different subnet, if there are managed servers in the subnets to be changed, "Subnet address/mask" cannot be changed.

When changing "Subnet address/mask", refer to "[Modifying When There are Managed Servers on the Subnet](#)".

- Even if the resource name of the network resource for iSCSI or the public LAN is modified, the address set name is not modified.

To modify the address set name and the resource name to the same names, use the rxcadm network modify command.

For details on the rxcadm network modify command, refer to "3.9 rxcadm network" in the "Reference Guide (Command/XML) CE".

## Modifying When There are Managed Servers on the Subnet

When there are managed servers on the subnet, use the following procedure to change the network address or subnet mask:

1. Register the tenant admin LAN resource information which has the network address or subnet mask after changing.
2. Change the destination for connection on the tenant admin LAN of all L-Servers belonging to the subnet before changing.
3. Delete the tenant admin LAN used before the change, when necessary.

## 19.3 Moving

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### Note

- Do not move the resources used by L-Platforms.
- A resource with the same name as an existing resource in the destination cannot be moved.

## Moving Individual Resources

Use the following procedure to move a resource to another resource pool.

1. Right-click the target resource in the orchestration tree, and select [Move a Resource] from the popup menu.  
The [Move a Resource] dialog is displayed.
2. For "Destination Pool", select the destination resource pool.
3. Click the [OK] button.  
The target resource is moved to the selected resource pool.

## Moving Multiple Resources

Use the following procedure to move a number of registered resources that have been registered in the resource pool to another resource pool.

1. Right-click on the resource pool in the orchestration tree, then select [Move Resources] from the contextual menu.  
The [Move a Resource] dialog is displayed.
2. Select the destination resource pool for the resource from the "Destination Pool".
3. If the resources being moved are disk resources click [Search] in the search conditions. After entering the resource name, click [Search] to reduce the number of resources displayed in the resource list.

4. Select the resource to be moved from the "Resource List".
5. Click the [OK] button.  
The target resource is moved to the selected resource pool.

When using tenants to segregate resources, movement of resources may be limited.  
For details, refer to "[Chapter 21 Resource Folder Operations](#)".

When using Thin Provisioning or Automatic Storage Layering, the destination resource pools that can be selected differ depending on whether Thin Provisioning and Thick Provisioning of storage pools are configured or not.  
For details on destination resource pools and the resources which can be registered, refer to "10.1.1 Allocating Storage" in the "Design Guide CE".



### Note

When the disk resource to be moved is a LUN created in advance or a disk resource for virtual L-Servers, it is recommended to delete the data on the disk beforehand. For details on how to delete data on the disks, refer to the cautionary notes of "[14.5 Storage Resources](#)".

## Moving Resources between Folders

Use the following procedure to move a resource to another resource folder.

1. Right-click the target resource in the tree, and select [Move to Folder] from the popup menu.  
The [Move a Resource] or [Move a Pool] dialog is displayed.
2. Select the destination resource folder.
3. Click the [OK] button.

The target resource is moved to the destination resource folder.

When using tenants to segregate resources, movement of resources may be limited.  
For details, refer to "[Chapter 21 Resource Folder Operations](#)".

When the resource is an L-Server, execute `rcxadm lserver move` command.

For details on the `rcxadm lserver move` command, refer to "3.6 `rcxadm lserver`" in the "Reference Guide (Command/XML) CE".



### Note

- Virtual storage resources with Thin Provisioning attributes cannot be moved to storage pools for which Thin Provisioning attributes are not configured.
- Virtual storage resources with Thick Provisioning attributes cannot be moved to storage pools for which Thin Provisioning attributes are configured.
- When using datastores of VMware or Cluster Shared Volume (CSV) of Hyper-V, they can be moved to both storage pools for which Thin Provisioning attributes are configured and storage pools for which Thin Provisioning attributes are not configured.  
For details, refer to "Effective Utilization of Storage Using Thin Provisioning" in "2.2.8 Simplifying Storage" in the "Design Guide CE".
- When using disk resources with iSCSI connections or disk resources for virtual L-Server, they can be moved to both storage pools for which Thin Provisioning attributes are configured and storage pools for which Thin Provisioning attributes are not configured.
- When performing the following operations when VFABs and tenants are linked, modify the link information between the port profiles and the MAC addresses. However, when the VFAB linked with the tenant to which the destination resource pool belongs satisfy the VFAB auto-configuration conditions, it is not necessary to modify the VFAB.
  - When migrating network resources between "global pools" and "local pools of tenants linked with VFABs"
  - When migrating network resources between "local pools of tenants linked with different VFABs"

The conditions of VFAB auto-configuration are as follow:

- The conditions are displayed in the resource details window for VFABs and Converged Fabrics as below.
  1. Auto-configuration of the Converged Fabric to which VFAB belong is "true", and
  2. The port profile configuration of Converged Fabric to which VFAB belong is "enable", and
  3. The VFAB auto-configuration of VFAB is "true".

### Information

Modification of link information between port profiles and MAC addresses

- When modifying external connection ports, delete the link information from before modification.
- When external connection ports will not be modified, delete the link information from before modification, and add the link information from after modification.

---

## 19.4 Unregistration

### Note

Do not unregister the resources used by L-Platforms.

### Unregistering Individual Resources

Use the following procedure to unregister a resource registered in a resource pool.

1. Right-click the target resource in the orchestration tree, and select [Unregister] from the popup menu.  
The [Unregister a Resource] dialog is displayed.
2. Click the [OK] button.

### Unregistering Multiple Resources

Use the following procedure to release a number of registered resources that have been registered in the resource pool.

1. Right-click on the resource pool in the orchestration tree, then select [Unregister] from the contextual menu.  
The [Unregister a Resource] dialog is displayed.
2. If the resources being deregistered are disk resources click [Search] in the search conditions. After entering the resource name, click [Search] to reduce the number of resources displayed in the resource list.
3. Select the resource to be deregistered from the "Resource List".
4. Click the [OK] button.

---

## 19.5 Deleting

Use the following procedure to delete a resource registered in a resource pool.

1. Right-click the target resource in the orchestration tree, and select [Delete] from the popup menu.  
The [Delete Resource] dialog is displayed.
2. Click the [OK] button.



 Note

- When there are managed servers on the subnet to be deleted, the subnet information cannot be deleted.
- After deleting the managed server, delete the subnet information.
- When registering resources, directories and files that are necessary for performance monitoring are created on the server where the resources are registered. This directory is not automatically deleted when resources are deleted. Delete it manually. Refer to "8.6.9 Advisory Notes for RHEL-KVM Usage" in the "Setup Guide CE" for details.
- Resources being used on L-Platforms cannot be deleted.

# Chapter 20 Resource Pool Operations

This chapter explains how to add new resource pools, and delete or modify existing resource pools.

For an overview of the functions, refer to "2.2.2 Resource Pools" in the "Design Guide CE".

## 20.1 Overview

This function manages all the resources allocated when creating an L-Server.

A resource pool is a type of resource folder that exists in the orchestration tree, and has the following features that differ from regular folders:

- Pools are selected as resources when creating or adding L-Servers.
- By specifying a resource type when creating a resource pool, only resources of the same type will be stored in that resource pool.
- The total size of the resources in the resource pool and the free space are calculated and displayed. The converted number of L-Servers for the specified L-Server template is also displayed.
- By default, a resource pool is automatically created for each resource pool type.
- In default resource pools which are created automatically, VM hosts of different server virtualization software can be stored in VM pools. In a VM pool where there is various server virtualization software, if the following is specified, Resource Orchestrator will select the appropriate VM host from the VM pool, and create an L-Server.
  - When creating an L-Server using an L-Server template, specify the VM type.
  - When creating individual specifications for an L-Server, specify the VM type on the [Server] tab.
- Resource pools can be used with user/role management to restrict the users that can use them.
- By setting a priority for multiple resource pools, you can set the order for automatically selecting the required resources when creating an L-Server.

For details on resource pool types and the resources that are stored, refer to "Table-Resource Pool Types" in "6.4 Resource Pool Types" in the "Design Guide CE".

Moving an L-Server (migration) is only possible between VM hosts belonging to the same cluster group, when two or more cluster groups are registered in the same VM pool.

## 20.2 Creating

Use the following procedure to create resource pools.

1. Right-click the root folder or a resource folder in the orchestration tree, and select [Create]-[Pool] from the popup menu.

The [Create a Pool] dialog is displayed.



.....  
For the address pool to register the address set resources of the global IP addresses, create a local pool for each tenant.  
.....

2. Perform the following settings:

Name (Label)

Enter a name for the resource pool.

Enter up to 32 characters beginning with an alphanumeric character (upper or lower case), and including alphanumeric characters (upper or lower case), underscores ("\_"), or hyphens ("-").

To enable the user to identify a resource pool, it is recommended that the resource pool is named based on its resource type, performance, or usage.

When using the dashboard, do not specify names of existing resource pool names. The names are not case-sensitive, so if an existing resource pool name is "AAA", do not specify the new name "aaa" or "Aaa".

### Type

Select the type of the resource pool.

- VM Pool
- Server Pool
- Storage Pool
- Network Pool
- Address Pool
- Image Pool

### Priority

Select the priority of the resource pool for automatically selecting a resource when creating an L-Server. Select a value between [1] and [10]. Smaller values indicate a higher priority. [5] is selected by default.

### Attributes

Enter attributes for the resource pool.

This item is displayed only when "VM Pool" or "Storage Pool" is selected for [Type].

- When "VM Pool" is selected for [Type]

When using a VM pool with overcommit, check the "Over Commit" checkbox.

Specify the calculation method for free space for [Capacity Calculation].

- "Limit": Calculates using a maximum value.
- "Reserve": Calculates using a reservation value.

For details on the display of each calculation method, refer to "[Max. Number of Possible L-Servers View](#)" in "[20.6 Viewing](#)".

- When "Storage Pool" is selected for [Type]

When setting Thin Provisioning attributes, check the [Thin Provisioning] checkbox.

### Note

- This item is not displayed if not migrating using the setting method of overcommit functions after upgrading the admin server from ROR V2.3 or V3.0. Edit the definition files for this version separately. For details, refer to "2.3.1.1 Overcommit Definition Files" in the "Release Notes".
- Whether or not a storage pool has thin provisioning attributes is determined when it is created. Once a storage pool is created, thin provisioning attributes cannot be set nor canceled for that storage pool.

### Label

Enter a label for the resource pool.

Enter a maximum of 32 characters.

### Comment

Enter any comments for the resource pool.

Enter a maximum of 256 characters.

3. Click the [OK] button.

The created resource pool is displayed in the orchestration tree.

## 20.3 Modifying Settings

---

Use the following procedure to change resource pool configurations.

1. Right-click the target resource pool in the orchestration tree, and select [Change Settings]-[Basic Information] from the popup menu.  
The [Change Setting for a Pool] dialog is displayed.
2. Change the items you want to modify.
3. Click the [OK] button.  
The resource pool setting information is modified.

### Note

---

- Once a storage pool is created, its thin provisioning attributes cannot be changed.  
For a workaround, create a new storage pool with the desired Thin Provisioning attributes settings, and then move the resources of the current pool to the new one.
  - Please do not change the name of the resource pool when corresponding to any of the following condition.
    - the VM pool, the server pool, and the storage pool used with the server included in the deployed L-Platform
    - the VM pool, the server pool, and the storage pool used with the L-Platform template
    - the VM pool, the server pool, the storage pool, the network pool, and the address pool used with the dashboard
- 

## 20.4 Moving

---

Use the following procedure to move a resource pool to another resource folder.

1. Right-click the target resource pool in the orchestration tree, and select [Move to Folder] from the popup menu.  
The [Move a Pool] dialog is displayed.
2. Select the destination resource folder.
3. Click the [OK] button.  
The target resource pool is moved to the destination resource folder.

When using tenants to segregate resources, movement of resources may be limited.  
For details, refer to "[Chapter 21 Resource Folder Operations](#)".

### Note

---

Do not move the resource pool in any of the following cases:

- the VM pool, the server pool, and the storage pool used with the server included in the deployed L-Platform
  - the VM pool, the server pool, and the storage pool used with the L-Platform template
  - The target pool is an address pool used when managing the virtual IP addresses used for address translation functions of firewalls, and when the L-Platform is deployed performing automatic allocation
- 

## 20.5 Deleting

---

Use the following procedure to delete resource pools.

When a resource pool is deleted, the resources in that resource pool are also deleted.  
The following resources are unregistered from a resource pool:

- VM Host Resources

- Physical Server Resources
- Virtual Storage Resources
- Disk Resources
- Network Devices
- Physical Image Resources

It is recommended that you move the resources in the resource pool to another resource pool in advance.

1. Right-click the target resource pool in the orchestration tree, and select [Delete] from the popup menu.

The name of the resource pool to delete is displayed in the [Delete a Pool] dialog.

If resources are registered in the resource pool to delete, a list of those resources is displayed in [All Resources]. Confirm the list, and check the [Delete All Resources] checkbox.

2. Click the [OK] button.

The target resource pool is deleted.



### Note

Do not delete the resource pool in either of the following cases:

- the VM pool, the server pool, and the storage pool used with the server included in the deployed L-Platform
- the VM pool, the server pool, and the storage pool used with the L-Platform template
- The target pool is an address pool used when managing the virtual IP addresses used for address translation functions of firewalls, and when the L-Platform is deployed performing automatic allocation

## 20.6 Viewing

---

The pool list in the resource list display the resource folders, total size of resources, and free space available.

In the L-Server list, when the server is a physical L-Server, the physical server for the L-Server is displayed.

When the server is a virtual L-Server, the name of the VM host where the L-Server operates is displayed.

When the [Current resource] checkbox and the [Preserved resource] checkbox are selected, resources that have been allocated and resources in use are displayed.

For the already allocated resources, the following information is displayed, depending on the status of resource allocation.

- allocated  
Resource name
- preserved  
Resource name + "(preserved)"
- defined  
"(defined)"

For resources in use, the resources configured as [Physical server] or [VM host] are displayed as icon + resource name.

If you select the [Resource List] tab with a resource pool selected in the orchestration tree, a list of information for the resources that belong to the resource pool are displayed.

If you select the [Resource Details] tab, detailed information such as the total size of data and free space in the resource pool is displayed.

Also, if you select the [Available Pool] tab, a list of the resource pools that the user has usage rights for and the resources that belong to those pools is displayed.

For virtual storage resources with Thin Provisioning attributes configured, the virtually allocated size will be displayed inside the used amount. Also, depending on the value of the virtually allocated size, the display of free capacity may differ as follows:

- When the virtually allocated size is less than the total size of virtual storage resources

The area not virtually allocated is displayed in the free capacity.

- When the virtually allocated size is more than the total size of virtual storage resources

The area exceeding the capacity is displayed preceded by a minus ("-") in the free capacity.

For VMware datastores, Hyper-V Cluster Shared Volumes (CSV), and Citrix XenServer storage repositories, when storage pools with Thin Provisioning attributes are registered, they are displayed as explained above.

## Example

- When the total size of virtual storage resources is 20 GB, and the virtually allocated size is 10 GB:

Total Capacity: 20.0 GB

Free Capacity: 10.0 GB

- When the total size of virtual storage resources is 20 GB, and the virtually allocated size is 30GB:

Total Capacity: 20.0 GB

Free Capacity: -10.0GB

The combined total of the capacity of the virtual storage and disk resources registered in the resource pool is displayed for the total capacity of the storage pool. If a disk resource that has been separated from a virtual storage and that virtual storage exist in the same resource pool, the capacity of the disk resource will not be included in the calculation of the total storage capacity of the storage pool.

## Total CPU and Memory Capacity of the VM Pool

The total amount calculated using the following formula is displayed in all VM hosts registered in the resource pool, as the total CPU and memory capacity of the VM pool.

Physical resource amount of a VM host - resource amount occupied by a VM host

The physical resource amount occupied by a VM host is as follows:

Table 20.1 Resource Amount Occupied by a VM Host

Server Virtualization Software	CPU Capacity	Memory Size
VMware	Total of CPU reservations of system resources configured in a VM host (Total of reservation of the elements except [host] of a [System Resource Pool])	Total of memory reservations of system resources configured in a VM host (Total of reservation of the elements except [host] of a [System Resource Pool])
Hyper-V	Number of physical CPUs * physical CPU performance values * CPU reservation values configured in a VM host (%) / 100	Memory reservation values configured in a VM host
Solaris Zones	<ul style="list-style-type: none"> <li>- When the resource pool for Solaris Zones of the global zone is the management target of Resource Orchestrator</li> </ul> Physical CPU performance values * CPU cap values of the global zone / 100 <ul style="list-style-type: none"> <li>- When the resource pool for Solaris Zones of the global zone is not the management target of Resource Orchestrator</li> </ul> 0	The memory size is defined in the following order of priority: If neither setting is configured, it is regarded as 0 has been specified. <ol style="list-style-type: none"> <li>1. Memory capacity described in global_zone_reserved_memory.rcxprop</li> <li>2. Memory capacity described in capped-memory.physical in the global zone</li> </ol>
OVM for SPARC	Number of CPUs configured in the control domain * physical CPU performance values	Memory capacity configured in the control domain

Server Virtualization Software	CPU Capacity	Memory Size
RHEL-Xen	Number of physical CPUs * physical CPU performance values * 20(%) / 100	Memory capacity used for a VM host
KVM	Number of physical CPUs * physical CPU performance values * CPU reservation value (%) / 100	Memory reservation value (GB)
Citrix Xen	Number of physical CPUs * physical CPU performance values * CAP values of VM host (control domain) virtual CPUs / 100	Dynamic maximum memory size of the VM host (control domain)
OVM for x86 3.x	0	Memory capacity used for a VM host

## Note

When all of the following conditions are met, the capacity reserved for failover is displayed in [CPU Capacity] and [Memory Capacity] under [VMHostList] and [Capacity] on the [Resource Details] tab. For VM hosts for which the HA function is unavailable, or for operations with no reservation for failover, a hyphen ("-") is displayed.

- When the HA function provided by server virtualization software is available for the VM hosts, and CPU capacity and memory capacity are reserved for failover

In the case of VM hosts that meet all of the following conditions, the total capacity and the free capacity of the CPU and memory resources are set to 0. Moreover, it is not added to the total capacity and the free space of the VM pool.

- The VM host is configured on a physical L-Server.
- The VM host is registered in a VM pool.
- The physical server on which the VM host operates is released due to the usage change of a physical server.

If the VM host and the physical server on which the VM host operates do not meet all of the following conditions, free space will be displayed as 0.

- The power status is "ON".
- The status is "normal".
- Maintenance mode has not been set.
- The maintenance mode of server virtualization software has not been set.

[VMware]

- For VM hosts for which standby mode has been set by server virtualization software, calculation results are displayed for free space even when the status is "stop".

[KVM]

The default value of CPU reservation value (%) is 20%.

The default value of Memory reservation value (GB) is 2GB.

The CPU reservation value will be 0% if Resource Orchestrator cannot obtain information of physical servers.

Resource Orchestrator obtains information of physical servers from ServerView Agents for Linux.

Confirm the configuration of ServerView Agents for Linux.

Refer to "Required Software Preparation and Checks" in "2.2.1.1 Software Preparation and Checks" in the "Setup Guide CE".

In Resource Details for the VM host, and when using the command (rcxadm pool list -name *Resource\_pool\_name*), the total CPU capacity is displayed in the format of *CPU\_performance \* CPU\_core\_count*. *CPU\_performance* is displayed as a number truncated to one decimal place. Therefore, depending on the value of the second decimal place of CPU performance, CPU capacity may not match the actual free CPU capacity.

## Max. Number of Possible L-Servers View

This section explains how to display the converted number of L-Servers that can be created with VM pools, server pools, and storage pools.

1. Left-click the target VM pool in the orchestration tree, and select the [Resource List] tab.
2. In the [Template] selection list, select the L-Server template to convert.
3. Click the [OK] button.  
The number of L-Servers that can be created is displayed in [Number of creatable L-Servers].

### Note

- When the status of the VM host and virtual storage is one other than "normal", the resource will be excluded from L-Server allocation regardless of its available space.

#### [VMware]

The VM hosts for which standby mode has been set by server virtualization software are excluded from the targets of L-Server deployment, and other VM hosts in the same cluster become the deployment target location.

#### [Hyper-V]

When using an L-Server template with dynamic memory settings enabled, VM hosts that do not support dynamic memory are excluded from being the targets of L-Server deployment. In this case, "0" is displayed for the L-Server conversion number, even when there is available space on resources.

However, a value corresponding to the available space of the resource will be displayed for the L-Server converted number.

- When using physical L-Servers, the L-Server converted number of virtual storage is an estimate, and an error may occur during L-Server creation.

## The Available Space on Resources and the Space Displayed for [Number of creatable L-Servers]

The available space on resources and the space displayed for [Number of creatable L-Servers] are calculated as follows:

Table 20.2 The Available Space on Resources and the Space Displayed for [Number of creatable L-Servers]

Item	Calculation Method	Remarks
Number of L-Servers that can be created	The following smallest value is displayed: <ul style="list-style-type: none"> <li>- Free CPU capacity / the CPU capacity specified in the L-Server template selected from the "Template" select list</li> <li>- Free memory size / the memory size specified in the L-Server template selected from the "Template" select list (*1)</li> <li>- Free storage capacity / the storage capacity specified in the L-Server template selected from the "Template" select list</li> </ul>	-
CPU, memory	Total_resource_capacity (*2) - (Total_of_resources_used_for_virtual_machines (*3)) - Reservation_capacity_for_the_VM_host (the capacity reserved for the HA function enabled on the VM software) (*4)	-
Addresses and available space on the network	Total_resource_capacity - (Total_of_resources_used_for_L-Server (*5))	-
Free storage space	Total_resource_capacity - (Total_of_resources_used_for_L-Server (*5) + Total_of_images (*6))	-
Free disk space	Free space as a resource is not displayed. The free space is calculated as the free space of a resource pool when all of the following conditions are met:	[Hyper-V] As the saved disk resources that are created from the virtual



Item	Calculation Method	Remarks
	<ul style="list-style-type: none"> <li>- Disks are not used for L-Servers or cloning images</li> </ul> <p>Number of creatable L-Servers is displayed as follows:</p> <ul style="list-style-type: none"> <li>- When the number of disks specified for an L-Server template is 1, and when the disk capacity specified for an L-Server template is the same capacity as or smaller than the disk resource 1 is displayed.</li> <li>- When the number of disks specified for an L-Server template is 2 or larger, or something other than the above 0 is displayed.</li> </ul>	<p>machine cannot be used as system disks, the number is 0, even if the L-Server is unused.</p>

\*1:

[VMware]

This does not include the overhead memory allocated when creating a virtual machine from an L-Server template. Therefore, the displayed number of L-Servers may not be able to be created.

\*2: This does not include the overhead used for the VM host.

\*3: This includes not only the resources for active virtual machines, but also those of resources of stopped virtual machines. Powered off L-Servers for which the server release settings are configured for powering off are not included.

[VMware]

This includes the overhead memory used for the virtual machine. The resources of VMware FT secondary virtual machines are included.

[Citrix Xen]

As the CPU performance values of virtual machines created using XenCenter cannot be obtained by VM management software, the CPU usage level will be calculated as 0.

\*4: For details on the VM host reservation amount, refer to "[Reservation Capacity for the VM Host](#)".

\*5: This includes not only the resources for active L-Servers, but also those of resources of stopped L-Servers.

\*6: Images include cloning images and snapshots. However, the size of images is not displayed.

[Xen]

When using RHEL5-Xen on the managed server, refer to "8.4.7 Advisory Notes for RHEL5-Xen Usage" in the "Setup Guide CE".

## Reservation Capacity for the VM Host

[VMware]

This is the resource capacity secured when VMware HA admission control is enabled. This is calculated according to the policy of the admission control. Formulas for individual policies are as follows:

Policy	Calculation Method
When the policy is "Percentage of cluster resources reserved as failover spare capacity"	Total_resource_capacity (*) * share (%)
When the policy is the VM host which corresponds to the "Specify failover hosts"	Total_resource_capacity (*) * 100 (%)
When the policy is a VM host which does not correspond to the "Specify failover hosts"	Total_resource_capacity (*) * 0 (%)
When the policy is "Host failures the cluster tolerates"	Total_resource_capacity (*) * 0 (%)

\* Note: This does not include the overhead used for the VM host.

The reservation capacity for the VM host is not secured with the following policies. If an L-Server is deployed with those policies, the L-Server may not be powered ON due to a shortage of resources.

- When the policy is the "Specify failover hosts" and multiple VM hosts are defined for the "Specify failover hosts"

- When the policy is "Host failures the cluster tolerates"

## CPU and Memory Free Space of VM Pools Configured as Resource Pools for Overcommit

For resource pools (VM pools) configured as a resource pool for overcommit, the capacity is calculated according to the specified calculation method for free space.

When configured to calculate using a maximum value, free CPU capacity/memory size are calculated based on the CPU performance/memory size of the virtual machine.

In resource pools (VM pools) which do not use overcommit, only the upper limit values are supported.

### Point

When creating a virtual L-Server, if the CPU reservation performance and memory reservation capacity are not specified, the values are configured as follows:

- CPU reservation performance: 0
- Memory reservation capacity: memory capacity or initial memory size

#### [VMware]

When configured to calculate using a reservation value, free CPU capacity/memory size are calculated based on the CPU performance/memory size reserved for the virtual machine. The number of L-Servers that can be created is calculated based on the CPU reservation performance and the memory reservation capacity specified in the L-Server template.

When the free capacity for VM pools is configured to be calculated using a maximum value, for the virtual machine for which limit values of CPU/memory has been set to "Unlimited" using VM management software, the calculation is performed assuming the following values as the maximum values:

- When no limit has been set for CPU performance  
The physical CPU performance on the VM host is used
- When no limit has been set for memory size  
The memory size set for the virtual machine

#### [Hyper-V]

When configured to calculate using a reservation value, the values referred to for calculation vary depending on the dynamic memory settings for the virtual machine and the L-Server template, as follow:

- When Dynamic Memory is Enabled  
Free CPU capacity and memory size are calculated based on the CPU performance and initial memory size reserved for the virtual machine.  
Free CPU capacity and memory size are calculated based on the CPU performance and initial memory size reserved for the L-Server template.
- When Dynamic Memory is Disabled  
Free CPU capacity/memory size are calculated based on the CPU performance/memory size reserved for the virtual machine.  
The number of L-Servers that can be created is calculated based on the CPU reservation performance and memory capacity specified in the L-Server template.

#### [KVM] [Citrix Xen] [OVM for x86 3.x]

When configured to calculate using a reservation value, free memory size is calculated based on the memory reservation capacity/memory size for the virtual machine. The free CPU capacity is not changed.

#### [Solaris Zones]

- The number of CPUs and the CPU performance of an L-Server are displayed as "-" when the following conditions are met because the resources are not managed using Resource Orchestrator.
  - A cap value for the CPU has not been set in the non-global zone.

- The non-global zone is managed using the resource pools for Solaris Zones that are not the targets of management.

When the conditions are not met, the cap values of CPUs are used for the number of CPUs and the CPU performance.

For details, refer to "E.6.2 Preparations for Servers" in the "Design Guide CE".

- When the number of CPUs and CPU performance are displayed as "-", the amount of resources used by an L-Server will be calculated using 0.

When something other than "-" is displayed for the number of CPUs and CPU performance, those values are used for calculation.

- The memory size of an L-Server is displayed as "-" when a cap value of memory has not been set in a non-global zone.

When a cap value has been set, the value is set for the memory size of an L-Server.

When memory size is displayed as "-", the amount of resources used by an L-Server will be calculated using 0.

When something other than "-" is displayed for memory size, that value is used for calculation.

- When configured to calculate using a reservation value, the free CPU capacity and memory size of the VM host are not changed.

[OVM for SPARC]

- When installing an OS, if the number of CPUs, the CPU performance value, or memory size are "-", the amount of resources that the L-Server uses is calculated as 0.

When the number of CPUs, the CPU performance, and the memory size of L-Server are stored, those values are used for the calculation.

- When configured to calculate using a reservation value, the free CPU capacity and memory size of the VM host are not changed.

## Conversion Number for L-Servers Corresponding to VM Pools and Storage Pools

In the display of the conversion number for L-Servers corresponding to VM pools and storage pools, depending on the VM type and CPU architecture of the virtual L-Server template, the number of L-Servers that can be created is as below.

- When VM type is specified for the L-Server template

The number of L-Servers that can be created is displayed for the resource that corresponds to the specified VM type.

When there are no resources that correspond to the specified VM type, "0" is displayed.

- When VM type is not specified for the L-Server template

The number of L-Servers that can be created is displayed for the resources that correspond to the specified CPU architecture.

When there are no resources that correspond to the specified CPU architecture, "0" is displayed.

For the definition of the L-Server template, refer to "15.2.2 Virtual L-Server Templates" in the "Reference Guide (Command/XML) CE".

[OVM for SPARC]

In OVM for SPARC, CPU performance is the VM host's CPU performance. Therefore, the CPU performance of the L-Server template is disregarded. The L-Server conversion number is calculated from "CPU performance of VM host x the number of CPUs" and memory size.

## CPU and Memory Resource Amount of VM Pools [OVM for SPARC]

When registering the VM host (VM host1) of OVM for SPARC and the VM host (VM host2) configured on the guest domain in the VM pool, the CPU size and the memory resource amount are calculated as below.

- When registering the VM host in the same VM pool

- Total Capacity

The resource amount of VM host2 is not added to the total amount of VM pools, since the resources are included in the resource amount of VM host1.

The resource amount of VM host2 occupied by the VM host is subtracted from the total amount of VM pools.

- Free Space

The free space of VM host1 and VM host2 is added to the free space of VM pools, as in the general calculation method.

- When registering the VM hosts in different VM pools

- Total Capacity

The resource amounts of VM host1 and VM host2 (physical resource amount - resource amount occupied by a VM host) is added to the total amount of VM pools, as in the general calculation method.

- Free Space

The free space of VM host1 and VM host2 is added to the VM pools, as in the general calculation method.

 Point

.....  
For details on how to select the deployment location of a virtual L-Server, refer to "Selection of L-Server Deployment Location" of "2.2.3 L-Server" in the "Design Guide CE".  
.....

# Chapter 21 Resource Folder Operations

This chapter explains resource folders, which are used when managing a large number of resources or when you want to divide resources according to certain conditions.

## Resource Folders

Resource folders are used when managing a large number of resources or when you want to divide resources according to certain conditions.

Resources stored in resource folders can be freely placed. Using hierarchical folders, other resource folders can be stored in the resource folders.

Resource folders enable you to do the following:

- Since the number of resources selected at the same time is reduced, selection is simplified.
- Resources can be categorized in detail.

You may want to share some resources between departments in case of future changes or faults while maintaining the segregation of resources for each department.

## Tenants

In Resource Orchestrator, the unit for division of management and operation of resources based on organizations or operations is called a tenant.

L-Servers and dedicated resource pools for each tenant are stored, in tenants. The exclusive resource pool for each tenant is called a local pool.

There is a resource pool which can be used by multiple tenants, other than a local pool. This resource pool is called a global pool.

Resource Orchestrator enables operation of tenants through division of resources on a tenant level, as well as by user groups, and combinations of scopes configured to divide resources.

Perform the following settings to share and segregate resources without combining them by tenants:

- Create a tenant for each department

When creating a tenant, batch creation or setting of user groups, users, or resource pools can be performed.

Local pool creation or global pool selection can be performed for each resource pool.

Additionally, when using a tenant only within a department, create a local pool.

When sharing a tenant between multiple departments, select an existing global pool.

When using tenants to segregate resources, the following operations are limited:

- A powered on L-Server cannot be moved to another tenant.

Stop the L-Server before moving it.

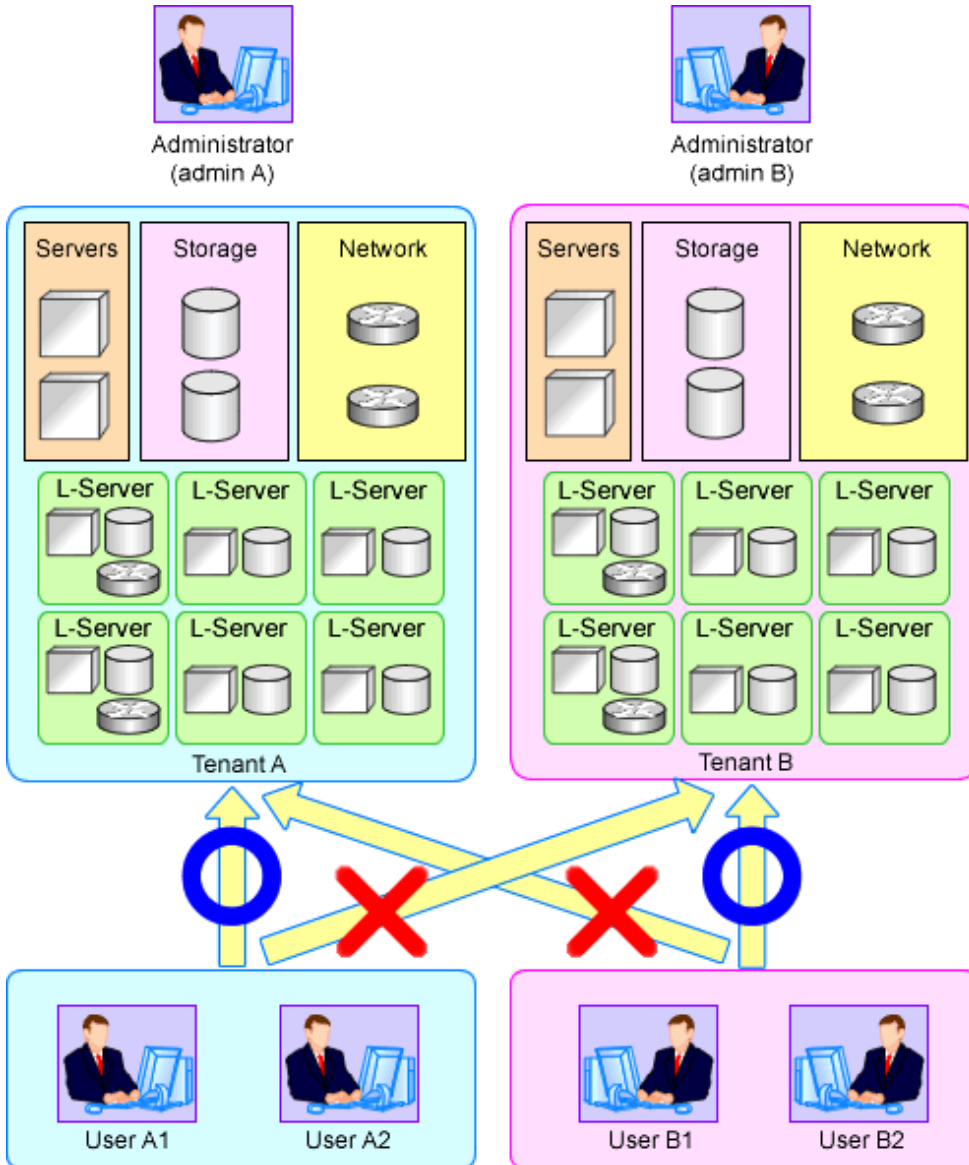
- Resources used by powered on L-Servers, and resource pools or resource folders that contain those resources cannot be moved to another tenant.

Stop the L-Servers before moving them.

- L-Servers that are using resources in another tenant cannot be started.

Required resources must be placed in the same tenant or the same global pool as the L-Server.

Figure 21.1 Sharing and Dividing Resources Using Tenants



## 21.1 Overview

Resource folders are used when managing a large number of resources or when you want to divide resources according to certain conditions.

Resource folders can be created in the orchestration tree or the server resource tree.

Resource folders created in the orchestration tree can store the following resources:

- L-Server
- Resource Pools
- Resource Folders
- Tenants

Resource folders created in the server resource tree can store the following resources:

- Chassis
- Servers (that are not stored in a chassis)
- Resource Folders

Resources stored in resource folders can be freely placed.

Using hierarchical folders, other resource folders can be stored in the resource folders.

Using resource folders enable you to do the following:

- Since the number of resources handled at once is reduced, it becomes easier to select resources
- Resources can be categorized in detail

Also, in the orchestration tree, the access scope of roles can be restricted and used in combinations to restrict the resource folders that can be accessed for each administrator. This enables you to do the following:

- Divide the management scope for each administrator
- Link with roles to prevent erroneous operations from being performed on resources outside of the scope of operation privileges

When the access scope is limited to a single resource folder, that resource folder is called the "home folder". By setting a home folder, a folder does not need to be specified for the various operations that normally require a resource folder to be specified.

## Resources that can be Registered

Resource folders are managed according to their resource folder type. The resources that can be registered for each resource folder type are indicated below.

Table 21.1 Resource Folder Types and Resources that can be Registered

Resource Folder Types	Resources that can be Registered
Orchestration (lserver)	L-Server
	Resource pools
Server (server)	Chassis
	Server

## 21.2 Creating

---

This section explains how to create resource folders.

1. Right-click the target resource folder in the tree, and select [Create]-[Folder] from the popup menu.

The [Create a Folder] dialog is displayed.

2. Perform the following settings:

### Name (Label)

Enter a name for the resource folder.

Enter up to 32 characters beginning with an alphanumeric character (upper or lower case), and including alphanumeric characters (upper or lower case), underscores ("\_"), or hyphens ("-").

### Label

Enter a label for the resource folder.

Enter a maximum of 32 characters.

### Comment

Enter any comments.

Enter a maximum of 256 characters.

3. Click the [OK] button.

The created resource folder is displayed in the tree.

From the command-line, execute `rcxadm folder create`.

For details on the `rcxadm folder create` command, refer to "3.5 rcxadm folder" in the "Reference Guide (Command/XML) CE".

## 21.3 Viewing

---

This section explains how resource folders are displayed.

Resource folders are displayed in the following format:

*Resource\_folder\_name (label)*

When *label* is not set, only *resource\_folder\_name* is displayed.

If you select the [Resource List] tab with a target resource folder selected in the tree, a list of information for the resources that belong to the resource folder are displayed.

If you select the [Resource Details] tab, detailed information for the resource folder is displayed.

The displayed resource folders differ according to the privileges of the user.

- Users that can access all resources

All resource folders are displayed in the tree.

- Users that have their access scope restricted by their role

Only the resource folders that the user has view privileges for are displayed in the tree.

From the command-line, execute `rcxadm folder list` or `rcxadm folder show`.

For details on the `rcxadm folder list` command and the `rcxadm folder show` command, refer to "3.5 rcxadm folder" in the "Reference Guide (Command/XML) CE".

## 21.4 Modifying Basic Information

---

This section explains how to modify the basic information (folder name, label, comment) of resource folders.

1. Right-click the target resource folder in the tree, and select [Change Folder Settings]-[Basic Information] from the popup menu.

The [Folder Change Setting] dialog is displayed.

2. Change the items you want to modify.

3. Click the [OK] button.

The basic information of the resource folder is modified.

From the command-line, execute `rcxadm folder modify`.

For details on the `rcxadm folder modify` command, refer to "3.5 rcxadm folder" in the "Reference Guide (Command/XML) CE".

## 21.5 Deleting

---

This section explains how to delete resource folders.

The procedure for deleting resource folders differs according to the resource folder type.

### For Orchestration (Iserver)

1. Right-click the target resource folder in the orchestration tree, and select [Delete] from the popup menu.

The [Delete a Folder] dialog is displayed.

2. The name of the resource folder to be deleted will be displayed.

If resource folders or resources are included in the resource folder to delete, a list of them is displayed in "All Resources".

Confirm the list, and check the [Delete All Resources] checkbox.



When the [Delete All Resources] checkbox is checked, [OK] will be enabled.



3. Click the [OK] button.  
The target resource folder is deleted.

From the command-line, execute `rcxadm folder delete`.

For details on the `rcxadm folder delete` command, refer to "3.5 `rcxadm folder`" in the "Reference Guide (Command/XML) CE".

### For Server (server)

1. Right-click the target resource folder in the server tree, and select [Delete] from the popup menu.  
The [Delete a Folder] dialog is displayed.
2. Click the [OK] button.  
The target resource folder is deleted.

From the command-line, execute `rcxadm folder delete`.

For details on the `rcxadm folder delete` command, refer to "3.5 `rcxadm folder`" in the "Reference Guide (Command/XML) CE".



#### Note

.....  
If physical servers or chassis are registered in a resource folder, the resource folder cannot be deleted. Delete the folder after moving or deleting all physical servers and chassis from the target resource folder.  
.....

## 21.6 Moving

---

This section explains how to move a resource folder.

Use the following procedure to move a resource to another resource folder.

1. Right-click the target resource folder in the orchestration tree, and select [Move to Folder] from the popup menu.  
The [Move a Folder] dialog is displayed.
2. Select the destination resource folder.
3. Click the [OK] button.

The target resource folder is moved to the destination resource folder.

In this case, resources in the resource folder are also moved to the destination resource folder.

When using tenants to segregate resources, movement of resources may be limited.

For details, refer to "[Chapter 21 Resource Folder Operations](#)".

From the command-line, execute `rcxadm folder move`.

For details on the `rcxadm folder move` command, refer to "3.5 `rcxadm folder`" in the "Reference Guide (Command/XML) CE".

# Chapter 22 Network Device Operations

This chapter explains how to operate network devices.

## 22.1 Switchover of Maintenance Mode

Set maintenance mode when performing regular maintenance of network devices. When a network device is in maintenance mode, error notifications upon changing of the operational status and execution of auto-configuration are suppressed on that device.

Perform the following operations to configure or release the maintenance mode settings of network devices.

### - Configuring Maintenance Mode

Network devices are put into maintenance mode in the following cases:

When configuring maintenance mode for a management host (IPCOM VX), maintenance mode is also configured for all virtual appliances operating on the management host (IPCOM VX).

- When the infrastructure administrator has performed an operation from the ROR console which configures maintenance mode for a network device

1. Right-click the target network device in the network device tree on the ROR console.
2. Select [Maintenance Mode]-[Set] from the popup menu.  
The [Set Maintenance Mode] dialog is displayed.
3. Click the [OK] button.  
Maintenance mode is configured for the target network device.

- When the infrastructure administrator has executed a command that places a network device into maintenance mode

Maintenance mode is configured for the target network device, by using the `rcxadm netdevice set` command with the `-attr mode=maintenance` option specified.

- When auto-configuration has failed for a network device

### - Releasing Maintenance Mode

The network device is released from maintenance mode in the following cases:

- When the infrastructure administrator has performed an operation from the ROR console which releases the network device from maintenance mode

1. Right-click the target network device in the network device tree on the ROR console.
2. Select [Maintenance Mode]-[Release] from the popup menu.  
The [Release Maintenance Mode] dialog is displayed.
3. If the target network device is a management host (IPCOM VX), and when releasing all virtual appliances operating on the management host from maintenance mode, check "The Virtual Appliances' maintenance mode will also be released.".
4. Click the [OK] button.  
The target network device is released from maintenance mode.

- When the infrastructure administrator has executed a command that releases a network device from maintenance mode

The target network device is released from maintenance mode by using the `rcxadm netdevice set` command with the `-attr mode=active` option specified.



### Information

- When releasing a network device from maintenance mode, confirm the state of the target network device.

- If there is no error in the state

Release the device from maintenance mode and change the operational status to "normal".

- If a network device communication error is detected

The device cannot be released from maintenance mode.

- When releasing a management host (IPCOM VX) from maintenance mode, if the status of virtual appliances is unknown, the maintenance mode of the virtual appliances cannot be released.

## Example

- When configuring maintenance mode using a command

```
# /opt/FJSVrcvmr/bin/rcxadm netdevice set -name nd01 -attr mode=maintenance <RETURN>
```

- When releasing maintenance mode using a command

```
# /opt/FJSVrcvmr/bin/rcxadm netdevice set -name nd01 -attr mode=active <RETURN>
```

The maintenance mode configuration status can be confirmed by using one of following methods:

- From the GUI:

1. Click the network device to confirm in the network device tree.
2. Select the [Resource Details] tab.
3. Confirm the maintenance mode status, referring to "Maintenance Mode" of "General".

- maintenance

Indicates that maintenance mode is configured.

- active

Indicates that maintenance mode is released.

- From the Command-line:

Use the `rcxadm netdevice list` command to confirm the maintenance mode status.

Check the maintenance mode status in the "MAINTENANCE" displayed in the display results of the list subcommand.

- ON

Indicates that maintenance mode is configured.

- OFF

Indicates that maintenance mode is released.

## See

For details on the `rcxadm netdevice` command, refer to "3.8 `rcxadm netdevice`" in the "Reference Guide (Command/XML) CE".

## Note

- When configuring maintenance mode for a network device, auto-configuration is not executed on the network device. Therefore, when a network device configured for maintenance mode is in a redundancy configuration, it may be unable to keep the redundancy configuration depending on the configuration details.

When configuring maintenance mode for a network device with redundancy configuration, it is recommended not to perform operations (creation, modification, and deletion) for a tenant administrator.

The configuration details for which redundancy configurations cannot be maintained depends on the specifications of network devices configuring the network devices. For details, refer to the manuals of network devices.

- Switchover of maintenance mode may not be necessary for performing maintenance, depending on the target network device. For details, refer to "9.5 Network Device Maintenance" in the "Operation Guide CE".

---

## 22.2 Switchover of the Target of Auto-Configuration

---

This section explains how to enable or disable auto-configuration for a network device for changing the rulesets of the network device.

Use the following operations to configure whether network devices are the targets or are not targets of auto-configuration.

- Configuring a network device as the target of auto-configuration

When configuring a network device as the target of auto-configuration, an infrastructure administrator should use the commands to perform the operation.

The specified network device is configured as the target of auto-configuration, using the `rcxadm netdevice set` command with the `-attr auto_conf=true` option specified.

- Excluding a network device from auto-configuration

In following cases, the network device is excluded from the targets of auto-configuration:

- When an infrastructure administrator is temporarily excluding the network device from auto-configuration

The specified network device is excluded from the target of auto-configuration, by using the `rcxadm netdevice set` command with the `-attr mode=active` option specified.

- When an infrastructure administrator is excluding the network device from the targets of auto-configuration during network device registration

By executing the `rcxadm netdevice create` command or the `rcxadm netconfig import` command after specifying "false" in the AutoConfiguration element of the network configuration information, it is excluded from the targets of auto-configuration during network device modification.

- When an infrastructure administrator is excluding the network device from the target of auto-configuration during network device modification

By executing the `rcxadm netdevice modify` command after specifying "false" in the AutoConfiguration tag of the network configuration information, it is excluded from the targets of auto-configuration during network device modification.



### Information

- When the operational status of the target network device is "error", that device cannot be excluded from targets of auto-configuration.
- This setting has no meaning for IPCOM VX, as they are not the targets of auto-configuration. Configure this setting for each IPCOM VA which operates on an IPCOM VX.



### Example

- When an infrastructure administrator is configuring the network device using auto-configuration

```
# /opt/FJSVrcvmr/bin/rcxadm netdevice set -name nd01 -attr auto_conf=true <RETURN>
```

- When an infrastructure administrator is excluding the network device from auto-configuration

```
# /opt/FJSVrcvmr/bin/rcxadm netdevice set -name nd01 -attr auto_conf=false <RETURN>
```

You can confirm either of the following operations if the network device is the target of auto-configuration.

- From the GUI:

1. Select the target network device in the network device tree.

2. Select the [Resource Details] tab.
3. Refer to "auto-configuration" of "basic information" to confirm state of auto-configuration.

- "true"

Indicates that the network device is the target of auto-configuration.

- "false"

Indicates that the network device is not the target of auto-configuration.

- Confirmation from the Command Line

Confirm if the network device is the target of auto-configuration using "AutoConfiguration" displayed in the display results of the rxadm netdevice show command.

- "true"

Indicates that the network device is the target of auto-configuration.

- "false"

Indicates that the network device is not the target of auto-configuration.



See

- For details on the rxadm netdevice command, refer to "3.8 rxadm netdevice" in the "Reference Guide (Command/XML) CE".
- For details on the rxadm netconfig command, refer to "3.7 rxadm netconfig" in the "Reference Guide (Command/XML) CE".

## 22.3 Confirmation of VFAB Auto-configuration

---

The following operations enable determination of whether the virtual fabric is the target of auto-configuration.

- From the GUI:

1. Select the target Converged Fabric in the network device tree.
2. Select the [Resource List] tab.
3. Refer to "VFAB Auto Configuration" of the "VFAB List" to confirm the state of auto-configuration.

- "true"

Indicates that the virtual fabric is the target of auto-configuration.

- "false"

Indicates that the virtual fabric is not the target of auto-configuration.

- Confirmation from the Command Line

Confirm if the virtual fabric is the target of auto-configuration using "vfabauto" displayed in the display results of the rxadm netdevice show command.

- "true"

Indicates that the virtual fabric is the target of auto-configuration.

- "false"

Indicates that the virtual fabric is not the target of auto-configuration.



See

For details on the rxadm netdevice command, refer to "3.8 rxadm netdevice" in the "Reference Guide (Command/XML) CE".

# Chapter 23 Network Resource Operations

This chapter explains how to operate network resources.

## 23.1 Automatic Network Configuration

Automatic network configuration is normally performed when creating an L-Server for the first time, but it can also be performed beforehand.

By performing it beforehand, the creation of an initial L-Server can be made faster.

Automatic network configuration is performed as follows:

1. Select the target network resource on the orchestration tree, and then select [Automatic Network Configuration] from [Operation] of the ROR console menu.  
Or, right click the target network resource and select [Automatic Network Configuration] on the displayed menu.  
The [Automatic Network Configuration] dialog is displayed.
2. Select the [By Cluster] or [By VM Host] radio button from [Scope for Automatic Setting].  
The cluster or VM host list to be automatically configured is displayed on the resource list.
3. Select the cluster or VM host on which network automatic configuration is to be performed by selecting the [Select] checkbox, or select all the clusters or VM hosts displayed in the resource list by selecting [Select all].
4. Click the [OK] button.  
Automatic network configuration is performed.

# Appendix A User Interface

Resource Orchestrator provides three graphical user interfaces: the ROR console, BladeViewer and NetworkViewer. This appendix provides an overview of the ROR console.

For details on how to open and close the ROR console, refer to "Chapter 2 Login and Logout" in the "User's Guide for Infrastructure Administrators CE".

For details on BladeViewer, refer to "Chapter 4 BladeViewer".

For details on the NetworkViewer, refer to "Chapter 11 NetworkViewer".

## A.1 ROR Console

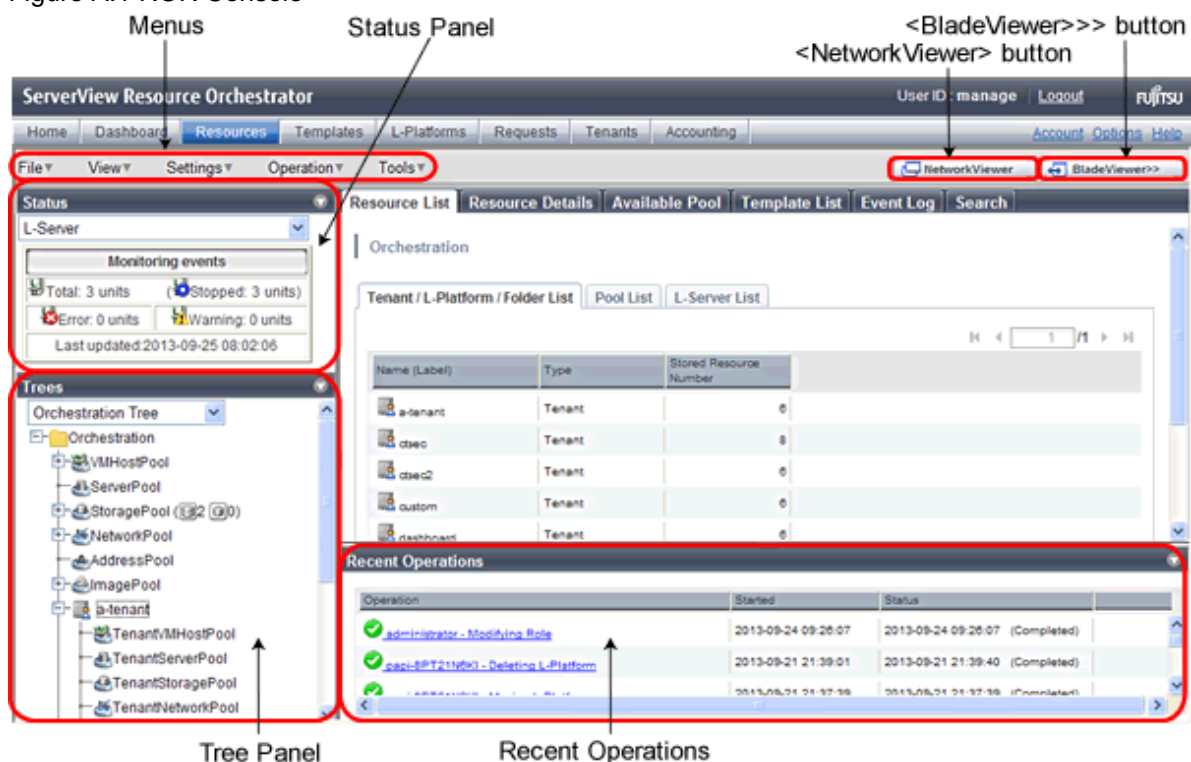
This section explains how the [Resource] tab of the ROR console is organized.

For sections other than the [Resource] tab, refer to the following manuals:

- "User's Guide for Infrastructure Administrators CE"
- "User's Guide for Tenant Administrators CE"
- "User's Guide for Tenant Users CE"

The [Resource] tab of the ROR console is sometimes referred to as the ROR console.

Figure A.1 ROR Console



### Menus

Operations can be performed either from the menu bar or popup menus.

### Status Panel

The Status Panel displays the status of managed servers.

The statuses of both physical servers and L-Servers can be displayed. The properties displayed for physical servers and L-Servers can be switched from the drop-down menu.

Only the status of L-Servers is displayed for the following users:

- Users with a role that only allows use of L-Servers
- Users with restricted access

If a warning or error event occurs on a managed server, the status monitoring area starts to blink.

If you click the blinking area, the server's information is displayed on the main panel.

For details on different statuses, refer to "[A.3 Status Panel](#)".

### Tree Panel

By switching between tree types, it is possible to select from the following six types of trees.

If resource folders have been created in the server tree, these resource folders are also displayed.

Only the orchestration tree is displayed for the following users:

- Users with a role that only allows use of L-Servers
- Users with restricted access

The resources displayed are restricted according to the access rights of the logged in user.

### Server Resources

The resources below are shown in a tree view. A status icon is displayed over each resource's icon.

- Chassis
- Server
- Physical OS
- VM Host
- VM guest
- LAN Switch Blades

### Network

The resources below are shown in a tree view. A status icon is displayed over each resource's icon.

- Network Devices (Firewalls)
- Network Devices (Server Load Balancers)
- Network Devices (L2 Switches)
- Network Devices (Ethernet Fabrics)
- Network Devices (Management hosts)
- VFAB

### Power Monitoring Device

The following power monitoring devices are shown in a tree view.

- PDU
- UPS

### Management Software

The following management software, which can be used in coordination with Resource Orchestrator, are shown in a tree view. A status icon is displayed over each resource's icon.

- Management Software (vCenter Server)
- Management Software (SCVMM)
- Management Software (OVM Manager)
- Management Software (Blade Logic)



- Management Software (VIOM)
- Management Software (SVFAB)
- Management software (Horizon View)

This is only displayed for Windows manager.

## Storage

In the Storage Tree, resources managed by Resource Orchestrator are displayed in a tree view. The following resource types are displayed:

- Storage Management Software
- Storage Units
- RAID Groups
- LUN
- Virtual Disks of VM Guests

## Orchestration Tree

Manages and operates L-Servers and resource pools.

All resources authorized for access by the logged in user are displayed. The resources displayed differ depending on the role and access rights of the user.

The resources below are shown in a tree view.

- Resource folders and L-Servers
- Resource pools and the resources registered in resource pools

The top-level resource folder of each tree is called a root folder. The standard tree consists of only the root folder.

The orchestration tree displays the following information:

- [Resource List] Tab
  - Displays information on resources related to the resource selected in the resource tree.
- [Resource Details] Tab
  - Displays detailed information for the resource selected in the resource tree. Additionally, external software can be opened.
- Available Pool
  - A list of resource pools available for use is displayed.
- Template List
  - A list of the L-Server templates available for use is displayed.
  - An L-Server can be created using an L-Server template.
- [Search] Tab
  - The screen to search resources on the orchestration tree is displayed.

## Main Panel

The Main Panel displays information on resources selected in the tree.

- [Resource List] Tab
  - Displays information on resources related to the resource selected in the resource tree.
- [Resource Details] Tab
  - Displays more detailed information on the resource selected in the tree, or a resource that was double-clicked in the [Resource List] tab.

- [Recovery Settings] Tab

Displays information on the spare servers assigned to the resource selected in the resource tree.

- [Image List] Tab

Displays system and cloning image information.

- Available Pool

A list of resource pools available for use is displayed.

The resource pools displayed are restricted according to the role and scope of access of the user.

- Template List

A list of registered L-Server templates is displayed.

An L-Server can be created using an L-Server template.

- Event

Resource Orchestrator events and related information are displayed.

The event log displays a history of events that have occurred on managed resources.

The resources displayed are restricted according to the role and scope of access of the user.

- [Search] Tab

The screen to search resources on the orchestration tree is displayed.

When the user is one of the following, the [Search] tab is not displayed.

- Users with a role that only allows use of L-Servers
- Users with restricted access

## Recent Operations

Displays the progress statuses and results of operations performed in Resource Orchestrator according to the user's access scope.

## [NetworkViewer] Button

Displays the NetworkViewer showing the network configuration in another window or tab.

The browser settings determine whether another window or tab is used.

For details, refer to "[11.2 Screen Layout](#)".

## [BladeViewer>>] Button

Opens the BladeViewer interface.

BladeViewer is a management interface specially designed for blade servers. It can only be used in conjunction with PRIMERGY BX servers registered as managed servers.

When users are as follow, the [BladeViewer>>] button is not displayed.

- Users with a role that only allows use of L-Servers
- Users with restricted access

For details, refer to "[4.2 User Interface](#)".

## A.2 Menus

---

This section describes the menus available in the ROR console.

Figure A.2 Menu



## A.2.1 List of Menus

The menus provided on the menu bar of the ROR console are listed in the table below.  
Options available vary according to the authority level of the user account.

Table A.1 Menu Items

Menu Items		Function	
Menu	Submenu		
File	System Configuration File	Import	Imports the system configuration file for pre-configuration.
		Export	Exports the system configuration file for pre-configuration.
		Download Template	Downloads a sample of the system configuration file (CSV format) for pre-configuration.
	L-Server template	Import	Imports an L-Server template.
		Export	Exports an L-Server template.
		Edit	Creates and edits an L-Server template.
	Export Environmental Data	Chassis	Exports environmental data collected from chassis.
		Server	Exports environmental data collected from servers.
		Power Monitoring Device	Exports environmental data collected from power monitoring devices.
View	Reset Layout	-	Returns the layout of the ROR console to its initial state.
Settings	Register	Chassis	Registers a chassis.
		Server	Registers a server.
		SPARC Enterprise (M3000/T Series)	Registers a SPARC Enterprise (M3000/T series) server.
		SPARC Enterprise (Partition Model)	Registers SPARC Enterprise M4000/M5000/M8000/M9000 servers.
		Fujitsu M10-1/M10-4	Registers a Fujitsu M10-1/M10-4.
		Fujitsu M10-4S	Registers a Fujitsu M10-4S.
		PRIMEQUEST	Registers a PRIMEQUEST.
		LAN switch	Registers a LAN switch blade.
		Agent	Register the agent.
		Power Monitoring Device	Registers a power monitoring device.
		Management Software (vCenter Server)	Registers VM management software (VMware vCenter Server).
		Management Software (SCVMM)	Registers VM management software (System Center Virtual Machine Manager).
		Management Software (OVM Manager)	Registers management software (OVM Manager).
		Management Software (Blade Logic)	Registers management software (Blade Logic).
Management Software (VIOM)	Registers VM management software (VIOM).		
Management Software (SVFAB)	Registers management software (SVFAB).		

Menu Items		Function
Menu	Submenu	
	Management software (Horizon View) (*1)	Registers management software (Horizon View).
Pool	Register Resources	Registers a resource to the selected resource pool.
	Unregister Resources	Unregisters the selected resource from a resource pool. Or unregisters resources registered in currently selected resource pools.
	Move Resources	Moves the selected resource to another resource pool. Or moves a resource from the selected resource pool.
Create	Folder	Creates a resource folder in the server resource tree or orchestration tree.
	Tenant (*2)	Creates a tenant in the orchestration tree.
	Pool	Creates a resource pool in the orchestration tree.
	L-Server	Create an L-Server.
	Network Resource (New)	Creates a new network resource.
	Network Resource (Using existing admin subnet)	Creates a network resource from an admin LAN subnet.
Move to Folder	-	Moves a resource pool, resource folder, or a resource to another resource folder.
Delete	-	Deletes a resource.
Modify (*3)	Registration Settings	Modifies a resource's registration settings.
	HBA address rename settings (*4)	Modifies the HBA address rename settings of a server.
	Public LAN (MAC Address Information) (*5)	Modifies the information for the public LAN that a server is connected to.
	Network Settings (*6, *7, *8)	Modifies the network settings of a LAN switch blade.
	Global pool	Modifies the global pool information for the tenant.
	Spare Server Settings (*9)	Modifies a server's recovery settings.
	Monitoring Settings	Modifies the monitoring information for a server.
	WWN Settings (*10)	Modifies the WWN settings for a server.
	Modify Specification	Changes specifications of an L-Server, network resource, or network device.
	Attach Disk	Attaches disks to an L-Server.
	Detach Disk	Detaches disks from an L-Server.
	Network Configuration	Changes the network configuration of an L-Server.
	Definition	Modifies L-Server definition information.
VM Host Login Account	Modifies the registered login account used to communicate with the VM host.	
L-Server Conversion	Convert	Creates a link between an L-Server and a configured physical server or virtual machine.
	Revert	Cancel the link between an L-Server and a physical server or virtual machine.

Menu Items		Function	
Menu	Submenu		
	Role Management	-	Displays a list of roles and creates, modifies, or deletes a role.
	User Accounts	-	Adds, changes, and deletes user accounts.
	User Groups (*2)	-	Creates, modifies, or deletes a user group.
	Change Password	-	Changes the password of the logged-in user.
	Admin LAN Subnet	-	Performs viewing, registration, changing or deletion of the admin LAN subnet information.
Operation	Update	-	Updates a resource.
	Power	ON	Powers on a server.
		OFF	Powers off a server after shutting down its operating system.
		OFF (Forced)	Powers off a server without shutting down its operating system.
		Reboot	Reboots a server after shutting down its operating system.
		Reboot (Forced)	Reboots a server without shutting down its operating system.
	LED (*6)	ON	Turns the maintenance LED on.
		OFF	Turns the maintenance LED off.
	Spare Server (*3, *9)	Switchover	Switches over a server with one of its spare servers.
		Failback	Switches back a server to its pre-switchover state.
		Takeover	Accepts a switched over configuration as final (without switching back to the original configuration).
	Hardware Maintenance	Reconfigure	Detects and reconfigures the properties of a replaced server.
		Restore LAN Switch (*11, *12)	Restores configuration of a LAN switch blade.
	Maintenance Mode (*3)	Set	Places a server or network device into maintenance mode.
		Release	Sets a server or network device into active mode.
	Backup/Restore (*3)	Backup	Backs up a system image from a server.
		Restore	Restores a system image to a server.
		Delete	Deletes backup system images.
	Snapshot	Collect	Collects a snapshot of the L-Server.
		Restore	Restores a snapshot to the L-Server.
		Delete	Deletes a snapshot.
	Cloning (*3, *13)	Collect	Collects a cloning image from a server.
		Deploy	Deploys a cloning image to a server.
	Migrate VM Guest	-	Migrates a VM guest to a different VM host.
	VM Home Position	Settings	Sets VM Home Position.
		Clear	Clears VM Home Position.

Menu Items		Function	
Menu	Submenu		
		Back to Home	Migrates a VM guest to VM Home Position.
	Automatic Network Configuration	-	Automatically configures the network before creating an L-Server.
	Console Screen (*14)	-	Opens the L-Server console.
	Install VM Tool	-	Connects the ISO images for installing VMware Tools to an L-Server.
	Save OVM Configuration XML	-	Saves OVM configuration information in an XML file. (*15)
Tools	Topology	Discover Network Devices	Discovers LAN switches (L2 switches) within the admin LAN.
		Detect physical links	Acquires physical link data from registered LAN switches (L2 switches).
	Options	-	Modifies client and environmental data settings.
	Environmental Data Graph	-	Displays environmental data graphs.
	Licenses	-	Displays license settings and registered licenses.

\*1: This is only displayed for Windows manager.

\*2: Only available for Basic mode.

\*3: Cannot be selected for a VM guest.

\*4: Cannot be selected for PRIMEQUEST and SPARC Enterprise Partition Models.

\*5: Only available for PRIMERGY RX, PRIMERGY TX, and other PC servers.

\*6: Only available for PRIMERGY BX servers.

\*7: Cannot be set for PRIMERGY BX900/BX400 LAN switch blades operating in IBP mode or Converged Fabric mode.

\*8: Cannot be set for LAN switch blade PY CB 10Gb FEX Nexus B22.

\*9: Cannot be selected for PRIMEQUEST.

\*10: Only available for Fujitsu M10/SPARC Enterprise.

\*11: Not available for PRIMERGY BX900/BX400 LAN switch blades operating in IBP mode or Converged Fabric mode.

\*12: Not available for LAN switch blade PY CB 10Gb FEX Nexus B22.

\*13: Cannot be selected for a VM host.

\*14: The screen of "[A.5 Console Screen](#)" is only displayed for L-Servers in the following environments:

- VMware vSphere 5.1
- VMware vSphere 5.5
- VMware vSphere 6.0

\*15: Only available when the VM host is OVM for SPARC.

## A.2.2 Popup Menus

Right-clicking in the resource tree or in the VM guest list, Disk list, or Image list displays a popup menu with a list of options available for the selected resource status.

The tables below detail the popup menus provided for each object.

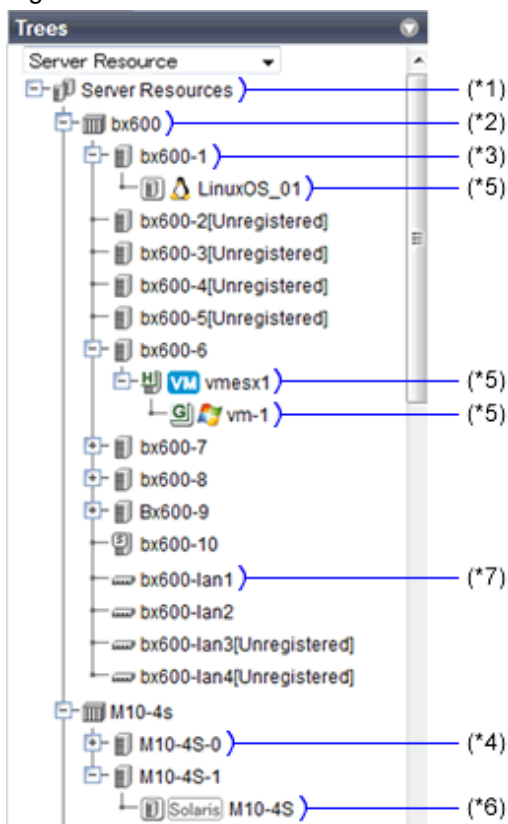
Available menus vary according to user account privileges.

- [Server](#)
- [Network](#)
- [Power Monitoring Devices](#)
- [Management Software](#)

- Storage
- Orchestration Tree
- Cloning Image List (Server Tree)
- Cloning Image List (Orchestration Tree)
- System Image List
- VM Guest List (Orchestration Tree)
- Disk List (Storage Tree)
- Disk List (Orchestration Tree)

## Server

Figure A.3 Server Tree



\*1: Refer to "Table A.2 Popup Menus Available for the "Server Resources" Tree Node".

\*2: Refer to "Table A.3 Popup Menus Available for Chassis".

\*3: Refer to "Table A.4 Popup Menus Available for Servers".

\*4: Refer to "Table A.5 Popup Menus Available for Fujitsu M10/SPARC Enterprise".

\*5: Refer to "Table A.6 Popup Menus Available for Physical OSs [Physical Servers], VM Hosts, and VM Guests".

\*6: Refer to "Table A.7 Popup Menus Available for Physical OSs [Solaris]".

\*7: Refer to "Table A.8 Popup Menus Available for LAN Switch Blades".

Table A.2 Popup Menus Available for the "Server Resources" Tree Node

Popup Menu		Function
Menu	Submenu	
Register	Chassis	Registers a chassis.
	Server	Registers a server.

Popup Menu		Function
Menu	Submenu	
	SPARC Enterprise (M3000/T Series)	Registers a SPARC Enterprise (M3000/T series) server.
	SPARC Enterprise (Partition Model)	Registers the chassis of a SPARC Enterprise M4000/M5000/M8000/M9000 server.
	Fujitsu M10-1/M10-4	Registers a Fujitsu M10-1/M10-4.
	Fujitsu M10-4S	Registers a Fujitsu M10-4S.
	PRIMEQUEST	Registers the chassis of a PRIMEQUEST.
Export	Environmental Data (Chassis)	Exports environmental data collected from chassis.
	Environmental Data (Servers)	Exports environmental data collected from servers.
Create	Folder	Creates a resource folder.

Table A.3 Popup Menus Available for Chassis

Popup Menu		Function
Menu	Submenu	
Delete	-	Deletes a chassis.
Update	-	Updates a chassis.
Modify	Registration Settings	Modifies a chassis' registration settings.
External Management Software	-	Opens a Management Blade's Web interface.
Export (*)	Environmental Data	Exports environmental data collected from chassis.
Move to Folder	-	Moves a chassis to another folder.

\* Note: This option is only available for chassis equipped with power monitoring capabilities.

Table A.4 Popup Menus Available for Servers

Popup Menu		Function
Menu	Submenu	
Register	Server (*1)	Registers a server.
	Agent	Register the agent.
Delete	-	Deletes a server.
Update	-	Updates a server.
Modify	Registration Settings	Modifies a server's registration settings.
	HBA address rename settings (*2)	Modifies the HBA address rename settings of a server.
	Public LAN (MAC Address Information) (*3)	Modifies the information for the public LAN that a server is connected to.
	Network Settings (*4)	Modifies the network settings of a server.
	Spare Server Settings (*2)	Modifies a server's recovery settings.
Maintenance Mode	Set	Places a server into maintenance mode.
	Release	Sets a server to active mode.
Power	ON	Powers on a server.



Popup Menu		Function
Menu	Submenu	
	OFF	Powers off a server after shutting down its operating system.
	OFF (Forced)	Powers off a server without shutting down its operating system.
	Reboot	Reboots a server after shutting down its operating system.
	Reboot (Forced)	Reboots a server without shutting down its operating system.
LED (*4)	ON	Turns the maintenance LED on.
	OFF	Turns the maintenance LED off.
Hardware Maintenance	Reconfigure	Detects and reconfigures the properties of a replaced server.
Backup/Restore	Restoration	Restores a system image to a server.
Cloning	Deploy	Deploys a cloning image to a server.
Console Screen (*5)	-	Opens the server console.
External Management Software (*6)	-	Opens external server management software.
Export (*7)	Environmental Data	Exports environmental data collected from servers.
Move to Folder	-	Moves a server to another folder.

\*1: Only available for PRIMERGY BX series and PRIMEQUEST servers.

\*2: Only available only for VM hosts when using PRIMEQUEST.

\*3: Only available for PRIMERGY RX, PRIMERGY TX, and other PC servers.

\*4: Only available for PRIMERGY BX servers.

\*5: In order to open the console screen of the managed server, register the account of Remote Management Controller with ServerView Operations Manager. If a window for Remote Management Controller is displayed when opening the console screen the second or a later time, close the window for Remote Management Controller and then start the console screen again.

\*6: Only available for PRIMERGY series, PRIMEQUEST, SPARC Enterprise M series, and Fujitsu M10 servers.

\*7: This option is only available for chassis equipped with power monitoring capabilities.

Table A.5 Popup Menus Available for Fujitsu M10/SPARC Enterprise

Popup Menu		Function
Menu	Submenu	
Register	Server (*1)	Registers a server.
	Agent	Register the agent.
Delete	-	Deletes a Fujitsu M10/SPARC Enterprise.
Update	-	Updates a Fujitsu M10/SPARC Enterprise.
Modify	Registration Settings	Modifies a Fujitsu M10/SPARC Enterprise's registration settings.
	WWN Settings	Modifies the WWN settings for a server.
	Spare Server Settings	Modifies a server's recovery settings.
Maintenance Mode	Set	Places a server into maintenance mode.
	Release	Sets a server to active mode.
Power	ON	Powers on a Fujitsu M10/SPARC Enterprise.

Popup Menu		Function
Menu	Submenu	
	OFF	Powers off a Fujitsu M10/SPARC Enterprise after shutting down its operating system.
	OFF (Forced)	Powers off a Fujitsu M10/SPARC Enterprise without shutting down its operating system.
	Reboot	Reboots a Fujitsu M10/SPARC Enterprise after shutting down its operating system.
	Reboot (Forced)	Reboots a Fujitsu M10/SPARC Enterprise without shutting down its operating system.
External Management Software	-	Opens external server management software for Fujitsu M10/SPARC Enterprise.
Export (*2)	Environmental Data	Exports environmental data collected from servers.
Move to Folder	-	Moves a server to another folder.

\*1: Only available only for SPARC Enterprise M4000/M5000/M8000/M9000 or Fujitsu M10-4S.

\*2: This option is only available for chassis equipped with power monitoring capabilities.

Table A.6 Popup Menus Available for Physical OSs [Physical Servers], VM Hosts, and VM Guests

Popup Menu		Function
Menu	Submenu	
Delete (*1)	-	Deletes a physical OS or VM host.
Update	-	Updates a physical OS, VM host, or VM guest.
Modify (*1, *2)	HBA address rename settings (*3, *4)	Modifies the HBA address rename settings of a server.
	Network Settings (*4, *5, *6, *7)	Modifies the network settings of a server.
	Spare Server Settings (*3, *4)	Modifies a server's recovery settings.
	Monitoring Settings	Modifies the monitoring information for a server.
	VM Host Login Account (*8)	Modifies the registered login account used to communicate with the VM host.
Power	ON	Powers on a server.
	OFF	Powers off a server after shutting down its operating system.
	OFF (Forced)	Powers off a server without shutting down its operating system.
	Reboot	Reboots a server after shutting down its operating system.
	Reboot (Forced)	Reboots a server without shutting down its operating system.
Spare Server (*1, *3, *4)	Switchover	Switches over a server with one of its spare servers.
	Failback	Switches back a server to its pre-switchover state.
	Takeover	Accepts a switched over configuration as final (without switching back to the original configuration).
Maintenance Mode (*1, *4)	Set	Places a server into maintenance mode.
	Release	Sets a server to active mode.

Popup Menu		Function
Menu	Submenu	
Backup/Restore (*1, *4)	Backup	Backs up a system image from a server.
	Restore	Restores a system image to a server.
Cloning (*1, *9)	Collect	Collects a cloning image from a server.
	Deploy	Deploys a cloning image to a server.
VM Home Position (*1, *8)	Settings	Sets VM Home Position.
	Clear	Clears VM Home Position.
	Back to Home	Migrates a VM guest to VM Home Position.
External Management Software (*1, *10)	-	Opens external server management software.
VM Management Console (*4, *8, *11, *12)	-	Opens the VM management console installed on the client machine. For details, refer to "15.4 External Software" in the "User's Guide VE".
Migrate VM Guest (*13)	-	Migrates a VM guest to a different VM host.
Save OVM Configuration XML (*14)	-	Saves OVM configuration information in an XML file.

\*1: Cannot be selected for a VM guest.

\*2: Only available only for VM hosts when using PRIMEQUEST.

\*3: Cannot be selected for PRIMEQUEST.

\*4: This option may or may not be available according to the server virtualization software used. For details, refer to "9.1 Deciding Server Virtualization Software" in the "Design Guide VE".

\*5: Only available for PRIMERGY BX servers.

\*6: Cannot be set for PRIMERGY BX900/BX400 LAN switch blades operating in IBP mode or Converged Fabric mode.

\*7: Cannot be set for LAN switch blade PY CB 10Gb FEX Nexus B22.

\*8: This menu is not available for a physical OS.

\*9: Cannot be selected for a VM host.

\*10: Only available for PRIMERGY series, PRIMEQUEST, SPARC Enterprise M series, and Fujitsu M10 servers.

\*11: If the VM management screen is started on VMware vSphere 5.0 or later, it may connect with the VM management product or the VM host, and login may fail. In this case, input the password from the VM management screen, and log in.

\*12: To use this feature, a VM management console must be installed and the admin client must be configured properly.

After installing the VM management console, select this menu item and follow the instructions shown in the displayed dialog. Once configuration is completed, the VM management software can be installed from this menu.

\*13: Only available for VM guests.

\*14: Only available when the VM host is OVM for SPARC.

Table A.7 Popup Menus Available for Physical OSs [Solaris]

Popup Menu		Function
Menu	Submenu	
Delete	-	Deletes a Fujitsu M10/SPARC Enterprise.
Update	-	Updates a Fujitsu M10/SPARC Enterprise.
Modify	Spare Server Settings	Modifies a server's recovery settings.
	Monitoring Settings	Modifies a Fujitsu M10/SPARC Enterprise's monitoring settings.

Popup Menu		Function
Menu	Submenu	
Power	ON	Powers on an operating system.
	OFF	Powers off a server after shutting down its operating system.
	OFF (Forced)	Powers off a server without shutting down its operating system.
	Reboot	Reboots a server after shutting down its operating system.
	Reboot (Forced)	Reboots a server without shutting down its operating system.
Spare Server	Switchover	Switches over a server with one of its spare servers.
	Failback	Switches back a server to its pre-switchover state.
	Takeover	Accepts a switched over configuration as final (without switching back to the original configuration).
Maintenance Mode	Set	Places a server into maintenance mode.
	Release	Sets a server to active mode.
External Management Software	-	Opens external server management software for Fujitsu M10/SPARC Enterprise.

Table A.8 Popup Menus Available for LAN Switch Blades

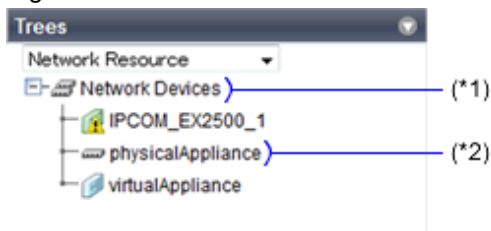
Popup Menu		Function
Menu	Submenu	
Register	LAN Switch	Registers a LAN switch blade.
Delete	-	Deletes a LAN switch blade.
Update	-	Updates a LAN switch blade.
Modify	Registration Settings	Modifies registration settings for a LAN switch blade.
	Network Settings (*1, *2)	Modifies the VLAN settings of a LAN switch blade's external ports.
Restore (*1, *2)	-	Restores configuration of a LAN switch blade.
External Management Software	-	Opens the Web interface for a LAN switch blade.

\*1: Not available for PRIMERGY BX900/BX400 LAN switch blades operating in IBP mode or Converged Fabric mode.

\*2: Not available for LAN switch blade PY CB 10Gb FEX Nexus B22.

## Network

Figure A.4 Network Devices Tree



\*1: Refer to "Table A.9 Popup Menus Available for Network Devices".

\*2: Refer to "Table A.10 Popup Menus Available for Network Devices".

Table A.9 Popup Menus Available for Network Devices

Popup Menu		Function
Menu	Submenu	
Topology	Discover Network Devices	Discovers LAN switches (L2 switches) within the admin LAN.
	Detect physical links	Acquires physical link data from registered LAN switches (L2 switches).

Table A.10 Popup Menus Available for Network Devices

Popup Menu		Function
Menu	Submenu	
Register	-	Registers selected network devices.
Delete	-	Deletes selected network devices.
Update	-	Obtains and updates the information on the selected network devices.
Modify	Registration Settings	Modifies basic information of a network device.
Maintenance Mode	Set	Places a server into maintenance mode.
	Release	Releases maintenance mode.
External Management Software	-	Starts the management screen (Web console) provided by the network device.

## Power Monitoring Devices

Figure A.5 Power Monitoring Device Tree



\*1: Refer to "Table A.11 Popup Menus Available for the "Power Monitoring Devices" Tree Node".

\*2: Refer to "Table A.12 Popup Menus Available for PDU and UPS".

Table A.11 Popup Menus Available for the "Power Monitoring Devices" Tree Node

Popup Menu		Function
Menu	Submenu	
Register	Power Monitoring Device	Registers a power monitoring device.
Export	Environmental Data	Exports environmental data.

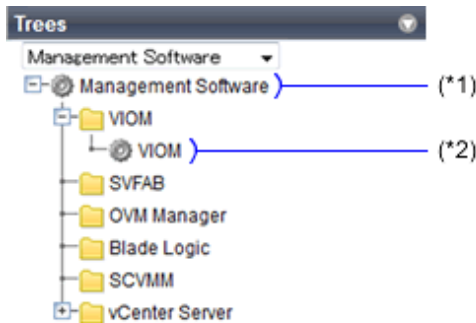
Table A.12 Popup Menus Available for PDU and UPS

Popup Menu		Function
Menu	Submenu	
Delete	-	Deletes a power monitoring device (PDU or UPS).
Update (*)	-	Updates a power monitoring device (PDU or UPS).
Modify	Registration Settings	Modifies a power monitoring device's registration settings.
Hardware Maintenance	Reconfigure	Detects and reconfigures the properties of a replaced power monitoring device (PDU or UPS).
Export	Environmental Data	Exports environmental data.

\*1: Unlike other resources, the properties of a power monitoring devices are not automatically updated. Use this option to update them manually when necessary.

## Management Software

Figure A.6 Management Software Tree



\*1: Refer to "Table A.13 Popup Menus Available for Management Software".

\*2: Refer to "Table A.14 Popup Menus Available for Management Software (vCenter Server/SCVMM/OVM Manager/Blade Logic/VIOM/SVFAB/Horizon View)".

Table A.13 Popup Menus Available for Management Software

Popup Menu		Function
Menu	Submenu	
Register	Management Software (vCenter Server)	Registers VM management software (VMware vCenter Server).
	Management Software (SCVMM)	Registers VM management software (System Center Virtual Machine Manager).
	Management Software (OVM Manager)	Registers management software (OVM Manager).
	Management Software (Blade Logic)	Registers management software (Blade Logic).
	Management Software (VIOM)	Registers VM management software (VIOM).
	Management Software (SVFAB)	Registers management software (SVFAB).
	Management Software (Horizon View) (*)	Registers management software (Horizon View).

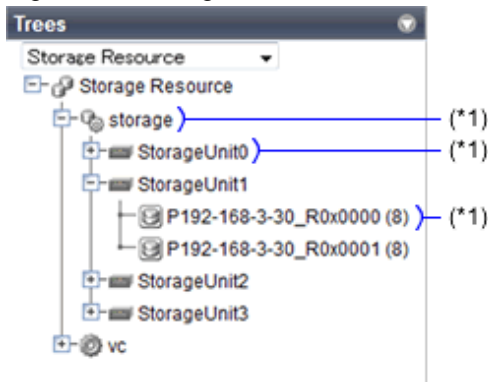
\* Note: This is only displayed for Windows manager.

Table A.14 Popup Menus Available for Management Software (vCenter Server/SCVMM/OVM Manager/Blade Logic/VIOM/SVFAB/Horizon View)

Popup Menu		Function
Menu	Submenu	
Delete	-	Deletes management software.
Update	-	Updates management software information.
Modify	Registration Settings	Modifies registration settings for management software.

**Storage**

Figure A.7 Storage Resource Tree



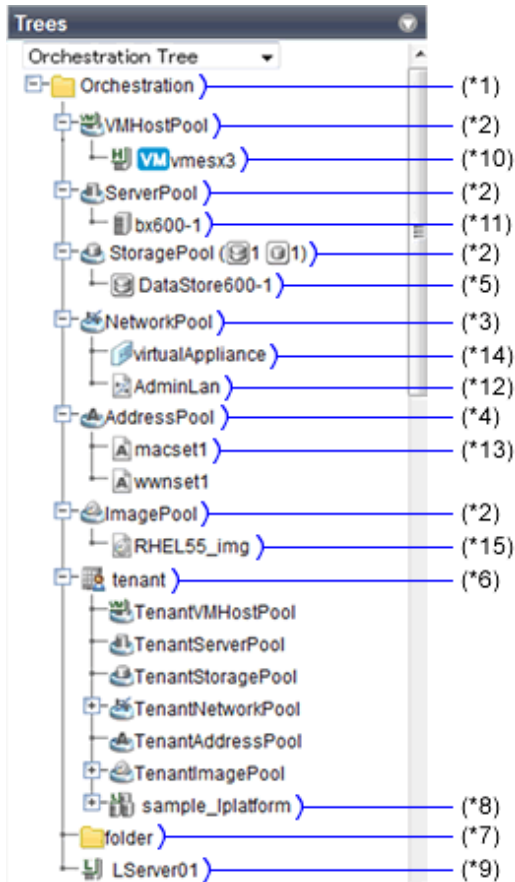
\* Note: Refer to "Table A.15 Popup Menus Available for the Storage Tree (Storage Management Software, Storage Units, and Virtual Storage)".

Table A.15 Popup Menus Available for the Storage Tree (Storage Management Software, Storage Units, and Virtual Storage)

Popup Menu		Function
Menu	Submenu	
Update	-	Updates a resource.
Change Settings	Basic Information	Modifies the selected resource's registration settings.

## Orchestration Tree

Figure A.8 Orchestration Tree



\*1: Refer to "Table A.16 Popup Menus Available for the Orchestration Tree".

\*2: Refer to "Table A.17 Popup Menus Available for Resource Pools (VM Hosts, Servers, Storage, and Images)".

\*3: Refer to "Table A.18 Popup Menus Available for Network Pools".

\*4: Refer to "Table A.19 Popup Menus Available for Address Pools".

\*5: Refer to "Table A.20 Popup Menus Available for Virtual Storage".

\*6: Refer to "Table A.21 Popup Menus Available for Tenants".

\*7: Refer to "Table A.22 Popup Menus Available for Folders".

\*8: Refer to "Table A.23 Popup Menus Available for L-Platforms".

\*9: Refer to "Table A.24 Popup Menus Available for L-Servers".

\*10: Refer to "Table A.25 Popup Menus Available for VM Hosts".

\*11: Refer to "Table A.26 Popup Menus Available for Physical Servers".

\*12: Refer to "Table A.27 Popup Menus Available for the "Network Resources" Tree Node".

\*13: Refer to "Table A.28 Popup Menus Available for Address Sets".

\*14: Refer to "Table A.29 Popup Menus Available for Network Devices".

\*15: Refer to "Table A.31 Popup Menus Available for Cloning Images".

Table A.16 Popup Menus Available for the Orchestration Tree

Popup Menu		Function
Menu	Submenu	
Create	Folder	Creates a resource folder.
	Tenant	Create tenants.
	Pool	Creates a resource pool.
	L-Server	Create an L-Server.
Power	ON	Powers on all L-Servers in a resource folder.



Popup Menu		Function
Menu	Submenu	
	OFF	Powers off all L-Servers in a resource folder.
	Reboot	Reboots all L-Servers in a resource folder.

Table A.17 Popup Menus Available for Resource Pools (VM Hosts, Servers, Storage, and Images)

Popup Menu		Function
Menu	Submenu	
Register Resources	-	Registers a resource to the selected resource pool.
Unregister Resources	-	Unregisters resources from the selected resource pool.
Move Resources	-	Moves registered resources in the selected resource pool to another resource pool.
Delete	-	Deletes the specified resource pool.
Change Settings	Basic Information	Modifies a resource pool's registration settings.
Move to Folder	-	Moves the specified resource pool and all resources registered there.

Table A.18 Popup Menus Available for Network Pools

Popup Menu		Function
Menu	Submenu	
Register Resources	-	Registers a resource to the selected resource pool.
Create Network Resource	New	Create a network resource.
	Using existing admin LAN subnet	Creates a network resource from a registered admin LAN subnet as an admin LAN.
Unregister Resources	-	Unregisters resources from the selected network pool.
Move Resources	-	Moves resources registered in the selected network pool to another network pool.
Delete	-	Deletes the specified network pool.
Change Settings	Basic Information	Modifies the basic information of a network pool.
Move to Folder	-	Moves the specified network pool and all resources registered there.

Table A.19 Popup Menus Available for Address Pools

Popup Menu		Function
Menu	Submenu	
Delete	-	Deletes the specified address pool.
Change Settings	Basic Information	Modifies registration settings of an address pool.
Move to Folder	-	Moves the specified address pool and all resources registered there.

Table A.20 Popup Menus Available for Virtual Storage

Popup Menu		Function
Menu	Submenu	
Unregister	-	Unregisters the selected resource from a resource pool.
Update	-	Updates a resource.
Change Settings	Basic Information	Modifies the selected resource's registration settings.
Move Resources	-	Moves a resource to another resource pool.
Start Management Software Console	-	Opens a management console.

Table A.21 Popup Menus Available for Tenants

Popup Menu		Function
Menu	Submenu	
Create	Folder	Creates a resource folder.
	Pool	Creates a resource pool.
	L-Server	Create an L-Server.
Delete	-	Deletes the specified tenant.
Change Settings	Basic Information	Modifies a tenant's registration settings.
	Global pool	Modifies the settings of the global pool for the tenant.
Move to Folder	-	Moves the specified tenant and all resources registered there.
Power	ON	Powers on all L-Servers in a resource folder.
	OFF	Powers off all L-Servers in a resource folder.
	Reboot	Reboots all L-Servers in a resource folder.

Table A.22 Popup Menus Available for Folders

Popup Menu		Function
Menu	Submenu	
Create	Folder	Creates a resource folder.
	Tenant	Create tenants.
	Pool	Creates a resource pool.
	L-Server	Create an L-Server.
Delete	-	Deletes the specified folder.
Change Settings	Basic Information	Modifies a tenant's registration settings.
Move to Folder	-	Moves the specified tenant and all resources registered there.
Power	ON	Powers on all L-Servers in a resource folder.
	OFF	Powers off all L-Servers in a resource folder.
	Reboot	Reboots all L-Servers in a resource folder.

Table A.23 Popup Menus Available for L-Platforms

Popup Menu		Function
Menu	Submenu	
Move to Folder	-	Moves an L-Platform to another folder.

Table A.24 Popup Menus Available for L-Servers

Popup Menu		Function
Menu	Submenu	
Register	Agent	Register the agent.
Delete	-	Deletes the specified L-Server.
Update	-	Updates a resource.
Change Settings	Basic Information	Modifies the basic information of an L-Server.
	Modify Specification	Modifies the specifications of an L-Server.
	Attach Disk	Attaches disks to an L-Server.
	Detach Disk	Detaches disks from an L-Server.
	Network Configuration	Changes the network configuration of an L-Server.
	Definition	Modifies L-Server definition information.
Move to Folder	-	Moves the specified resource.
Power	ON	Powers on an L-Server.
	OFF	Powers off an L-Server.
	OFF (Forced)	Powers off an L-Server forcibly.
	Reboot	Reboots an L-Server.
	Reboot (Forced)	Reboots an L-Server forcibly.
Migrate	-	Moves an L-Server between servers.
Snapshot	Collect	Collects a snapshot of the specified L-Server.
	Restore	Restores a snapshot to the L-Server.
	Delete	Deletes a snapshot.
Backup/Restore	Backup	Backs up a system image from an L-Server.
	Restoration	Restore a system image.
	Delete	Deletes a system image.
Cloning	Collect	Collects a cloning image.
Console Screen (*)	-	Opens the L-Server console.
Install VM Tool	-	Connects the ISO images for installing VMware Tools to an L-Server.
Revert	-	<p>Cancels the link between an L-Server and a physical server or virtual machine.</p> <p>Only the L-Servers that were created by linking are displayed.</p>

\* Note: The screen of "[A.5 Console Screen](#)" is only displayed for L-Servers in the following environments:

- VMware vSphere 5.1
- VMware vSphere 5.5

Table A.25 Popup Menus Available for VM Hosts

Popup Menu		Function
Menu	Submenu	
Unregister	-	Unregisters the selected resource from a resource pool.
Update	-	Updates a resource.
Move Resources	-	Moves a resource to another resource pool.
Maintenance Mode	Set	Places a server into maintenance mode.
	Release	Sets a server to active mode.
External Management Software	-	Opens a VM host's Web interface.
Convert to L-Server	-	Creates a link between an L-Server and a configured virtual machine.

Table A.26 Popup Menus Available for Physical Servers

Popup Menu		Function
Menu	Submenu	
Unregister	-	Unregisters the selected resource from a resource pool.
Update	-	Updates a resource.
Move Resources	-	Moves a resource to another resource pool.
Maintenance Mode	Set	Places a server into maintenance mode.
	Release	Sets a server to active mode.
External Management Software	-	Opens a server management screen.
Convert to L-Server	-	Creates a link between an L-Server and a configured physical machine.

Table A.27 Popup Menus Available for the "Network Resources" Tree Node

Popup Menu		Function
Menu	Submenu	
Delete	-	Deletes the specified network resource.
Change Settings	Basic Information	Modifies the selected resource's registration settings.
	Modify Specification	Modifies the specifications of the selected network resource (external connection port/subnet settings).
Automatic Network Configuration	-	Automatically configures the network before creating an L-Server.
Move Resources	-	Moves a resource to another resource pool.

Table A.28 Popup Menus Available for Address Sets

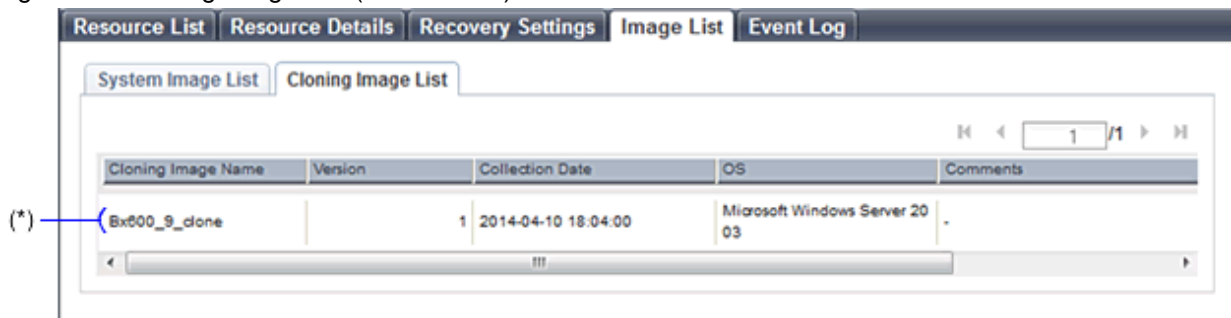
Popup Menu		Function
Menu	Submenu	
Delete	-	Deletes the specified network resource.
Move Resources	-	Moves a resource to another resource pool.

Table A.29 Popup Menus Available for Network Devices

Popup Menu		Function
Menu	Submenu	
Unregister	-	Unregisters the selected resource from a resource pool.
Update	-	Updates a resource.
Move Resources	-	Moves a resource to another resource pool.

### Cloning Image List (Server Tree)

Figure A.9 Cloning Image List (Server Tree)



\* Note: Refer to "Table A.30 Popup Menus Available for Cloning Images".

Table A.30 Popup Menus Available for Cloning Images

Popup Menu		Function
Menu	Submenu	
Deploy	-	Deploys a cloning image to a server.
Delete	-	Deletes a cloning image.



#### Note

If ServerView Deployment Manager is used on the admin LAN, the popup menu for cloning images cannot be used.

### Cloning Image List (Orchestration Tree)

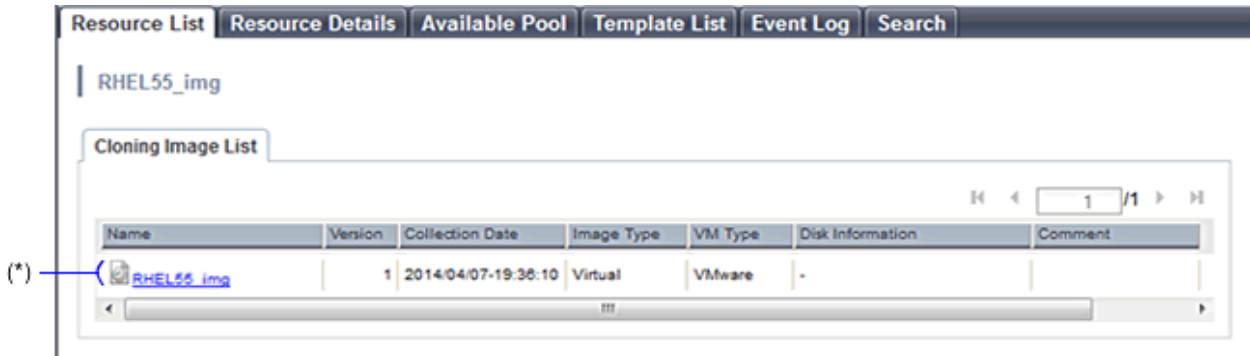
The following menus are displayed when selected from the orchestration tree.

Table A.31 Popup Menus Available for Cloning Images

Popup Menu		Function
Menu	Submenu	
Unregister	-	Unregisters the selected resource from a resource pool.

Popup Menu		Function
Menu	Submenu	
Update	-	Updates a resource.
Move Resources	-	Moves a resource to another resource pool.

Figure A.10 Cloning Image List (Orchestration Tree)



\* Note: Refer to "Table A.32 Popup Menus Available for Cloning Images".

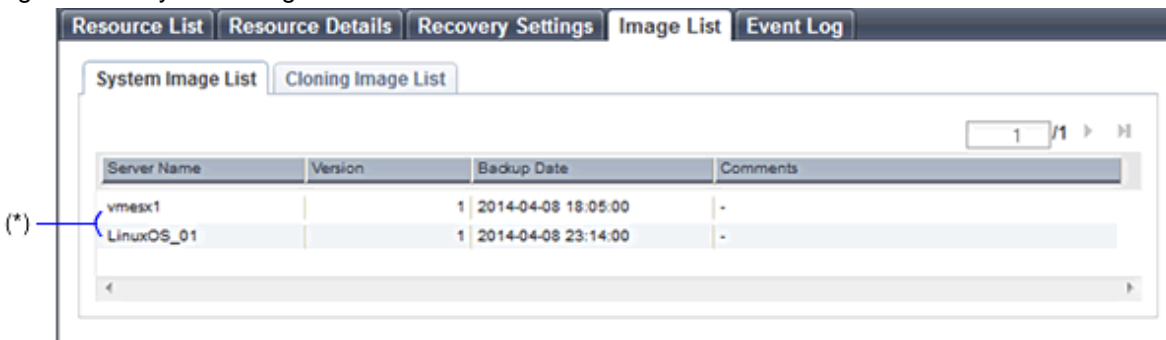
The following menus are displayed when selected from the cloning image list.

Table A.32 Popup Menus Available for Cloning Images

Popup Menu		Function
Menu	Submenu	
Delete	-	Deletes the selected cloning images.
Change Settings	Basic Information	Modifies the selected resource's registration settings.

## System Image List

Figure A.11 System Image List



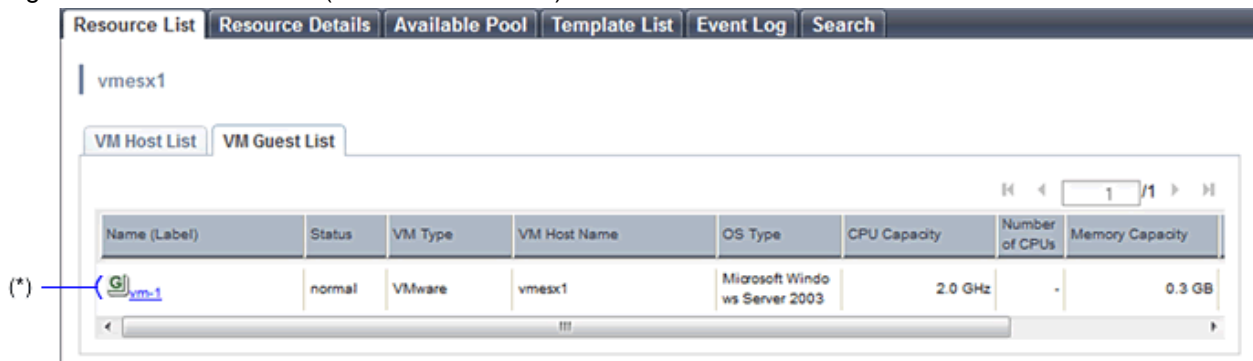
\* Note: Refer to "Table A.33 Popup Menus Available for System Images".

Table A.33 Popup Menus Available for System Images

Popup Menu		Function
Menu	Submenu	
Restoration	-	Restores a system image to a server.
Delete	-	Deletes a system image.

## VM Guest List (Orchestration Tree)

Figure A.12 VM Guest List (Orchestration Tree)



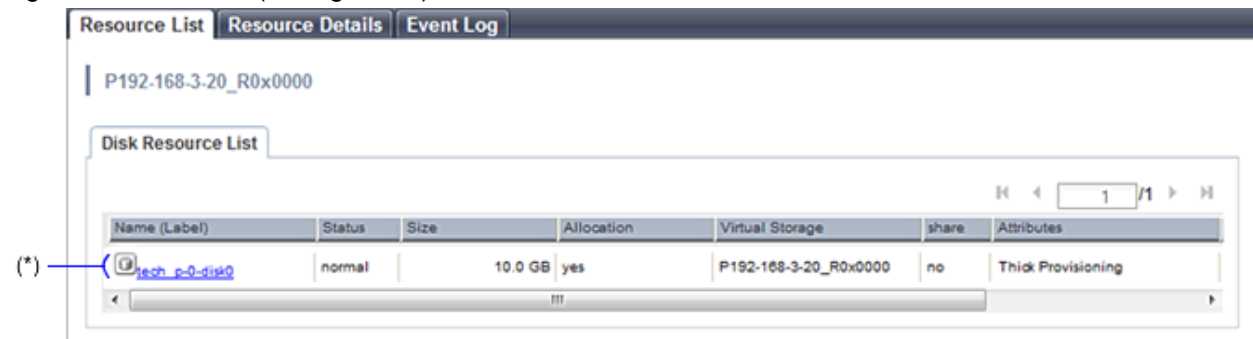
\* Note: Refer to "Table A.34 Popup Menus Available for VM Guests".

Table A.34 Popup Menus Available for VM Guests

Popup Menu		Function
Menu	Submenu	
Start Management Software Console	-	Opens a VM host's Web interface. Displayed from the VM guest list when selecting a VM host.

## Disk List (Storage Tree)

Figure A.13 Disk List (Storage Tree)



\*Note: Refer to "Table A.35 Popup Menus Available for Disks".

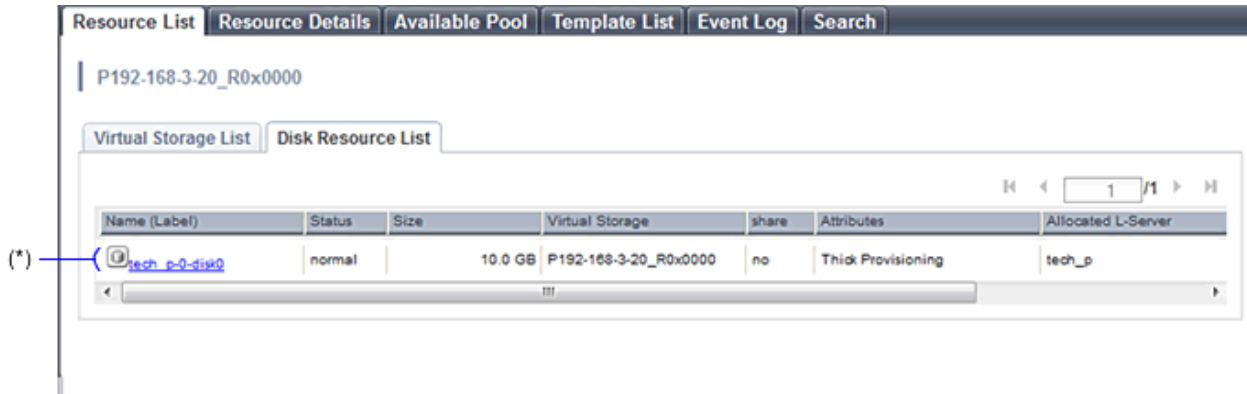
The following menus are displayed from the disk list displayed when selecting a virtual storage.

Table A.35 Popup Menus Available for Disks

Popup Menu		Function
Menu	Submenu	
Update	-	Updates a resource.
Change Settings	Basic Information	Modifies the selected resource's registration settings.

## Disk List (Orchestration Tree)

Figure A.14 Disk List (Orchestration Tree)



\*Note: Refer to "Table A.36 Popup Menus Available for Disks".

The following menus are displayed from the disk list displayed when selecting a storage pool.

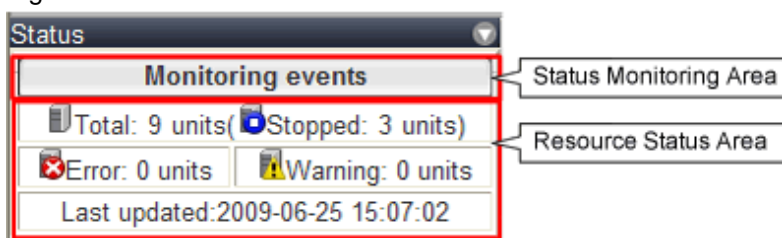
Table A.36 Popup Menus Available for Disks

Popup Menu		Function
Menu	Submenu	
Unregister	-	Unregisters the selected resource from a resource pool.
Update	-	Updates a resource.
Change Settings	Basic Information	Modifies the selected resource's registration settings.
Move Resources	-	Moves a resource to another resource pool.

## A.3 Status Panel

This section explains the different statuses that are displayed in the ROR console.

Figure A.15 Status Panel



### Status Monitoring Area

The Event Log monitors a history of events that have occurred on managed resources.

Based on detected events, the status monitoring area will change color and blink. Clicking the status monitoring area will stop the blinking.

The following table details the different statuses and their associated corrective actions.

Table A.37 Monitor Status List

Monitoring Status	Background Color	Details	Corrective Action
Monitoring events	Grey	This indicates a normal state. No warning or error-level events have occurred on the displayed resources.	No action is necessary.



Monitoring Status	Background Color	Details	Corrective Action
Warning event detected	Yellow	This indicates a warning state. A warning-level event has occurred on one or more of the displayed resources.	Click the status monitoring area to stop the blinking and fix the cause of the problem.
Error event detected	Red	This indicates an error state. An error-level event has occurred on one or more of the displayed resources.	Click the status monitoring area to stop the blinking and fix the cause of the problem.

#### Resource Status Area

This area displays the number of registered servers experiencing each status.

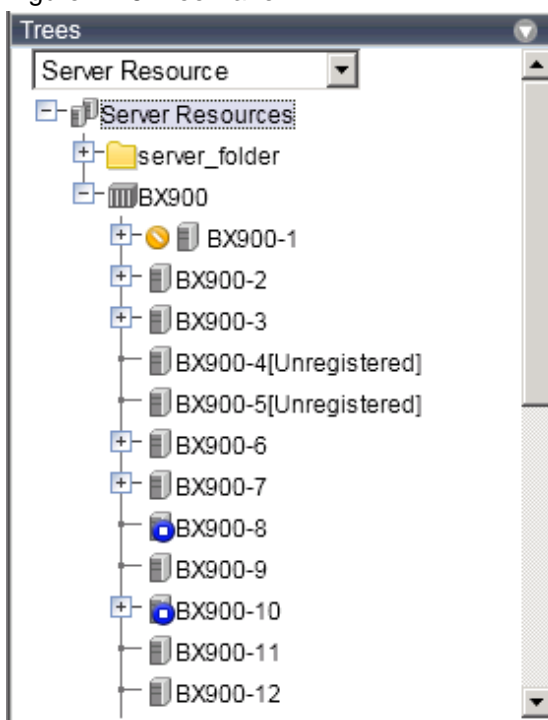
The resource status area lights up when there is at least one server in either "Error" or "Warning" status.

Clicking a lit up status area will display a list of resources with that status in the [Resource List] tab. Double-click a displayed resource to switch to its [Resource Details] tab and open either its external management software or the Management Blade's Web interface to investigate the problem.

## A.4 Tree Panel

This section describes the trees used in the ROR console.

Figure A.16 Tree Panel



In the tree panel, clicking the upper area displays the following trees:

- Server Resources
- Network Devices
- Power Monitoring Device
- Management Software
- Storage Resource Tree
- Orchestration Tree

## Server Resources

Chassis, servers, physical OSs, VM hosts, VM guests, and LAN switch blades managed in Resource Orchestrator are displayed in a tree view. Resources are primarily displayed in registration order. However, for blade servers within a common chassis, the order by which Resource Orchestrator detects server blades takes precedence.

Resources displayed in the resource tree are represented by an icon and their resource name. For details on the icons used to indicate different resources, refer to "11.2 Resource Status" in the "Operation Guide CE".

For a non-registered resource, one of the following registration states is displayed at the end of the resource's name.

**Table A.38 Resource Registration States**

[Unregistered]	The resource was automatically detected, but has not been registered yet
[Registering]	The resource is being registered
[Admin Server]	This server is the admin server itself

If a label was set for a resource (in BladeViewer), that label is displayed after the resource name.

### Display Format

`resource_name(label)`

Clicking a resource in the resource tree displays information related to that resource in the Main Panel. Right-clicking a resource displays a list of available operations in a popup menu.

For details on popup menus, refer to "A.2.2 Popup Menus".

If a problem occurs on a resource, a status icon indicating the problem is shown on top of the resource's own icon.

For details on status icons, refer to "11.2 Resource Status" in the "Operation Guide CE".

Clicking a resource icon will show information related to that resource in the Main Panel. Use this information to investigate the problem.



### Information

For a VM host coordinated with VMware vCenter Server, the name (IP address or host name) entered when registering with VMware vCenter Server will be displayed.

## Network

The network devices (firewalls, server load balancers, L2 switches, Ethernet fabric switches, and management hosts) and VFAB other than LAN switch blades managed by Resource Orchestrator are displayed in the tree structure. Resources are sorted and displayed by name in alphabetical order.

Resources displayed in the resource tree are represented by an icon and their resource name.

When the network device is a Converged Fabric, VFABs are displayed under it.

When the network device is a management host, managed network devices (virtual appliances) are displayed.

For details on the icons used to indicate different resources, refer to "11.2 Resource Status" in the "Operation Guide CE".

For a non-registered resource, one of the following registration states is displayed at the end of the resource's name.

**Table A.39 Resource Registration States**

[Unregistered]	The resource was automatically detected, but has not been registered yet
[Registering]	The resource is being registered

If a problem occurs on a resource, a status icon indicating the problem is shown on top of the resource's own icon.

For details on status icons, refer to "11.2 Resource Status" in the "Operation Guide CE".

Clicking a resource icon will show information related to that resource in the Main Panel. Use this information to investigate the problem.

## Power Monitoring Device

The power monitoring devices (PDU or UPS) used by Resource Orchestrator to monitor power consumption are displayed in a tree view. For details on icons used to represent power monitoring devices, refer to "11.2 Resource Status" in the "Operation Guide CE". Clicking a power monitoring device displayed in the resource tree will display its attributes in the Main Panel. Right-clicking a power monitoring device will display a list of available operations in a popup menu. For details on popup menus, refer to "[A.2.2 Popup Menus](#)".

## Management Software

Management software (vCenter Server, SCVMM, OVM Manager, VIOM, or SVFAB) used in coordination with Resource Orchestrator is displayed in a tree view. For details on the icons used to indicate different management software, refer to "11.2 Resource Status" in the "Operation Guide CE". Clicking management software on the tree displays information related to it in the Main Panel. Right-clicking management software will display a list of available operations in a popup menu. For details on popup menus, refer to "[A.2.2 Popup Menus](#)".

## Storage Resource Tree

In the storage resource tree, resources managed by Resource Orchestrator are displayed in a tree view. The following resource types are displayed:

- Storage Management Software
- Storage Units
- RAID Groups
- LUN
- Virtual Disks of VM Guests

## Orchestration Tree

Manages and operates L-Servers and resource pools.

All resources authorized for access by the logged in user are displayed. The resources displayed differ depending on the role and access rights of the user.

The resources below are shown in a tree view.

- Resource folders and L-Servers
- Resource pools and the resources registered in resource pools

The top-level resource folder of each tree is called a root folder. The standard tree consists of only the root folder.

The orchestration tree displays the following information:

- [Resource List] Tab  
Displays information on resources related to the resource selected in the resource tree.
- [Resource Details] Tab  
Displays detailed information for the resource selected in the resource tree. Additionally, external software can be opened.
- Available Pool  
A list of resource pools available for use is displayed.
- Template List  
A list of the L-Server templates available for use is displayed.  
An L-Server can be created using an L-Server template.

## Sorting the Resources in the Tree

The tree displays the resources in ascending order of name, by resource type.

To sort the resource list within the same type of resource, use the following method.

### 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

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 ascending (alphabetical) order of resource names.

registered: Displays the resource list in the order in which the resources were registered or created.



- 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.

## A.5 Console Screen

---

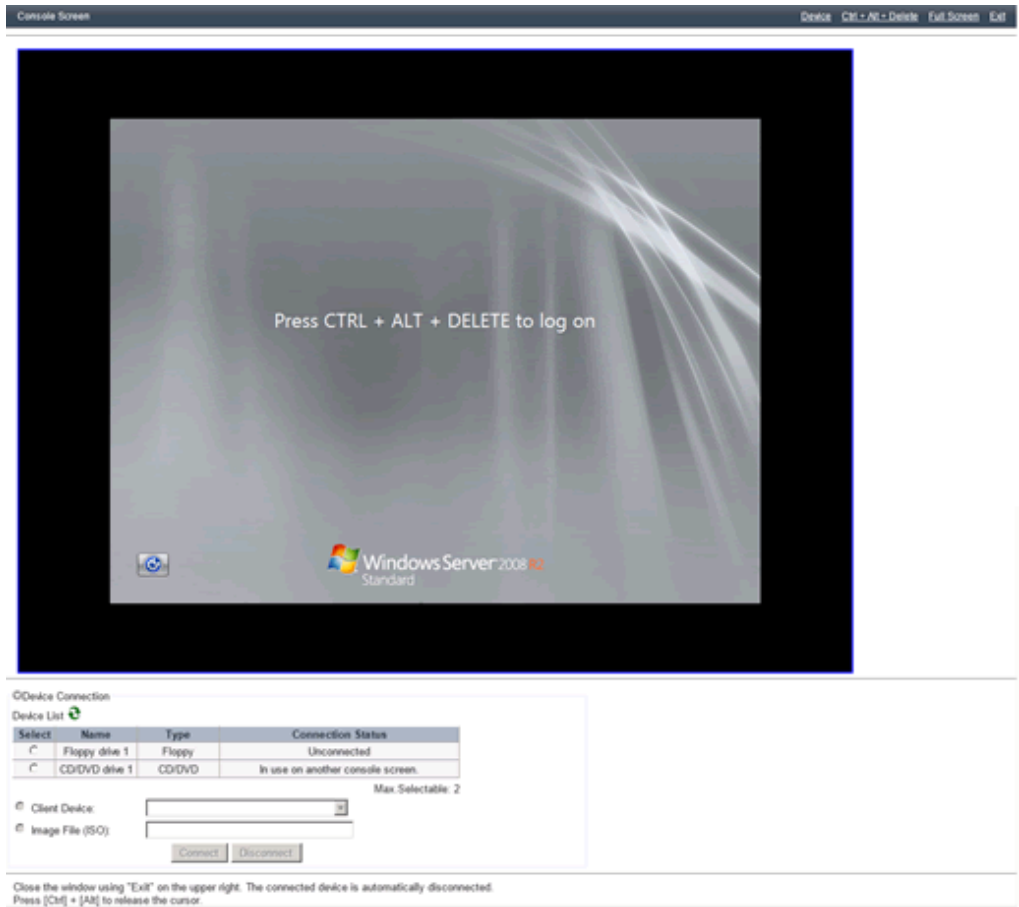
This section describes the screen displayed as the L-Server's console in the ROR console.



This window is displayed only for L-Servers in the following environments:

- VMware vSphere 5.1
- VMware vSphere 5.5
- VMware vSphere 6.0

Figure A.17 Console Screen



The console of the selected virtual L-Server's guest OS on the Orchestration Tree can be operated.

#### Device

Displays the section that allows the user to connect/disconnect client devices and client ISO files to the guest OS.

#### Point

.....  
An alert message is displayed to confirm whether accessing the client device is allowed or not after Device is clicked.  
Press the [Allow] button to retrieve device information on the client.  
.....

#### Ctrl + Alt + Delete

Ctrl + Alt + Delete is transmitted to the console of the guest OS.

#### Full Screen

The console of the guest OS is displayed in full screen.

#### Exit

Disconnect from the guest OS and close the browser window.

#### Point

- .....
- The browser window that displays the console screen is closed by this operation. Do not close the browser window directly using the browser's close command or icon.
  - If the client's device is connected to the guest OS, the connection will be released forcefully.
- .....

## Device Connection

### Select

The radio button that allows the user to select the device on the guest OS is displayed.

### Name

The name of the device on the guest OS is displayed.

### Type

The type of the device on the guest OS is displayed.

### Connection Status

The connection status of the device on the guest OS is displayed.



### Point

Search Result Information is not refreshed automatically.

Click the update icon to get the latest information.

When using VMware vSphere 6, the [Update] button does not work. Use an OS command on the connected console, and check the connection status of the device.

### Client Device

From the dropdown menu, specify the client's device which is to be connected to the device on the guest OS.

### Image File

Specify the client's ISO which is to be connected to the device on the guest OS.

### Connect

The device on the guest OS is connected to the client's device.



### Note

Do not connect to the same guest OS device from multiple console screens of a single L-Server.

### Disconnect

The connection between the device on the guest OS and the client's device is released.

## A.6 [Resource List] Tab

---

The [Resource List] tab in the Main Panel displays a list of resources related to the resource that was selected in the resource tree. For details on the icons used to indicate different resources, refer to "11.2 Resource Status" in the "Operation Guide CE".

The table below shows the information displayed in the Resource List for each selectable resource.

### Server Resources

Information on all registered chassis, servers, and LAN switch blades.

### Chassis

Information on registered servers and LAN switch blades mounted in the selected chassis is displayed.

For PRIMEQUEST, SPARC Enterprise M4000/M5000/M8000/M9000, or Fujitsu M10-4S, information on the partitions configured on the chassis is displayed.

### Server

Information on the physical OSs, VM hosts, and VM guests running on the selected server.

## Physical OS

Information on the selected physical OS.

## VM Host

Information on the VM guests running on the selected VM host.

## VM Guest

Information on the selected VM guest.

## Network Devices

Information on the selected network device is displayed.

The following information is only displayed when using Converged Fabric:

- VFAB name
- VFAB ID
- S-TAG
- Operation mode
- VFAB Automatic Configuration

## Virtual Fabrics

When a virtual fabric is selected, "There is no information to display" is displayed.

## Unregistered Server

Information on the selected unregistered server.

## Network Resources

Information on all registered network resources is displayed.

## Power Monitoring Devices

Information on all registered power monitoring devices.

## Management Software

Information on all registered management software.

## Management Software (vCenter Server, SCVMM, OVM Manager, Horizon View, or VIOM)

Information on the selected management software.

## Storage Resources

Information on all registered storage resources is displayed.

## Storage Management Software

Information on storage units, virtual storage, and disk resources that are operating using the selected storage management software is displayed.

## VM Management Software

Information on storage resources that are operating using the selected VM management software is displayed.

## Storage Units

Information on virtual storage and disk resources that are operating on the selected storage unit is displayed.

## Virtual Storage

Information on the disk resources of the selected virtual storage is displayed.

## L-Server

Information on the selected L-Server is displayed.

## L-Platform

Information on the selected L-Platform is displayed.

## Folder

Information on the selected resource folder is displayed.

## Tenant

Information on the selected tenant is displayed.

## VM Pool

Information on all registered VM hosts is displayed.

## Server Pool

Information on all registered server resources is displayed.

## Storage Pool

Information on all registered storage resources is displayed.

## Network Pool

Information on all network resources that have been created is displayed.

## Address Pool

Information on all registered address sets is displayed.

## Image Pool

Information on all registered cloning images is displayed.

## Cloning Image

Information on the selected cloning image is displayed.

Double-clicking a resource in the [Resource List] tab displays its [Resource Details] tab in the Main Panel. This tab shows detailed information on the selected resource.

In the [Resource List] tab, resources experiencing problems are shown with a status icon displayed on top of their resource icon. Switch to the [Resource Details] tab to check the faulty component or open external management software to investigate the problem.

For details, refer to "Chapter 11 Monitoring Resources" in the "Operation Guide CE".

The initial display is not sorted.

Clicking a column heading in the [Resource List] tab will sort the displayed resources in ascending or descending order.

In each page of the list, 10 items can be displayed. It is possible to move forwards and backwards by single pages, and to the first or last page.

Physical servers, physical OSs, VM hosts, and VM guests are displayed under the "Server List".

Resources displayed in the [Server List] can be filtered by selecting or deselecting their corresponding checkboxes.

## A.7 [Resource Details] Tab

---

The [Resource Details] tab displays detailed information on registered resources.

This information is displayed by double-clicking any of the following resources in the resource tree:

- Chassis
- Server
- Physical OS
- VM Host
- VM Guest
- Network Device
- VFAB



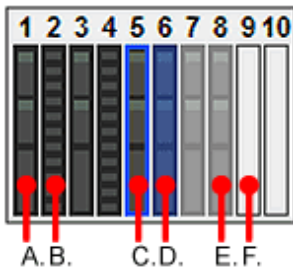
- PDU or UPS
- Management Software (vCenter Server, OVM Manager, SCVMM, or VIOM)
- Storage Management Software
- Storage Units
- Virtual Storage
- VM Management Software
- Folder
- Tenant
- L-Platform
- L-Server
- VM Pool
- Server Pool
- Storage Pool
- Network Pool
- Address Pool
- Image Pool

 **Note**

For items that there is no content to display the details for, a hyphen ("-") is displayed.

Selecting a blade server displays the following chassis image in the [Resource Details] tab. This image shows the slot positions of all server blades installed in the chassis.

Figure A.18 Chassis



The resource images shown in the above chassis image are explained in the table below.

Table A.40 Meaning of the Resources Shown in the Chassis Image

Image	Meaning
A.	Registered server blade.
B.	Detected storage blade.
C.	Currently displayed server blade.
D.	Server blade selected within the chassis image.
E.	Server blade that has not been registered yet.
F.	Empty slot.

## Attributes of Displayed Resources

The [Resource Details] tab displays different attributes for each resource, as described below.

### A.7.1 Chassis Attributes

---

#### General Area

##### Chassis name

The name used to identify a chassis is displayed.

##### System Name

The system name of the chassis is displayed.

Displayed only for PRIMEQUEST servers.

##### Model name

The model name of the chassis is displayed.

##### Admin LAN (IP address)

The chassis admin IP address is displayed.

##### Status

The status of the chassis is displayed.

##### Server blades

The number of server blades mounted in the chassis is displayed.

Displayed only when the chassis of a blade server is selected.

##### Partitions

The number of mounted partitions is displayed.

Displayed only when the chassis of a PRIMEQUEST, SPARC Enterprise M4000/M5000/M8000/M9000, or Fujitsu M10-4S is selected.

##### LAN Switch blades

The number of LAN switch blades mounted in the chassis is displayed.

Displayed only when the chassis of a blade server is selected.



See

.....  
Refer to "11.2 Resource Status" in the "Operation Guide CE" for details on resource statuses.  
.....

#### Hardware Details Area

##### Launch Management Blade Web UI

The link to the management blade's Web interface is displayed.

Not displayed for SPARC Enterprise M4000/M5000/M8000/M9000 or Fujitsu M10-4S.

##### Launch XSCF Web UI

The link to the remote management controller (XSCF) Web UI is displayed.

Only displayed for SPARC Enterprise M4000/M5000/M8000/M9000 or Fujitsu M10-4S.

#### Partition Configuration

The following information is only displayed when the chassis of a PRIMEQUEST 1000 series, SPARC Enterprise M4000/M5000/M8000/M9000, or Fujitsu M10-4S is selected.

#### Partition ID

The partition number is displayed.

#### Partition name

The name used to identify a partition is displayed.

#### SB

The ID of the system board used to configure a partition is displayed.

#### IOB

The ID of the IO board used to configure a partition is displayed.

#### GSPB (Giga-LAN SAS and PCI\_Box Interface Board)

The ID of the GSPB used to configure a partition is displayed.

#### Reserved SB

The ID of the Reserved SB assigned to a partition is displayed.

#### LSB

The partition logical system board (LSB) number is displayed.

Only displayed for SPARC Enterprise M4000/M5000/M8000/M9000 or Fujitsu M10-4S.

#### XSB

The partition eXtended System Board (XSB) number is displayed.

Only displayed for SPARC Enterprise M4000/M5000/M8000/M9000 servers.

#### PSB

The partition physical system board (PSB) number is displayed.

Only displayed for Fujitsu M10-4S.

### PPAR Configuration

This is only displayed for the PRIMEQUEST 2000 series.

#### Partition ID

The partition number is displayed.

#### Partition name

The name used to identify a partition is displayed.

#### Availability

The availability of the PPAR partition is displayed. When usable, "OK" is displayed. When not usable, "NG" is displayed.

#### Extended Partition ID

The Extended Partition number is displayed.

#### SB

The ID of the system board used to configure a partition is displayed.

#### IOU

The ID of the IOU used to configure a partition is displayed.

#### DU

The ID of the DU used to configure a partition is displayed.

#### LPCI\_Box

The ID of the PCI\_BOX\_LH used to configure a partition is displayed.

## Reserved SB

The ID of the Reserved SB assigned to a partition is displayed.

## Extended Partitioning Configuration

This is only displayed for the PRIMEQUEST 2000 series.

### Partition ID

The partition number is displayed.

### Physical server name

The name used to identify a server is displayed.

### Partition name

The name used to identify a partition is displayed.

### Availability

The availability of Extended Partition is displayed. When usable, "OK" is displayed. When not usable, "NG" is displayed.

### PPAR ID

The number of the PPAR to which the Extended Partition is allocated is displayed.

### CPU core count

The total number of physical CPU cores is displayed.

For PRIMEQUEST 2000 series Extended Partition servers, "CPU core count" is displayed.

### Memory capacity (DIMM)

The total capacity of server memory is displayed.

### Memory EXCL

The information of memory EXCL is displayed.

### SKT Binding

The information of SKT Binding is displayed.

### PCI Express Slot

PCI Express slot information is displayed.

### Home SB VGA/USB

The information of Home SB VGA/USB is displayed.

### GbE

GbE information is displayed.

### Disk Unit

Disk unit information is displayed.

## A.7.2 Server Attributes

---

### General Area

#### Physical server name

The name used to identify a server is displayed.

#### Model name

The model name of the server is displayed.

When the server has been registered as a managed server and powered on, the server model name obtained from ServerView Operations Manager is displayed. For other servers, no model name is displayed.

### Product name

The product name of the server is displayed.

For PRIMERGY BX servers, the product name obtained from the management blade is displayed. For other servers, the model name is displayed.

### Status

Server status is displayed.

### Slot

A slot number representing the mounted location is displayed.

Displayed only for PRIMERGY BX servers.

### Partition ID

The partition number is displayed.

Only displayed when a PRIMEQUEST, or a SPARC Enterprise M4000/M5000/M8000/M9000 server, or a server in a Fujitsu M10-4S is selected.

### Maintenance Mode

The operational status of the server is displayed.

One of the following is displayed:

- active
- maintenance

Not displayed when Fujitsu M10/SPARC Enterprise are selected.

### LED status

The illumination status of the maintenance LED is displayed.

Displayed only for PRIMERGY BX servers.

### Admin LAN (MAC address 1)

The MAC address of the NIC used for the admin LAN is displayed.

Not displayed when Fujitsu M10/SPARC Enterprise are selected.

### CPU core count

The CPU core count is displayed.

### CPU type

The type of CPU is displayed.

When using servers other than the following, a hyphen ("-") is displayed.

- PRIMERGY BX Series Servers
- SPARC Enterprise M-Series
- Fujitsu M10
- PRIMEQUEST

### CPU clock speed

CPU clock speed (frequency) is displayed.

When using servers other than the following, a hyphen ("-") is displayed.

- PRIMERGY BX Series Servers
- SPARC Enterprise M-Series
- Fujitsu M10
- PRIMEQUEST

## Memory capacity

The total capacity of server memory is displayed.

When using servers other than the following, a hyphen ("-") is displayed.

- PRIMERGY BX Series Servers
- SPARC Enterprise M-Series
- Fujitsu M10
- PRIMEQUEST

For PRIMEQUEST 2000 series Extended Partition servers, "Memory capacity (DIMM)" is displayed.

## Admin LAN (MAC address 2)

The MAC address of the network interface used for the HBA address rename setup service or for admin LAN redundancy is displayed.

For PRIMERGY RX series servers and TX series servers, the MAC address is displayed after HBA address rename settings are configured.

Not displayed when Fujitsu M10/SPARC Enterprise are selected.

## Admin LAN Redundancy

Displayed when NIC redundancy has been configured for admin LANs.

## Hardware Maintenance Mode

The hardware maintenance mode of the server is displayed.

Displayed only when a PRIMEQUEST server is selected.

## Boot option

The boot option setting specified when registering servers is displayed.

Displayed only when a PRIMEQUEST server is selected.

## L-Server

The link to the allocated L-Server information is displayed.

When linked with an L-Server, the name of that L-Server is displayed.

Not displayed when Fujitsu M10/SPARC Enterprise are selected.

## Extended Partitioning Mode

The status of Extended Partitioning Mode of the PPAR is displayed.

It is only displayed when the PPAR of a PRIMEQUEST 2000 series is selected.

## Dynamic Reconfiguration

The status of Dynamic Reconfiguration is displayed.

It is only displayed when the PPAR of a PRIMEQUEST 2000 series is selected.



See

- Refer to the Management Blade's manual for details on management blades' product names.
- Refer to the ServerView Operation Manager manual for details on the server models displayed and obtained from ServerView Operation Manager.
- Refer to "11.2 Resource Status" in the "Operation Guide CE" for details on resource statuses.

## Hardware Details Area

### Server management software

The link to the web interface of server management software is displayed.  
Displayed only for the following servers:

- PRIMERGY Series
- PRIMEQUEST Servers
- Fujitsu M10/SPARC Enterprise

### Remote Management Controller IP address

IP address of the remote management controller is displayed.  
Displayed only for servers other than PRIMERGY BX and PRIMEQUEST servers.

### I/O Virtualization Management Software

The link to the web interface of external I/O virtualization management software is displayed.  
Displayed only if coordinated up with external I/O virtualization management software.

### VIOM server profile

The assigned VIOM server profile name is displayed.  
Displayed only if managed by VIOM and a server profile has been set.

## Network Properties Area

### Physical Connections

The list of LAN connections between the server and a LAN switch blade or a network device is displayed.  
When a column heading in the list is clicked, the color of the selected column will change and the resources can be sorted in either ascending or descending order.  
The indexes of the admin LAN and the public LAN are displayed.  
The mounted position (index) of each network interface on the server is displayed for each index.  
However, when a PRIMERGY RX/TX series server is selected, the index is displayed as "1" for the admin LAN and "2" for the redundant LAN.  
When "[5.5.3 Registering the Public LAN \(MAC Address\) Information](#)" is performed, "3" or a higher number is displayed as the index for the public LAN.

## Hardware Maintenance Area

### NIC Summary

The MAC addresses and IP addresses of each server are displayed.  
When a virtual MAC address is obtained from VIOM, the virtual MAC address is displayed.  
For servers other than PRIMERGY BX servers and PRIMEQUEST servers, only admin LAN information is displayed.  
When a PRIMERGY RX/TX server is selected and "[5.5.3 Registering the Public LAN \(MAC Address\) Information](#)" has been performed, the information of the public LAN is also displayed.  
The MAC address that is displayed is determined according to the NIC order defined in the definition file.  
For details on the definition file, refer to "[5.1.2 When Managing Rack Mount or Tower Servers Using VIOM](#)".  
For Fujitsu M10/SPARC Enterprise, only the IP address is displayed.



### Information

The IP address displayed is the one set within the server's operating system.  
For network interfaces that were made redundant using BACS software, the information set in BACS (within the operating system) is displayed.  
When the UMC function ([Function number expansion] for the physical L-Server) is enabled for the CNA of the physical server, MAC addresses and IP addresses other than the one with function number 0 are not displayed.

## Partition Configuration

The following information is only displayed when the server of a PRIMEQUEST 1000 series, SPARC Enterprise M4000/M5000/M8000/M9000, or SPARC M10-4S is selected.

### Partition name

The name used to identify a partition is displayed.

### SB

The ID of the system board used to configure a partition is displayed.

### IOB

The ID of the IO board used to configure a partition is displayed.

### GSPB (Giga-LAN SAS and PCI\_Box Interface Board)

The ID of the GSPB used to configure a partition is displayed.

### Reserved SB

The ID of the Reserved SB assigned to a partition is displayed.

### LSB

The partition logical system board (LSB) number is displayed.

Only displayed for SPARC Enterprise M4000/M5000/M8000/M9000 or Fujitsu M10-4S.

### XSB

The partition eXtended System Board (XSB) number is displayed.

Only displayed for SPARC Enterprise M4000/M5000/M8000/M9000 servers.

### PSB

The partition physical system board (PSB) number is displayed.

Only displayed for Fujitsu M10-4S.

The following information is only displayed when the PPAR of a PRIMEQUEST 2000 series is selected.

### Partition name

The name used to identify a partition is displayed.

### SB

The ID of the system board used to configure a partition is displayed.

### IOU

The ID of the IOU used to configure a partition is displayed.

### DU

The ID of the DU used to configure a partition is displayed.

### LPCI\_Box

The ID of the PCI\_BOX used to configure a partition is displayed.

### Reserved SB

The ID of the Reserved SB assigned to a partition is displayed.

The following information is only displayed when the Extended Partition of a PRIMEQUEST 2000 series server is selected.

### Partition name

The name used to identify a partition is displayed.



#### Partition ID (PPAR)

The partition number is displayed.

#### Partition name (PPAR)

The name of the PPAR partition is displayed.

#### Physical server name (PPAR)

The physical server name of the PPAR is displayed.

#### Memory EXCL

The information of memory EXCL is displayed.

#### SKT Binding

The information of SKT Binding is displayed.

#### PCI Express Slot

PCI Express slot information is displayed.

#### Home SB VGA/USB

The information of Home SB VGA/USB is displayed.

#### GbE

GbE information is displayed.

#### Disk Unit

Disk unit information is displayed.

### Extended Partitioning Configuration

It is only displayed for PPAR of the PRIMEQUEST 2000 series.

#### Partition ID

The partition number is displayed.

#### Physical server name

The name used to identify a server is displayed.

#### Partition name

The name used to identify a partition is displayed.

#### Availability

The availability of Extended Partition is displayed. When usable, "OK" is displayed. When not usable, "NG" is displayed.

#### PPAR ID

The number of the PPAR to which the Extended Partition is allocated is displayed.

#### CPU core count

The CPU core count is displayed.

#### Memory capacity (DIMM)

The total capacity of server memory is displayed.

#### Memory EXCL

The information of memory EXCL is displayed.

#### SKT Binding

The information of SKT Binding is displayed.

#### PCI Express Slot

PCI Express slot information is displayed.

#### Home SB VGA/USB

The information of Home SB VGA/USB is displayed.

#### GbE

GbE information is displayed.

#### Disk Unit

Disk unit information is displayed.

## A.7.3 Physical OS, VM Host, and VM Guest Attributes

---

### General Area

#### Server name

The name used to identify a physical OS or VM host is displayed.

#### Admin LAN (IP Address)

The IP address on the admin LAN is displayed.

VM guests are shown using hyphens ("-").

#### Status

The status of the physical OS, VM host, or VM guest is displayed.

#### Type

The type of the OS running on the server is displayed.

One of the following is displayed:

- Physical OS
- VM Host
- VM guests

#### OS

The type of the OS running on the server is displayed.

#### Physical server name

The name of the server on which the physical OS, VM host, or VM guest is operating is displayed.

VM guests are shown using hyphens ("-").

#### L-Server

The link to the allocated L-Server information.



.....  
Refer to "11.2 Resource Status" in the "Operation Guide CE" for details on resource statuses.  
.....

### VM Host Information Area

The following information is displayed only for VM Hosts.

#### VM type

The type of the VM is displayed.

#### VM software name

The name of the VM software used is displayed.

#### VM software VL

The version and level of the VM software used is displayed.

#### Number of VM guests

The number of VM guests is displayed.

#### VM management software

The link to the web interface of server virtualization software is displayed.

#### OVM Configuration Information's XML Save Status

The information regarding the save status of the OVM configuration information in the XML file is displayed.

For details on saving OVM configuration information in XML files, refer to "18.2 Settings for Server Switchover" in the "User's Guide VE".

	Value	Description
OVM Configuration Information's XML Save Status	-	The XML file is not saved This is displayed when the XML file has never been saved or the XML file save process has never succeeded.
	Success (Last success time: 2013-08-27 11:36:47)	The XML file was successfully saved The time and date when the XML file was saved. The time and date when the XML file was saved at the following timing: <ul style="list-style-type: none"><li>- Automatic Saving</li><li>- GUI/CLI operation</li></ul>
	Failure (Last success time: 2013-05-16 02:50:30)	The XML file save process that was last performed failed The time and date when the save process was succeeded last time is output.

#### VM Guest List

A list of hosted VM guests is displayed.

#### VM Home Positions (VM Guests)

A list of the VM guests with the selected VM host set as their VM Home Position is displayed.

#### VM Guest Information Area

The following information is displayed only for VM guests.

##### VM type

The type of the VM is displayed.

##### VM host name

The name of the VM host on which the VM guest is stored is displayed.

##### VM name

The name of the VM is displayed.

##### VM management software

The link to the web interface of server virtualization software is displayed.

## Hardware Details Area

The following information is not displayed for VM guests.

### Server management software

The link to the web interface of server management software is displayed.

Displayed only for the following servers:

- PRIMERGY Series
- PRIMEQUEST
- Fujitsu M10/SPARC Enterprise

### Remote Management Controller IP address

IP address of the remote management controller is displayed.

Displayed only for servers other than PRIMERGY BX servers.

## Latest System Image Area

The following information is not displayed for VM guests or Fujitsu M10/SPARC Enterprise.

### Version

The latest version of the system image is displayed.

### Backup date

The date and time of the most recent system image backup is displayed.

### Comment

Comments describing the system image are displayed.

## Spare Server Settings Area

The following information is not displayed for VM guests.

### Primary server

Displays the name of the physical server that will be replaced when server switchover occurs.

### Active server

Displays the name of the physical server that is currently running.

### Server switchover method

The method used to perform server switchover is displayed.

### Server boot method

The boot type of the system disk is displayed.

### Automatic server recovery

Shows whether automatic server recovery is enabled or not.

### Network switchover

Shows whether network settings will be automatically adjusted during server switchover.

### Force spare server to power off during switchover

The setting whether the spare server is turned off forcibly when switching over to the spare server is displayed.

### Switch over to spare server running VM guests

The setting whether the server is switched to a VM host on which a VM guest exists is displayed.

### Spare server

Displays the name of the physical server that will replace the current active server when server switchover occurs.

## HBA Address Rename Settings Area

The following information is not displayed for VM guests or Fujitsu M10/SPARC Enterprise.

### WWNN

The WWNN set on the HBA is displayed.

### WWPN 1

The first WWPN set on the HBA is displayed.

The WWPN should be set to the I/O address of each HBA (in descending order).

Therefore, for rack mount or tower servers, the order may not correspond with port number order described for the HBA.

### WWPN 2

The second WWPN set on the HBA is displayed.

The WWPN should be set to the I/O address of each HBA (in descending order).

Therefore, for rack mount or tower servers, the order may not correspond with port number order described for the HBA.

## Network Properties Area (VLAN)

The following information is not displayed for VM guests.

### Index

The mounted position (index) of each network interface on the server is displayed.

However, when a PRIMERGY RX/TX series server is selected, the index is displayed as "1" for the admin LAN and "2" for the redundant LAN.

When "[5.5.3 Registering the Public LAN \(MAC Address\) Information](#)" is performed, "3" or a higher number is displayed as the index for the public LAN.

### Port VLAN

The port VLAN IDs set on the LAN switch blade or the network device to be connected are displayed.

When connected to a PRIMERGY BX900/BX400 LAN switch blade operating in IBP mode, "(IBP)" is displayed.

When connected to a PRIMERGY BX900/BX400 LAN switch blade operating in Converged Fabric mode, "(Converged Fabric)" is displayed.

### Tagged VLAN

The tagged VLAN IDs set on the LAN switch blade or the network device to be connected are displayed.

When connected to a PRIMERGY BX900/BX400 LAN switch blade operating in IBP mode, "(IBP)" is displayed.

When connected to a PRIMERGY BX900/BX400 LAN switch blade operating in Converged Fabric mode, "(Converged Fabric)" is displayed.

## Port Groups Area (IBP)

### NIC Index

The mounted position (index) of each network interface on the server is displayed.

### Group

The names of the port groups set on the LAN switch ports connected to each network interface (for LAN switch blades operating in IBP mode) are displayed.

Only "-" is displayed under the following conditions.

- The corresponding LAN switch blade is not registered
- The corresponding LAN switch blade is not operating in IBP mode
- The port of the corresponding LAN switch blade has not been assigned to a port group

## Monitoring Information

### Timeout(sec)

The time-out value (in seconds) for ping monitoring is displayed.

### Recovery method

The recovery performed when an error is detected is displayed.

### Number of reboots

The number of times reboot is performed during recovery is displayed.

## WWN Settings Area

The following information is not displayed for VM guests or servers other than Fujitsu M10/SPARC Enterprise.

### WWPN of port $n$ ( $n:1-8$ )

The WWPN value of the port  $n$  is displayed.

Values set by users are reflected on WWPN.

### Target CA WWPN

The WWPN for the CA connected to the port  $n$  is displayed.

### Target CA AffinityGroup

The AffinityGroup for the CA connected to the port  $n$  is displayed.

## Automatic Network Configuration

The following information is displayed when the VM host is a target of network auto configuration and only when automatic network configuration has been performed.

### Network resource name

The network resource name for which automatic network configuration is performed is displayed.

### VLAN ID

The VLAN ID configured for the network resource is displayed.

### Subnet Address

The subnet address configured for the network resource is displayed.

When it is not configured, "-" is displayed.

### Subnet Mask

The subnet mask configured for the network resource is displayed.

When it is not configured, "-" is displayed.

## A.7.4 LAN Switch Blade Attributes

---

### General Area

#### LAN switch name

The name used to identify a LAN switch blade is displayed.

#### System Name (sysName)

The name of the device specified as a LAN switch blade is displayed.

#### Admin port

The admin port to be used for communication with the admin server is displayed.

**IP address**

The IP address to be used for communication with the admin server is displayed.

For PY CB 10Gb FEX Nexus B22, a hyphen ("-") is displayed.

**Device name (Product name)**

The product name of a LAN switch blade is displayed.

**Model**

The model name of a LAN switch blade is displayed.

**Serial number**

The serial number of a LAN switch blade is displayed.

**Firmware version**

The firmware version of a LAN switch blade is displayed.

**Device status**

The status of a LAN switch blade is displayed.

One of the following is displayed:

- normal
- error
- warning
- unknown

**Slot**

A slot number representing the mounted location is displayed.

**VCS ID**

A VCS ID is displayed.

When VCS is not configured, a hyphen ("-") is displayed.

**RBridge ID**

An RBridge ID is displayed.

When VCS is not configured, a hyphen ("-") is displayed.

**Fabric ID**

A Fabric ID is displayed.

When Converged Fabric is not configured, a hyphen ("-") is displayed.

**Domain ID**

A Domain ID is displayed.

When Converged Fabric is not configured, a hyphen ("-") is displayed.

**Switch ID**

A Switch ID is displayed.

When Converged Fabric is not configured, a hyphen ("-") is displayed.



**Information**

.....

When the replacement of a LAN switch blade is completed, "The LAN switch has been replaced. Please confirm that the status of the LAN switch is normal before executing the restore command." is displayed. Perform the restore operation referring to "9.2.5 Replacing Non-server Hardware" in the "Operation Guide CE".

.....

## Hardware Details Area

### Launch Switch Blade Web UI

A link to the Web interface of the LAN switch blade is displayed.

### Note

.....

If no Web interface is available for the selected LAN switch blade, the following message is displayed: "There is no information to display".

Refer to the LAN switch blade manual to check whether a Web interface is provided.

.....

## Port Properties Area

### Port Number

The number of the port of the selected LAN switch blade is displayed.

### Port Name

The name assigned to the port of the selected LAN switch blade is displayed.

For PY CB 10Gb FEX Nexus B22, internal ports are displayed as 1/1 - 1/16, external ports (from number 1 to 8) are displayed as -/17 - -/24.

### Link Status

The operational status of the port is displayed.

One of the following is displayed:

- up
- down
- unknown

For a LAN switch blade operating in Converged Fabric mode or PY CB 10Gb FEX Nexus B22, a hyphen ("-") is displayed.

### Speed/Duplex Mode

The speed and duplex mode of the operating port are displayed.

For a LAN switch blade operating in Converged Fabric mode or PY CB 10Gb FEX Nexus B22, a hyphen ("-") is displayed.

### Link aggregation group name

The name of the link aggregation group to which the port of the selected LAN switch blade belongs.

If it does not belong to link aggregation, a hyphen ("-") is displayed.

### Information

.....

For LAN switch blade CB Eth Switch 10/40Gb 18/8+2, displayed port information differs depending on the mode.

- When using Converged Fabric mode, ports in the range from 1 to 35 are displayed.
  - When using switch mode and end host mode, ports in the range from 1 to 27 and port 31 are displayed.
- .....

## Link aggregation information

The following information is only displayed when LAN switch blades (\*) are selected.

### Link aggregation group name

The name of the link aggregation group to which the port of the selected LAN switch blade belongs is displayed.



## Port name

The link aggregation port name is displayed.

- LAG/Link aggregation group number
- PY CB Eth Switch/IBP 10Gb 18/8
- PY CB Eth Switch 10/40Gb 18/8+2 (switch mode/end-host mode)
- Logical port number of the LAG/port channel
- PY CB Eth Switch/IBP 1Gb 36/8+2
- PY CB Eth Switch/IBP 1Gb 36/12
- PY CB Eth Switch/IBP 1Gb 18/6

## Member port:Link status

The physical port names and the link status (up or down) of the physical ports are displayed for the ports in the link aggregation.

## VLAN

### VLAN ID

A list of VLAN IDs set in the selected LAN switch blade is displayed.

### Untagged Port(s)

A list of ports set with a port VLAN ID is displayed.

The logical port for link aggregation is only displayed for LAN switch blades (\*).

### Tagged Port(s)

A list of ports set with tagged VLAN ID(s) is displayed.

The logical port for link aggregation is only displayed for LAN switch blades (\*).

\* Note: The following LAN switch blades are included:

- PY CB Eth Switch/IBP 10Gb 18/8
- PY CB Eth Switch 10/40Gb 18/8+2 (switch mode/end-host mode)
- PY CB Eth Switch/IBP 1Gb 36/8+2
- PY CB Eth Switch/IBP 1Gb 36/12
- PY CB Eth Switch/IBP 1Gb 18/6

## Port Groups Area (IBP)

The following information is only displayed for a LAN switch blade operating in IBP mode.

### Group

The name of a port group configured on the selected LAN switch blade is displayed.

### Group Type

The type of this port group is displayed.

One of the following is displayed:

- Port Group
- VLAN Port Group
- Service LAN
- Service VLAN

## VLAN IDs

VLAN IDs assigned to this port group are displayed.

## Downlink Ports

The name of the downlink ports assigned to this port group is displayed.

## Uplink Set

The name of the UplinkSet assigned to this port group is displayed.

## Uplink Sets(IBP)

The following information is only displayed for a LAN switch blade operating in IBP mode.

### Uplink Set

The name of an UplinkSet (set of external ports) configured on the selected LAN switch blade is displayed.

### Active Ports

The name of the active port within the port backup configuration of this UplinkSet is displayed.

### Backup Ports

The name of the backup port within the port backup configuration of this UplinkSet is displayed.

### Link State

Displays whether link state functionality is enabled or not for this UplinkSet.

- enable
- disable

### Port Backup

Displays whether port backup functionality is enabled or not for this UplinkSet.

- enable
- disable

### IGMP Snooping

Displays whether IGMP snooping is enabled or not for this UplinkSet.

- enable
- disable

### LACP

Displays whether LACP is enabled or not for this UplinkSet.

- enable
- disable

## Network links

### Resource Name (left side)

The name of the selected LAN switch blade is displayed.

### I/F (left side)

The port name of the LAN switch blade is displayed.

For PY CB 10Gb FEX Nexus B22, internal ports are displayed as 1/1 - 1/16, external ports (from number 1 to 8) are displayed as -/17 - -/24.

I/F (right side)

The interface name of the resource connected to the LAN switch blade is displayed.

Resource Name (right side)

The name of the resource connected to the LAN switch blade is displayed.



Information about connections with network devices is not displayed.

## A.7.5 Network Device Attributes

---

### General

Network device name

The name used to identify a network device is displayed.

System Name (sysName)

The name of the device specified as a network device is displayed.

IP address

The IP address to be used for communication with the admin server is displayed.

Device name (Product name)

The product name of the network device is displayed.

For Converged\_Fabric, "Converged\_Fabric" is displayed.

For VCS, "VDX" is displayed.

Model

The model name of a network device is displayed.

For NS appliances, "NSAppliance" is displayed.

For Converged\_Fabric, "Converged\_Fabric" is displayed.

For VCS, a hyphen "-" is displayed.

Vendor

The vendor name of a network device is displayed.

For NS appliances, "Fujitsu" is displayed.

Serial number

A hyphen ("-") is displayed.

Firmware version

The firmware version of a network device is displayed.

Device status

The status of a network device is displayed.

One of the following is displayed:

- normal
- error
- warning
- unknown

## Slot

A hyphen ("-") is displayed.

## Maintenance mode

The status of maintenance mode is displayed.

One of the following is displayed:

- active
- maintenance

## Type

The type of a network device is displayed.

One of the following is displayed:

- L2-Switch
- Firewall
- SLB
- Fabric
- ManagementHost

For network devices with multiple types, all types are displayed separated by commas (",").  
For virtual appliances, "(virtual)" is displayed following Type.

## Fabric Type

The type of the Ethernet Fabric is displayed.

One of the following is displayed:

- C-Fabric
- VCS

This is only displayed when the type is "Fabric".

## Location

Displays the location of the network device.

## Auto configuration

Displays whether the network device is set to be automatically set or not.

- true
- false

## Fabric ID

The Fabric ID of the Ethernet Fabric is displayed.

This is only displayed when the fabric type is "C-Fabric".

## VCS ID

The VCS ID of the Ethernet Fabric is displayed.

This is only displayed when the fabric type is "VCS".

## Port Profile

Displays whether the port profile setting is enabled or not.

- enable
- disable

This is only displayed when the fabric type is "C-Fabric".

## VFAB name

The name of VFAB is displayed.

When using Converged Fabric, "defaultVFAB" is displayed.

This is only displayed when the fabric type is "C-Fabric".

## VFAB ID

The VFAB ID is displayed.

When using Converged Fabric, "default" is displayed.

This is only displayed when the fabric type is "C-Fabric".

## S-TAG

The S-TAG of VFAB is displayed.

When using Converged Fabric, "2" is displayed.

This is only displayed when the fabric type is "C-Fabric".

## Operation mode

The operation mode of VFAB is displayed.

- host
- network

This is only displayed when the fabric type is "C-Fabric".

## VFAB Automatic Configuration

Whether the VFAB is automatically configured is displayed.

- true
- false

This is only displayed when the fabric type is "C-Fabric".

## Tenant

The name of the tenant belonging to the VFAB is displayed.

When it belongs to multiple tenants, there is a line for each tenant.

When using Converged Fabric, a hyphen ("-") is displayed.

This is only displayed when the fabric type is "C-Fabric".

## Redundant Configuration

### Group ID

The group ID is displayed.

### Network Device Name

Another device in the redundancy configuration is displayed.

When there are multiple devices, the names of those devices are displayed separated by commas (",").

## Hardware Details

### Launch Network Device Web UI

A link to the "Web Management Window URL" configured for the network device is displayed.

If no "Web Management Window URL" has been configured, "There is no information to display" is displayed.

## Port Properties

### Port Number

The number of the port of the selected network device is displayed.

## Port Name

The name assigned to the port of the selected network device is displayed.  
When the fabric type is "VCS", the VCS interface name is displayed.

## Member Port

When the name of a port with link aggregation is displayed for the port name, the port names of the physical port with link aggregation are displayed separated by commas (",").  
When the physical port name is displayed as the port name, a hyphen ("-") is displayed.  
This is not displayed when an Ethernet Fabric is selected.

## Link Status

The operational status of the port is displayed.

One of the following is displayed:

- up
- down
- testing
- unknown
- dormant
- notPresent
- lowerLayerDown

## Speed/Duplex Mode

The speed and duplex mode of the operating port are displayed.

## Link Aggregation Group

When the name of the port that comprises the link aggregation is displayed as the port name, the link aggregation name is displayed.  
When the name of the port that comprises the link aggregation is not displayed as the port name, a hyphen ("-") is displayed.  
This is only displayed when an Ethernet Fabric is selected.

## Port Type

The port type of the network device is displayed.

When the fabric type is "C-Fabric", one of the following is displayed:

- EP
- CIR
- EP(dot1ad)

Displayed when using the EP port for sending and receiving of the IEEE802.1ad frame.

- CIR(dot1ad)

Displayed when using the CIR port for sending and receiving of the IEEE802.1ad frame.

When the fabric type is "VCS", one of the following is displayed:

- Edge
- ISL

This is only displayed when an Ethernet Fabric is selected.

## Default VFAB

The relationship with the default VFAB is displayed.

- true

Displayed when belonging to the default VFAB.

- false

Displayed when not belonging to the default VFAB.

This is only displayed when the fabric type is "C-Fabric".

#### Distribution mode

Displays packet distribution mode for ports.

One of the following is displayed:

- VLAN(S-TAG)
- MAC
- VLAN(C-TAG)
- no-distribution
- VLAN(other)

They are only displayed for IPCOM VA.

#### VLAN ID

The VLAN ID values used for distribution to an IPCOM VA virtual interface are displayed.

They are only displayed for IPCOM VA.

#### Link Aggregation Properties

This is only displayed when an Ethernet Fabric is selected.

#### Link Aggregation Group

The link aggregation group name is displayed.

#### Port Name

The port name of the link aggregation port is displayed.

When the fabric type is "C-Fabric", "-" is displayed.

When the fabric type is "VCS", the port channel name is displayed.

#### Member Port:Link Status

When the fabric type is "C-Fabric", the name of the port that comprises the link aggregation and the link status is displayed in the format of "Port Name: Link Status".

When the fabric type is "VCS", the name of the VCS interface that comprises the link aggregation and the link status is displayed in the format of "VCS Interface Name: Link Status".

#### Default VFAB

The relationship with the default VFAB is displayed.

- true

Displayed when belonging to the default VFAB.

- false

Displayed when not belonging to the default VFAB.

This is only displayed when the fabric type is "C-Fabric".

#### VLAN

##### VLAN ID

A list of VLAN IDs set in the selected network device is displayed.

When the fabric type is "C-Fabric", only VLANs that are defined for the default VFAB are displayed.

### Untagged Port(s)

A list of ports set with a port VLAN ID is displayed.

The logical port for link aggregation is not displayed.

When the fabric type is "C-Fabric", only VLANs that are defined for the default VFAB are displayed.

Some VLANs which have been configured with an AMPP function for VCS fabrics may not be displayed.

### Tagged Port(s)

A list of ports set with tagged VLAN ID(s) is displayed.

The logical port for link aggregation is not displayed.

When the fabric type is "C-Fabric", only VLANs that are defined for the default VFAB are displayed.

### Link Data

#### Resource Name (left side)

The name of the selected network device is displayed.

#### I/F (left side)

The port name of the network device is displayed.

When the fabric type is "VCS", the VCS interface name is displayed.

#### I/F (right side)

The interface name of the resource connected to the network device is displayed.

When the fabric type of the resource to connect is "VCS", the VCS interface name is displayed.

#### Resource Name (right side)

The name of the resource connected to the network device is displayed.

### Rule Set

#### Name (Label)

The name of the ruleset is displayed.

This is only displayed when the type of a network device is "Firewall" or "SLB".

#### Category

The category of the ruleset is displayed.

One of the following is displayed:

- Config
- Operation

#### Description

A description of the ruleset is displayed.

### Login Information

#### Tenant

Displays the name of the tenant that can be used as login information for the network device.

If the network device type is "L2-Switch", a hyphen ("-") is displayed.

#### IP Address

The IP address which the network device logs into is displayed.

#### Port Number

The port number which the network device logs into is displayed.

#### Protocol

The name of the protocol used to login to the network device is displayed.

#### User ID

The user name used to login to the network device is displayed.



## Authority

The privileges of the user used to login to the network device are displayed.

## Authentication

The user authentication method for the network device is displayed.

## Login Check

An account information check result is displayed.

One of the following is displayed:

- successful
- failed
- unchecked

## Monitoring Settings

### SNMP community name

Displays the community name used for SNMP communications with the network device.

### Monitoring method

The type of monitoring used on the network device is displayed.

One of the following is displayed:

- None
- ping
- SNMP (Simple Network Management Protocol)
- NETCONF

When multiple monitoring methods are specified, all of the monitoring methods are displayed separated by commas (",").

### Monitoring interval (sec)

Displays the monitoring interval (in seconds) for the network device.

### Retry count

Displays the number of retries when monitoring of the network device fails (no response before timeout).

### Timeout(sec)

Displays the time (in seconds) a response is waited for before it is determined monitoring of the network device has failed.

## Virtual Appliance

This is only displayed when a virtual appliance is selected.

### Management host

The admin IP address and resource name of the management host (physical server on which IPCOM VX or NS appliance are operating) on which the network device is operating are displayed in the "admin IP address (resource name)" format.

The following name is displayed as a resource name.

- For IPCOM VX  
Network device name
- For a management host of NS appliance  
Physical server name

## A.7.6 Virtual Fabric Attributes

---

### General Area

#### VFAB name

The name of VFAB is displayed.

#### VFAB ID

1 - 3,000 is displayed for VFAB ID.

#### S-TAG

101 - 3,000 is displayed for VFAB S-TAG.

#### Operation mode

The operation mode of VFAB is displayed.

- host
- network

#### VFAB Automatic Configuration

Whether the VFAB is automatically configured is displayed.

- true
- false

#### Tenant

The name of the tenant belonging to the VFAB is displayed.

When it belongs to multiple tenants, there is a line for each tenant.

### Port Properties Area

#### Port Number

The numbers of the ports related to the selected virtual fabric is displayed.

#### Port Name

The name assigned to the port related to the selected virtual fabric is displayed.

#### Link Status

The operational status of the port is displayed.

One of the following is displayed:

- up
- down
- testing
- unknown
- dormant
- notPresent
- lowerLayerDown

#### Speed/Duplex Mode

The speed and duplex mode of the operating port are displayed.

#### Link aggregation group name

When the name of the port that comprises the link aggregation is displayed as the port name, the link aggregation name is displayed.

When the name of the port that comprises the link aggregation is not displayed as the port name, a hyphen ("-") is displayed.

## Port Type

The port type of the network device is displayed.  
One of the following is displayed:

- EP
- CIR
- EP(dot1ad)

Displayed when using the EP port for sending and receiving of the IEEE802.1ad frame.

- CIR(dot1ad)

Displayed when using the CIR port for sending and receiving of the IEEE802.1ad frame.

## Link aggregation information

### Link aggregation group name

The link aggregation group name is displayed.

### Port Name

A hyphen ("-") is displayed as the port name of the link aggregation port.

### Member Port:Link Status

The name of the port and the link status that comprise the link aggregation are displayed in the link status "Port Name: Link Status".

## VLAN

### VLAN ID

A list of the VLAN IDs set in the selected virtual fabric is displayed.

### Untagged Port(s)

A list of ports set with a port VLAN ID is displayed.  
The logical port for link aggregation is not displayed.

### Tagged Port(s)

A list of ports set with tagged VLAN ID(s) is displayed.  
The logical port for link aggregation is not displayed.

## **A.7.7 Power Monitoring Devices (PDU or UPS) Attributes**

---

### General Area

#### Device name

The name used to identify a PDU or UPS is displayed.

#### Admin LAN (IP address)

The IP address on the admin LAN is displayed.

#### Device type

The device type (PDU or UPS) is displayed.

#### Model

The model name of the PDU or UPS is displayed.

#### Comment

Comments entered when registering a PDU or UPS are displayed.

## Hardware Details Area

### Serial number

The serial number of the PDU or UPS is displayed.

### Voltage

The voltage supplied to the PDU or UPS is displayed.

### Hardware version

The hardware version of the PDU is displayed.

This is not displayed for UPSs.

### Firmware version

The firmware version of the device (PDU or UPS) is displayed.

### Date of manufacture

The date of manufacture of the PDU or UPS is displayed.

### Outlets

The number of outlets provided by the PDU is displayed.

This is not displayed for UPSs.

### Intended orientation

The intended orientation (horizontal or vertical) of the PDU is displayed.

This is not displayed for UPSs.

## A.7.8 Management Software Attributes

---

### General Area

#### Management software name

The name used to identify the management software is displayed.

#### Type

The type of the management software is displayed.

One of the following is displayed:

- vCenter Server
- SCVMM
- OVM Manager
- VIOM
- SVFAB
- Horizon View

#### IP address

The IP address used to connect to the management software is displayed.

#### Status

The status of the management software is displayed.



For the following types of management software, [normal] is always displayed, regardless of the status.

- VIOM
- SVFAB
- Horizon View

---

#### Management software

A link to the web interface of the management software is displayed.



---

When using the VDI management software, a hyphen ("-") is displayed.

---

The following information is only displayed when using VDI management software.

#### VM Management Software Name

The name of the VM management software associated with the VDI management software is displayed.

#### Connection Information

The connection information of the VDI management software to be specified by the VDI user when using virtual desktops is displayed.

## A.7.9 Storage Management Software Attributes

---

### General Area

#### Name (Label)

The name of the resource is displayed.

#### Type

The type of the resource is displayed.

#### Label

The label set for the resource is displayed.

#### Comment

Comments set for the resource are displayed.

### Configuration Information

#### Management Software Type

The management software type of the storage management software is displayed.

#### Version

The version of the storage management software is displayed.

#### IP Address

The IP address used to access the storage management software is displayed.

#### Port Number

The port number used to access the storage management software is displayed.

#### User ID

The user name of the storage management software is displayed.

#### Management software

A link to the management software for the storage management software is displayed.

#### Physical Storage Unit List

##### Name (Label)

The name of the storage unit is displayed.

##### Model

The model name of the storage unit is displayed.

##### Storage Management Software

The storage management software for the storage unit is displayed.

## A.7.10 Storage Unit Attributes

---

#### General Area

##### Name (Label)

The name of the resource is displayed.

##### Type

The type of the resource is displayed.

##### Model

The model name of the storage device is displayed.

#### Configuration Information

##### Management software

A link to the management software for the storage management software is displayed.

##### Serial Number

Information used to identify the chassis of the storage unit is displayed.

##### IP address

The IP address used to access the storage management software is displayed.

#### Virtual Storage List

##### Status

The status of the registered virtual storage is displayed.

##### Capacity (Unused Capacity/Total Capacity)

The capacity of the registered virtual storage is displayed.

##### Storage Type

The type of the registered virtual storage is displayed.

##### Attributes

The type of the virtual storage is displayed.

##### Storage Management Software

The storage management software for the virtual storage is displayed.

## Physical Storage Unit

The storage unit for the virtual storage is displayed.

## A.7.11 VM Management Software Attributes

---

### General Area

#### Name (Label)

The name of the resource is displayed.

#### Resource Type

The resource type of the virtual storage is displayed.

#### Label

The label is displayed.

#### Comment

Comments set for the resource are displayed.

### Configuration Information

#### Management Software Type

The management software type of the storage management software is displayed.

#### Version

The version of the storage management software is displayed.

#### IP Address

The IP address used to access the storage management software is displayed.

#### Port Number

The port number used to access the storage management software is displayed.

#### User ID

The user name of the storage management software is displayed.

#### Management software

A link to the web interface of the management software is displayed.

### Virtual Storage List

#### Status

The status of the registered virtual storage is displayed.

#### Capacity (Unused Capacity/Total Capacity)

The capacity of the registered virtual storage is displayed.

#### Storage Type

The type of the registered virtual storage is displayed.

#### Attributes

The type of the virtual storage is displayed.

#### Storage Management Software

The storage management software for the virtual storage is displayed.

## Physical Storage Unit

The storage unit for the virtual storage is displayed.

## A.7.12 Virtual Storage Attributes

---

### General Area

#### Name (Label)

The name of the resource is displayed.

#### Type

The type of the resource is displayed.

#### Label

The label set for the resource is displayed.

#### Comment

Comments set for the resource are displayed.

### Configuration Information

#### Management software

A link to the web interface of the storage management software is displayed.

#### Status

The status of the resource is displayed.

#### Storage Type

The type of the resource is displayed.

#### Thin Provisioning

Thin provisioning configuration information is displayed.

- When thin provisioning is configured  
"yes" is displayed.
- When thick provisioning is configured or no attribute is specified  
"no" is displayed.

#### Total Capacity

The total storage capacity is displayed.

#### Unused Capacity

The free storage capacity is displayed.

## A.7.13 Folder Attributes

---

### General Area

#### Name (Label)

The name of the resource is displayed.

#### Type

The type of the resource is displayed.



#### Label

The label set for the resource is displayed.

#### Comment

Comments set for the resource are displayed.

#### Tenant/L-Platform/Folder List

##### Name (Label)

The name used to identify a tenant is displayed.

##### Type

The type of a tenant is displayed.

##### Stored Resource Number

The number of stored resources is displayed.

#### Pool List

##### Name (Label)

The name used to identify the resource pool is displayed.

##### Type

The type of the resource pool is displayed.

##### Priority

The priority of the resource pool is displayed.

##### Stored Resource Number

The number of resources registered in the resource pool is displayed.

#### L-Server List

##### Name (Label)

The name of the L-Server directly under the root/folder/tenant is displayed.

##### Status

L-Server status is displayed.

##### Server type

The server type of the L-Server is displayed.

- For Physical L-Servers

"Physical" is displayed.

- For Virtual L-Servers

The VM type of the L-Server is displayed.

##### OS

The icon that represents the L-Server's OS is displayed.

For the list of supported OSs and their icons, refer to "11.2 Resource Status" in the "Operation Guide CE".

If the L-Server's OS is not listed in the table, a hyphen ("-") is displayed in place of an icon.

##### Current Resource

The following information is displayed according to the L-Server allocation status.

- When resources are already allocated (allocated)

The name of the physical server or VM host that has been allocated is displayed.

- When servers have been released (preserved)

The name of the physical server or VM host that was used the last time the L-Server was started is displayed. The name is followed by "(preserved)".

- When only the configuration definitions have already been created (defined)

"(defined)" is displayed.

#### Preserved resource

The information set for "Physical server" or "VM host" during L-Server creation is displayed.

- When neither server nor host is specified (Automatic)

"Automatic" is displayed.

- When a resource pool is specified

The server pool icon or VM pool icon and resource pool name are displayed.

- For physical servers

The server pool icon and resource pool name are displayed.

- For a VM host

The VM host icon and VM host name are displayed.

#### CPU performance (Defined)

The CPU performance value defined during L-Server creation is displayed.

#### CPU performance (Allocated)

The CPU performance value of the physical server actually allocated to the L-Server is displayed.

#### Number of CPUs (Defined)

The number of CPUs defined during L-Server creation is displayed.

#### Number of CPUs (Allocated)

The number of CPUs of the physical server actually allocated to the L-Server is displayed.

#### Memory (Defined)

The memory capacity defined during L-Server creation is displayed.

#### Memory Capacity (Allocated)

The memory capacity of the physical server actually allocated to the L-Server is displayed.

#### Number of NICs

The number of NICs on the L-Server is displayed.

#### The Number of Disks

The number of disks on the L-Server is displayed.

#### Model(Defined)

The model name defined during L-Server creation is displayed.

#### Model(Allocated)

The model name of the physical server actually allocated to the L-Server is displayed.

## A.7.14 L-Server Attributes

---

### General Area

#### Name (Label)

The name of the resource is displayed.

#### Type

The type of the resource is displayed.

#### Label

The label set for the resource is displayed.

#### Comment

Comments set for the resource are displayed.

### Server Information(Server Specification)

#### Name

The name of the L-Server template used for the L-Server is displayed.

#### CPU performance

The CPU performance defined for the L-Server is displayed.

#### Defined Value

The CPU performance of the physical server actually allocated to the L-Server is displayed.



When the CPU performance is "Unlimited" or not decided, a hyphen ("-") is displayed for CPU performance.

#### Allocated Value

The CPU performance defined during L-Server creation is displayed.



#### [Solaris Zones]

CPU performance is displayed based on a cap value when a resource pool for Solaris Zones used in a non-global zone is changed from unmanaged to managed.

- When a cap value is set, the CPU performance is calculated using the following formulas:

Number of CPUs = *cap values of CPUs* / 100 (rounding up the number of decimal places)

CPU performance = (*cap values of CPUs* / (*Number of CPUs* \* 100)) \* *physical CPU performance* (GHz)

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.

- When a cap value is not set, a hyphen ("-") is displayed.

A hyphen ("-") is displayed for the CPU performance when a resource pool used for Solaris Zones in the non-global zone is changed from managed to unmanaged.

#### Number of CPUs(Allocated Value/Define Value)

The number of CPUs defined for the L-Server is displayed.

#### Defined Value

The CPU performance of the physical server actually allocated to the L-Server is displayed.

#### Allocated Value

The number of CPUs defined during L-Server creation is displayed.

#### Note

[Solaris Zones]

The number of CPUs is displayed based on a cap value when a resource pool for Solaris Zones used in a non-global zone is changed from unmanaged to managed.

- When a cap value is set, the CPU performance is calculated using the following formulas:

Number of CPUs = *cap values of CPUs* / 100 (rounding up the number of decimal places)

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.

- When a cap value is not set, a hyphen ("-") is displayed.

A hyphen ("-") is displayed for the number of CPUs when a resource pool used for Solaris Zones in the non-global zone is changed from managed to unmanaged.

#### Memory(Allocated Value/Define Value)

The memory capacity defined for the L-Server is displayed.

#### Defined Value

The memory capacity of the physical server actually allocated to the L-Server is displayed.

#### Allocated Value

The memory capacity defined during L-Server creation is displayed.

#### Note

[Solaris Zones]

When the cap value of memory is set, that value is displayed.

When the cap value of memory is not set, a hyphen ("-") is displayed.

#### Model(Allocated Value/Define Value)

The model name defined for the L-Server is displayed.

#### Defined Value

The model name of the physical server actually allocated to the L-Server is displayed.

#### Allocated Value

The model name defined during L-Server creation is displayed.

#### Type

The server type of the L-Server is displayed.

#### Disk type

The type of disks on the physical L-Server is displayed.

One of the following is displayed:

- iSCSI
- SAN (Storage Area Network)

#### Function number expansion (Onboard)

on

Displayed when [Function number expansion (Onboard)] is set.

off

Displayed when [Function number expansion (Onboard)] is not set.

#### Number of functions per port

2 or 4

Displayed when using [Function number expansion (Onboard)].

-

Displayed when not using [Function number expansion (Onboard)].

#### PXE boot

One of the following is displayed:

- When PXE boot is configured for the physical L-Server  
"Enable" is displayed.
- When PXE boot is not configured  
"Disable" is displayed.

#### Server Properties (VM Management Software Specific Information)

##### CPU Reserve

The minimum size of CPU resources (minimum reserved value) to be allocated for the VM guest is displayed.

##### CPU Share

The relative proportion of CPU resources to be allocated when CPU resources run out is displayed.

##### Memory Reserved

The minimum size of memory resources (minimum reserved value) to be allocated for the VM guest is displayed.

##### Memory Buffer

The proportion of memory to be allocated to the VM guest as a buffer is displayed.

##### Memory Share

The relative proportion of memory resources to be allocated when memory resources run out is displayed.

##### Dynamic Memory

One of the following is displayed: Only displayed for virtual L-Servers.

- When Dynamic Memory is "true"  
"on" is displayed.
- When Dynamic Memory is "false"  
"off" is displayed.

#### Server Information(Advanced Setting)

##### Server recovery

L-Server redundancy settings are displayed.

##### Spare server specs

The method to select a spare server of the L-Server is displayed.

### Forced OFF for an in use spare server

When the physical servers in a spare server pool are running out; the setting status for use of forced turning off of physical servers is displayed.

- When configuring this parameter  
"on" is displayed.
- When not configuring this parameter  
"off" is displayed.

### Spare server pool

The spare server pool for the L-Server is displayed.

### Alive Monitoring

The alive monitoring configuration status is displayed.

- When Alive Monitoring is Configured  
"on" is displayed.
- When Alive Monitoring is not Configured  
"off" is displayed.



### Note

For virtual L-Servers upgraded from earlier versions, or virtual L-Servers linking with already configured virtual machines, a hyphen ("-") is displayed for the alive monitoring configuration status.

### Boot Location

The L-Server's physical location change status is displayed.

### Releasing Resources

Resource release settings are displayed.

- When Repurpose is Configured  
"on" is displayed.
- When Repurpose is not Configured  
"off" is displayed.

### Forced OFF for spare servers

When the physical servers in a spare server pool are running out; the setting status for "Allow forced turning off" is displayed.

- When allowing the forced turning off of the target physical server  
"Allow" is displayed.
- When not allowing the forced turning off of the target physical server.  
"-" is displayed.

### Current resource

The information set for "Physical server" or "VM host" during L-Server creation is displayed.

- When neither server nor host is specified (Automatic)  
"Automatic" is displayed.
- When a resource pool is specified  
The server pool icon or VM pool icon and resource pool name are displayed.

- For physical servers

The server pool icon and resource pool name are displayed.

- For a VM host

The VM host icon and VM host name are displayed.

#### Last allocated resource

The name of the physical server or VM host that was started by the L-Server last time is displayed.

#### Exclusion

The exclusive operation settings of the L-Server are displayed.

#### Startup priority

The startup priority of the L-Server is displayed.

When the startup priority is "0", "Exclude from batch power operations" is displayed.

#### FC Single path mode

For physical L-Servers, whether only one path has been configured for VIOM or HBAar is displayed.

- When single path mode is set

"on" is displayed.

- When single path mode is not set

"off" is displayed.

#### VDI management server

When using virtual L-Servers with a Windows manager, "VDI management server" is displayed.

When the VDI option is not enabled, a hyphen ("-") is displayed.

#### VDI pool

When using virtual L-Servers with a Windows manager, "VDI pool" is displayed.

When the VDI option is not enabled, a hyphen ("-") is displayed.

#### VDI user

When using virtual L-Servers with a Windows manager, "VDI user" is displayed.

When the VDI option is not enabled, a hyphen ("-") is displayed.

#### Status

##### OS Type

The OS type of the L-Server is displayed.



#### Information

The OS type of the L-Server displays information acquired from the server virtualization software.

For details on displayed information, refer to the manual of server virtualization software.

##### [KVM]

The OS type specified when the L-Server was created is displayed.

Note that it is not acquired from the server virtualization software.

##### [Solaris Zones]

Solaris is displayed.

Note that it is not acquired from the server virtualization software.

#### Status

The resource status of the L-Server is displayed.

### Allocation status

The resource allocation status of the L-Server is displayed.

### Controlled resources

The management status of the resources allocated to the L-Server is displayed.

Displays the resource types being managed. When there are multiple resource types being managed, they are displayed separated by commas (").

This item is displayed when using an L-Server associated with configured physical servers and configured virtual machines.

- When server resources are being managed

"Server" is displayed.

- When storage resources are being managed

"Storage" is displayed.

- When IP addresses are being managed

"Network" is displayed.

- When no resources are being managed

A hyphen ("-") is displayed.

For the L-Servers that were created in Resource Orchestrator, a hyphen ("-") is displayed.

### Allocated Resource Information(Resource)

#### Resource name

A link to the resource details for the related physical server is displayed.

#### Guest name

A link to the resource details for the related VM guest is displayed.

#### VM type

The VM type of the L-Server is displayed.

#### Management software

The management software for the L-Server is displayed.

### Allocated Resource Information(Cloning image information)

#### Deployed image name

The name of the cloning image specified during L-Server creation is displayed.

#### Version

The version of the cloning image specified during L-Server creation is displayed.

### Allocated Resource Information(Virtual WWN address information)

#### WWNN

The information of the WWNN allocated to the L-Server is displayed.

#### WWPN (World Wide Port Name)

The information of the WWPN allocated to the L-Server is displayed.

When single path mode is set, one of the displayed addresses is set for the WWPN address.

### Disk Information

#### No.

The disk number set for the L-Server is displayed.



## Size

The disk size set for the L-Server is displayed.

## Device Path

The type or identifier information of the disk allocated to the L-Server is displayed.

When a device path cannot be obtained, a hyphen ("-") is displayed.

## Usage

The usage of the disk set for the L-Server is displayed.

For virtual L-Servers linked with configured virtual machines and virtual L-Servers for which the usage of disks cannot be distinguished, a hyphen ("-") is displayed.

## Resource name

The disk name set for the L-Server is displayed.

- When a Disk is Allocated

A link to the detailed information of the allocated disk is displayed.

- When No Disk is Allocated

The name of the resource to be used is displayed.

## Type

The type of the disk allocated to the L-Server is displayed.

When type information cannot be obtained, a hyphen ("-") is displayed.

## Share

The shared disk status is displayed.

- When the disk is allocated to multiple L-Servers

"yes" is displayed.

- In other cases

"no" is displayed.

## Network Properties Area

### No.

The network number configured for the L-Server is displayed.

### IP address

The IP address of the network configured for the L-Server is displayed.

### MAC address

The MAC address of the NIC configured for the L-Server is displayed.

[Physical Servers] [KVM] [Citrix Xen] [Xen]

The MAC address allocated from the MAC address set resources is displayed.

[VMware] [Hyper-V]

The MAC address allocated by the VM management software during creation of the virtual NIC for the virtual machine is displayed. However, when the status of an L-Server for which a configuration definition has already been created (defined), a hyphen ("-") is displayed.

[Solaris Zones] [OVM for SPARC] [OVM for x86 3.x] [OVM for x86 2.2]

The MAC address is not displayed because no MAC address is configured for the NICs of L-Servers. A hyphen ("-") is displayed.

## Information

---

[Citrix Xen]

The MAC address is not displayed because MAC addresses are not configured for NICs that are added by adding the NIC definition. A hyphen ("-") is displayed.

---

### Network resource name

The network name configured for the L-Server is displayed.

### Phy. No.

Displayed when using a physical L-Server. The NIC number of the physical server corresponding to the network No. of the physical L-Server is displayed. When [Function number expansion] is enabled, the NIC number of the physical server followed by "#" and the function number is displayed. When no physical servers are allocated, a hyphen ("-") is displayed.

### VLANs

The VLAN ID for the network resource is displayed.

When "Untagged VLAN" is configured for the physical L-Server, "-" is displayed.

When [Function number expansion] is set, the value of the VLAN ID (LPVID) is displayed.

### Snapshots/System images

#### Version

The version of the snapshot image collected from the L-Server is displayed.

#### Collection Date

The date and time the snapshot image was collected from the L-Server is displayed.

#### Comment

Comments set for the snapshot image collected from the L-Server are displayed.

## A.7.15 L-Platform Attributes

---

### General Area

#### Name (Label)

The name of the resource is displayed.

#### Type

The type of the resource is displayed.

#### Label

The label set for the resource is displayed.

#### Comment

Comments set for the resource are displayed.

### Public IP Address List

#### IP address

The IP address being used is displayed.

#### Address set name

The name of the address set being used is displayed.

## L-Server List

### Name (Label)

The name of the L-Server directly under the root/folder/tenant is displayed.

### Status

L-Server status is displayed.

### Server type

The server type of the L-Server is displayed.

- For Physical L-Servers

"Physical" is displayed.

- For Virtual L-Servers

The VM type of the L-Server is displayed.

### OS

The icon that represents the L-Server's OS is displayed.

For the list of supported OSs and their icons, refer to "11.2 Resource Status" in the "Operation Guide CE".

If the L-Server's OS is not listed in the table, a hyphen ("-") is displayed in place of an icon.

### Current Resource

The following information is displayed according to the L-Server allocation status.

- When resources are already allocated (allocated)

The name of the physical server or VM host that has been allocated is displayed.

- When servers have been released (preserved)

The name of the physical server or VM host that was used the last time the L-Server was started is displayed. The name is followed by "(preserved)".

- When only the configuration definitions have already been created (defined)

"(defined)" is displayed.

### Preserved resource

The information set for "Physical server" or "VM host" during L-Server creation is displayed.

- When neither server nor host is specified (Automatic)

"Automatic" is displayed.

- When a resource pool is specified

The server pool icon or VM pool icon and resource pool name are displayed.

- For physical servers

The server pool icon and resource pool name are displayed.

- For a VM host

The VM host icon and VM host name are displayed.

### CPU performance (Defined)

The CPU performance value defined during L-Server creation is displayed.

### Number of CPUs (Allocated)

The CPU performance value of the physical server actually allocated to the L-Server is displayed.

### Memory (Defined)

The memory capacity defined during L-Server creation is displayed.

### Memory Capacity (Allocated)

The memory capacity of the physical server actually allocated to the L-Server is displayed.

### Number of NICs

The number of NICs on the L-Server is displayed.

### The Number of Disks

The number of disks on the L-Server is displayed.

### Model(Defined)

The model name defined during L-Server creation is displayed.

### Model(Allocated)

The model name of the physical server actually allocated to the L-Server is displayed.

## Firewall List

### Name (Label)

The name of the firewall resource allocated to the L-Platform is displayed along with its icon.

### Type

The type of the resource allocated to the L-Platform is displayed.

"Firewall" is displayed.

### Ruleset

The name of the directory containing the ruleset used by the resources allocated to the L-Platform is displayed.

### Use Resource

The name and status of the network device configuring the resources allocated to the L-Platform are displayed in the following format.

When multiple network devices are configured, network device names and statuses will be displayed separated by commas (",").

<i>Name( Status),Name( Status)</i>
------------------------------------

## Server Load Balancer List

### Name (Label)

The name of the server load balancer resource allocated to the L-Platform is displayed along with its icon.

### Type

The type of the resource allocated to the L-Platform is displayed.

"SLB" is displayed.

### Ruleset

The name of the directory containing the ruleset used by the resources allocated to the L-Platform is displayed.

### Use Resource

The name and status of the network device configuring the resources allocated to the L-Platform are displayed in the following format.

When multiple network devices are configured, network device names and statuses will be displayed separated by commas (",").

<i>Name( Status),Name( Status)</i>
------------------------------------

## A.7.16 Firewall Attributes

---

### General Area

#### Name (Label)

The name of the resource is displayed.

#### Type

The type of the resource is displayed.

"Firewall" is displayed.

### Network Device Basic Information

#### Name (Label)

The name of the directory containing the ruleset used by the resources allocated to the L-Platform is displayed.

#### Description

A description of the ruleset is displayed.

#### Parameter File Name

The name of the parameter file set for the ruleset is displayed.

#### network device

- Preserved resource

The name of the network device that configures the resource allocated to the L-Platform.

Clicking the link displays the [Resource Details] tab of the network device.

- Status

The status of the resource to be used is displayed.

## A.7.17 SLB Attributes

---

### General Area

#### Name (Label)

The name of the resource is displayed.

#### Type

The type of the resource is displayed.

"SLB" is displayed.

### Network list

#### IP address

The IP address used for the SLB (NS Appliance) in simple configuration mode is displayed.

#### Network resource name

The name of the network resource used for the SLB (NS Appliance) in simple configuration mode is displayed.

### Network Device Basic Information

#### Name (Label)

The name of the directory containing the ruleset used by the resources allocated to the L-Platform is displayed.

## Description

A description of the ruleset is displayed.

## Parameter File Name

The name of the parameter file set for the ruleset is displayed.

## network device

- Preserved resource

The name of the network device that configures the resource allocated to the L-Platform.

Clicking the link displays the [Resource Details] tab of the network device.

- Status

The status of the resource to be used is displayed.

## A.7.18 Tenant Attributes

---

### General Area

#### Name (Label)

The name of the resource is displayed.

#### Type

The type of the resource is displayed.

### Global Pool List

#### Name (Label)

The name (label) of the global pool is displayed.

#### Type

The resource pool type of the global pool is displayed.

#### Priority

The priority of the resource pool for automatically selecting a resource when creating an L-Server is displayed.

#### Stored Resource Number

The number of resources stored in the global pool is displayed.

### Tenant/L-Platform/Folder List

#### Name (Label)

The name used to identify the folder is displayed.

#### Type

The type of the folder is displayed.

#### Stored Resource Number

The number of stored resources is displayed.

### Pool List

#### Name (Label)

The name used to identify the resource pool is displayed.

## Type

The type of the resource pool is displayed.

## Priority

The priority of the resource pool is displayed.

## Stored Resource Number

The number of resources registered in the resource pool is displayed.

## L-Server List

### Name (Label)

The name of the L-Server directly under the root/folder/tenant is displayed.

### Status

L-Server status is displayed.

### Server type

The server type of the L-Server is displayed.

- For Physical L-Servers

"Physical" is displayed.

- For Virtual L-Servers

The VM type of the L-Server is displayed.

## OS

The icon that represents the L-Server's OS is displayed.

For the list of supported OSs and their icons, refer to "11.2 Resource Status" in the "Operation Guide CE".

If the L-Server's OS is not listed in the table, a hyphen ("-") is displayed in place of an icon.

## Current Resource

The following information is displayed according to the L-Server allocation status.

- When resources are already allocated (allocated)

The name of the physical server or VM host that has been allocated is displayed.

- When servers have been released (preserved)

The name of the physical server or VM host that was used the last time the L-Server was started is displayed. The name is followed by "(preserved)".

- When only the configuration definitions have already been created (defined)

"(defined)" is displayed.

## Preserved resource

The information set for "Physical server" or "VM host" during L-Server creation is displayed.

- When neither server nor host is specified (Automatic)

"Automatic" is displayed.

- When a resource pool is specified

The server pool icon or VM pool icon and resource pool name are displayed.

- For physical servers

The server pool icon and resource pool name are displayed.

- For a VM host

The VM host icon and VM host name are displayed.

#### CPU performance (Defined)

The CPU performance value defined during L-Server creation is displayed.

#### CPU performance (Allocated)

The CPU performance value of the physical server actually allocated to the L-Server is displayed.

#### Number of CPUs (Defined)

The number of CPUs defined during L-Server creation is displayed.

#### Number of CPUs (Allocated)

The number of CPUs of the physical server actually allocated to the L-Server is displayed.

#### Memory (Defined)

The memory capacity defined during L-Server creation is displayed.

#### Memory Capacity (Allocated)

The memory capacity of the physical server actually allocated to the L-Server is displayed.

#### Number of NICs

The number of NICs on the L-Server is displayed.

#### The Number of Disks

The number of disks on the L-Server is displayed.

#### Model(Defined)

The model name defined during L-Server creation is displayed.

#### Model(Allocated)

The model name of the physical server actually allocated to the L-Server is displayed.

## A.7.19 VM Pool Attributes

---

### General Area

#### Name (Label)

The name of the resource is displayed.

#### Type

The type of the resource is displayed.

#### Priority

The priority of the VM pool is displayed.

### Attributes

When using a VM pool with overcommit, [Over Commit] is displayed.

The calculation method for free space is displayed.

### Label

The label set for the resource is displayed.

### Comment

Comments set for the resource are displayed.



## Capacity

### CPU Capacity

#### Total Capacity

The total CPU capacity of the VM host is displayed.

#### Unused Capacity

The free CPU capacity of the VM host is displayed.

#### Reserved Capacity

When admission control is enabled, the capacity reserved by the admission control is displayed.

### Memory Size

#### Total Capacity

The total memory capacity of the VM host is displayed.

#### Unused Capacity

The free memory capacity of the VM host is displayed.

#### Reserved Capacity

When admission control is enabled, the capacity reserved by the admission control is displayed.

## VM Host List

### Name (Label)

The name of the registered VM host is displayed.

### Status

The status of the registered VM host is displayed.

### VM type

The VM type of the registered VM host is displayed.

### Cluster Group

Displayed when using cluster configurations.

### CPU Capacity (Unused/Total)

The CPU capacity of the registered VM host is displayed.

### Memory Capacity (Unused/Total)

The memory capacity of the registered VM host is displayed.

## VM Host Attributes

### General Area

#### Name (Label)

The name of the resource is displayed.

#### Type

The type of the resource is displayed.

## Capacity

### CPU Capacity

#### Total Capacity

The total CPU capacity of the VM host is displayed.

#### Unused Capacity

The free CPU capacity of the VM host is displayed.

#### Reserved Capacity

When admission control is enabled, the capacity reserved by the admission control is displayed.

### Memory Size

#### Total Capacity

The total memory capacity of the VM host is displayed.

#### Unused Capacity

The free memory capacity of the VM host is displayed.

#### Reserved Capacity

When admission control is enabled, the capacity reserved by the admission control is displayed.

## VM Host Information Area

### Status

The status of the VM host is displayed.

### VM type

The VM type of the VM host is displayed.

### Cluster Group

Displayed when using cluster configurations.

### Number of VM guests

The number of VM guests belonging to the VM host is displayed.

### Management software

The link to the web interface of the VM management software for the VM host is displayed.

### Physical Server Name

The name of the physical server to which the VM host belongs is displayed.

## VM Management Software Specific Information

### VMware HA

The ON/OFF status of VMware HA is displayed.

One of the following is displayed:

- on
- off

Displayed when the VM host is VMware.

When not in a cluster configuration, a hyphen ("-") is displayed.

### VMware DRS

The ON/OFF status of VMware DRS is displayed.

One of the following is displayed:

- on
- off

Displayed when the VM host is VMware.

When not in a cluster configuration, a hyphen ("-") is displayed.

#### VMware DPM

The ON (manual or automatic)/OFF status of VMware DPM is displayed.

One of the following is displayed:

- on
- off

Displayed when the VM host is VMware.

When not in a cluster configuration, a hyphen ("-") is displayed.

#### Admission Control

The enabled/disabled status of the admission control function provided by VMware is displayed.

One of the following is displayed:

- on
- off

Displayed when the VM host is VMware.

When not in a cluster configuration, a hyphen ("-") is displayed.

#### Standby Mode

The values based on the status of VMware standby mode and VMware DPM are displayed.

One of the following is displayed:

- on
- off

Displayed when the VM host is VMware.

When not in a cluster configuration, a hyphen ("-") is displayed.

Even in a cluster configuration, if both standby mode and VMware DPM are disabled, "off" is displayed.

#### Maintenance Mode

The maintenance mode setting of VMware/Hyper-V is displayed.

One of the following is displayed:

- on
- off

Displayed when the VM host is VMware or Hyper-V.

When not in a cluster configuration, a hyphen ("-") is displayed.

#### VM Guest List

##### Name (Label)

The name of the VM guest is displayed.

### Status

The status of the VM guest is displayed.

### VM Type

The VM type of the VM guest is displayed.

### VM host name

The name of the VM host on which the VM guest is stored is displayed.

### OS Type

The OS type of the VM guest is displayed.

### CPU Capacity

The CPU capacity of the VM guest is displayed.

### Number of CPUs

The CPU capacity of the VM guest is displayed.

### Memory Capacity

The memory capacity of the VM guest is displayed.

### Allocated L-Server

The name of the L-Server allocated to the VM guest is displayed.

## VM Guest Information Area

This is displayed only when the selected VM guest resides on a VM host which is originally a guest domain of OVM for SPARC.

### Status

The status of the VM guest is displayed.

### VM Type

The VM type of the VM guest is displayed.

### VM host name

The name of the VM host on which the VM guest is stored is displayed.

### Management software

The link to the web interface of the VM management software for the VM host is displayed.

### OS Type

The OS type of the VM guest is displayed.

### CPU Capacity

The CPU capacity of the VM guest is displayed.

### Number of CPUs

The CPU capacity of the VM guest is displayed.

### Memory Capacity

The memory capacity of the VM guest is displayed.

## VM Guest Information Attributes

### General

#### Name (Label)

The name of the resource is displayed.

## Type

The type of the resource is displayed.

## VM Guest Information Area

### Status

The status of the VM guest is displayed.

### VM Type

The VM type of the VM guest is displayed.

### VM host name

The name of the VM host on which the VM guest is stored is displayed.

### Management software

The link to the web interface of server virtualization software is displayed.

### OS Type

The OS type of the VM guest is displayed.

### CPU Capacity

The CPU capacity of the VM guest is displayed.

### Number of CPUs

The CPU capacity of the VM guest is displayed.

### Memory Capacity

The memory capacity of the VM guest is displayed.

## L-Server Properties

### Status

The status of the VM guest is displayed.

### Allocated L-Server

The name of the L-Server allocated to the VM guest is displayed.

## VM Host Information Area

This is displayed only when the selected VM guest resides on a VM host which is originally a guest domain of OVM for SPARC.

### Status

The status of the VM host is displayed.

### VM type

The VM type of the VM host is displayed.

### Cluster Group

Displayed when using cluster configurations.

### Number of VM guests

The number of VM guests belonging to the VM host is displayed.

### Management software

The link to the web interface of the VM management software for the VM host is displayed.

### Physical Server Name

A hyphen ("-") is displayed.

## A.7.20 Server Pool Attributes

---

### General Area

#### Name (Label)

The name of the resource is displayed.

#### Type

The type of the resource is displayed.

#### Label

The label set for the resource is displayed.

#### Comment

Comments set for the resource are displayed.

#### Priority

The priority of the server pool is displayed.

### Capacity

#### Number of Servers

##### Total Units

The total number of servers registered in the server pool is displayed.

##### Unused Units

The number of available servers registered in the server pool is displayed.

### Physical Server List

#### Physical Server Name

The name of the physical server is displayed.

#### Status

The status of the physical server is displayed.

#### Model

The model name of the physical server is displayed.

#### OS

The OS of the physical server is displayed.

#### CPU Type

The CPU type of the physical server is displayed.

#### CPU clock speed

The CPU clock speed (frequency) of the physical server is displayed.

#### Number of CPUs

The number of CPUs of the physical server is displayed.

#### Memory Capacity

The memory capacity of the registered server is displayed.

## Allocated L-Server

The L-Server name allocated to the physical server is displayed.

## Server Attributes

### General Area

#### Physical server name

The name of the server on which the physical OS, VM host, or VM guest is operating is displayed.

#### Model name

The model name of the server is displayed.

When the server has been registered as a managed server and powered on, the server model name obtained from ServerView Operations Manager is displayed. For other servers, no model name is displayed.

#### Product name

The product name of the physical server is displayed.

For PRIMERGY BX servers, the product name obtained from the management blade is displayed. For other servers, the model name is displayed.

#### Status

The status of the physical server is displayed.

#### Slot

The slot number of the physical server is displayed.

Displayed only for PRIMERGY BX servers.

#### Partition ID

The partition number is displayed.

Displayed only when a PRIMEQUEST or SPARC Enterprise M4000/M5000/M8000/M9000 server is selected.

#### Maintenance Mode

The maintenance mode of the physical server is displayed.

Not displayed when SPARC Enterprise servers are selected.

#### LED status

The illumination status of the maintenance LED for the physical server is displayed.

Displayed only for PRIMERGY BX servers.

#### Admin LAN (MAC address 1)

The admin LAN address (MAC address) of the physical server is displayed.

Not displayed when SPARC Enterprise servers are selected.

#### CPU core count

The number of CPU cores of the physical server is displayed.

#### CPU Type

The CPU type of the physical server is displayed.

#### CPU clock speed

The CPU clock speed (frequency) of the physical server is displayed.

This attribute is displayed as "-" for servers other than PRIMERGY BX servers or SPARC Enterprise M servers.

#### Memory Size

The memory capacity of the physical server is displayed.

This attribute is displayed as "-" for servers other than PRIMERGY BX servers or SPARC Enterprise M servers.

For SPARC Enterprise M4000/M5000/M8000/M9000 servers, this is displayed only when the server is powered on.

### Admin LAN Redundancy

Displayed when NIC redundancy has been configured for admin LANs.

### Admin LAN (MAC address 2)

The MAC address used for the HBA address rename setup service is displayed.

Not displayed when SPARC Enterprise servers are selected.

Displayed only for servers other than PRIMERGY BX servers.

### Hardware Maintenance Mode

The hardware maintenance mode of the server is displayed.

Displayed only when a PRIMEQUEST server is selected.

### Boot option

The boot option setting specified when registering servers is displayed.

Displayed only when a PRIMEQUEST server is selected.

### L-Server

The link to the allocated L-Server information is displayed.

When linked with an L-Server, the name of that L-Server is displayed.

Not displayed when Fujitsu M10/SPARC Enterprise are selected.

### Dynamic Reconfiguration

The status of Dynamic Reconfiguration is displayed.

It is only displayed when the PPAR of a PRIMEQUEST 2000 series is selected.

## Hardware Details Area

### I/O Virtualization Management Software

The link to the web interface of external I/O virtualization management software is displayed.

Displayed only if coordinated up with external I/O virtualization management software.

### VIOM server profile

The assigned VIOM server profile name is displayed.

Displayed only if managed by VIOM and a server profile has been set.

## Network Properties (Physical Connections)

### Index

The network number that belongs to the physical server is displayed.

### LAN Switch

The name of the LAN switch blade or the network device that belongs to the physical server is displayed.

### Port Name

The name of the port that belongs to the physical server is displayed.

## hardware maintenance(NIC Summary)

For servers other than PRIMERGY BX servers and PRIMEQUEST servers, only admin LAN information is displayed.

For SPARC Enterprise servers, only the IP address is displayed.

### MAC address (Media Access Control address)

The list of MAC addresses for hardware maintenance of the physical server.

### IP address

The list of IP addresses for hardware maintenance of the physical server.



## Admin LAN

The MAC addresses and IP addresses of each server are displayed.

## L-Server Properties

### Allocated L-Server

L-Server name allocated to the physical server is displayed.

## A.7.21 Storage Pool Attributes

---

### General Area

#### Name (Label)

The name of the resource is displayed.

#### Type

The type of the resource is displayed.

#### Priority

The priority of the storage pool is displayed.

### Attributes

The setting status of Thin Provisioning attributes is displayed.

- When Thin Provisioning attributes are set  
[Thin Provisioning] is displayed.
- When Thin Provisioning attributes are not set  
[Thick Provisioning] is displayed.

#### Label

The label set for the resource is displayed.

#### Comment

Comments set for the resource are displayed.

### Capacity

#### Disk Capacity

##### Total Capacity

The total disk capacity of the storage pool is displayed.

##### Unused Capacity

The free disk capacity of the storage pool is displayed.

### Virtual Storage List

#### Name (Label)

The name of the registered virtual storage is displayed.

#### Status

The status of the registered virtual storage is displayed.

#### Capacity (Unused Capacity/Total Capacity)

The capacity of the registered virtual storage is displayed.

#### Storage Type

The type of the registered virtual storage is displayed.

#### Attributes

The type of the virtual storage is displayed.

### Disk Resource List

#### Name (Label)

The disk name is displayed. A link to the detailed information of the allocated disk is displayed.

#### Status

The disk status is displayed.

#### Size

The disk size is displayed.

#### Virtual Storage

The disk allocation destination is displayed.

#### Share

The shared settings of the disk are displayed.

#### Attributes

The attributes that have been set are displayed.

- When thin provisioning is configured  
"Thin Provisioning" is displayed.
- When thick provisioning is configured  
"Thick Provisioning" is displayed.

#### Allocated L-Server

The name of the L-Server to which a disk has been allocated is displayed.

#### Stored Image (Version)

Displays cloning images stored on the disk and their versions.

For cloning images of physical servers or a VM type other than RHEL-KVM, a hyphen ("-") is displayed.

### Virtual Storage Attributes

#### General Area

##### Name (Label)

The name of the resource is displayed.

##### Type

The type of the resource is displayed.

##### Label

The label set for the resource is displayed.

##### Comment

Comments set for the resource are displayed.

## Configuration Information

### Status

The status of the resource is displayed.

### Storage Type

The storage type of the resource is displayed.

### Thin Provisioning

Thin provisioning configuration information is displayed.

- When thin provisioning is configured  
"yes" is displayed.
- When thick provisioning is configured or no attribute is specified  
"no" is displayed.

### Total Capacity

The total storage capacity is displayed.

### Unused Capacity

The free storage capacity is displayed.

## Disk Resource List

### Name (Label)

The disk name is displayed. A link to the detailed information of the allocated disk is displayed.

### Status

The disk status is displayed.

### Size

The disk size is displayed.

### Virtual Storage

The disk allocation destination is displayed.

### Share

The shared settings of the disk are displayed.

### Attributes

The attributes that have been set are displayed.

- When thin provisioning is configured  
"Thin Provisioning" is displayed.
- When thick provisioning is configured  
"Thick Provisioning" is displayed.

### Allocated L-Server

The name of the L-Server to which a disk has been allocated is displayed.

## Disk Details Attributes

### General Area

#### Name (Label)

The disk name is displayed.

#### Type

The disk status is displayed.

#### Label

The label set for the disk is displayed.

#### Comment

Comments set for the disk are displayed.

### Configuration Information

#### Status

The disk status is displayed.

#### Size

The disk size is displayed.

#### Allocation

The disk allocation status is displayed.

#### L-Server that was last used

If a disk is unallocated, the name of the L-Server that the disk was last allocated to is displayed.

If it is an L-Server located in a tenant or resource folder, the name of the tenant or resource folder is also displayed.

The information from when the disk is deleted is displayed even if the L-Server is changed or deleted after reducing disks in the L-Server.

A hyphen ("-") is displayed in the following cases:

- If the disk has already been allocated to an L-Server
- If the disk has never been allocated to an L-Server

#### Virtual storage

The disk allocation destination is displayed.

#### Share

Whether the disk is allocated to multiple L-Servers is displayed.

- When the disk has been allocated to 2 or more L-Servers  
"yes" is displayed.
- When the disk is preserved or has been allocated to only one L-Server  
"no" is displayed.

#### Thin Provisioning

Thin provisioning configuration information is displayed.

- When thin provisioning is configured  
"yes" is displayed.
- When thick provisioning is configured  
"no" is displayed.

## Alias

If the disk type is ETERNUS, the alias name set in LUN is displayed.

A hyphen ("-") is displayed in the following cases:

- When the disk type is one other than ETERNUS
- If an alias name has not been set in LUN



## Information

.....  
If the alias name of LUN has been changed with the ETERNUS WebGUI, it will be updated a certain time later.  
.....

## Stored Image (Version)

Displays cloning images stored on the disk and their versions.

For cloning images of physical servers or a VM type other than RHEL-KVM, a hyphen ("-") is displayed.

## L-Server Properties

### Allocated L-Server

The name of the L-Server to which a disk has been allocated is displayed.

### Disk No.

The disk number is displayed.

### Disk Usage

The usage of the disk is displayed.

## A.7.22 Network Pool Attributes

---

### General Area

#### Name (Label)

The name used to identify the network pool is displayed.

#### Type

The type of the network pool is displayed.

#### Priority

The priority for automatic selection of resources when multiple network pools are available is displayed.

#### Label

The label for the network pool is displayed.

#### Comment

Comments for the network pool are displayed.

### Capacity

#### IP address

##### Total Number

The total number of IP addresses registered in the network pool is displayed.

##### Unused Number

The number of unused IP addresses registered in the network pool is displayed.

## Network Resource List

### Name (Label)

The network resource name is displayed.

### Admin LAN

Whether it is being used as an admin LAN is displayed.

- When used as an admin LAN

"yes" is displayed.

- When not used as an admin LAN

"no" is displayed.

### iSCSI boot

The LAN for iSCSI boot is displayed.

### VLANID

The VLAN ID for the network resource is displayed.

### Subnet Address

The subnet address of the network resource is displayed.

### Subnet Mask

The subnet mask of the network resource is displayed.

### Address Number (Unused Number/Total Number)

The total number and number of unused IP addresses registered in the network resource are displayed.

## Network Device List

### Network Device Name

The network device name is displayed.

### Model

The model name is displayed.

### Status

The operational status of the network device is displayed.

### Usage

The available usage for the network device is displayed.

### Ruleset

The ruleset name is displayed.

### Current Resource

The name of the network device that has been allocated is displayed.

### Deployable L-Platforms (Unused / Total)

The number of L-Platforms that can be deployed (unused number and total number) is displayed.

When not using the NS Appliance in simple configuration mode, "- / -" is displayed.

## Network Device Attributes

For details, refer to "[A.7.5 Network Device Attributes](#)".

## Network Resource Attributes

### General Area

#### Name (Label)

The network resource name is displayed.

#### Type

The network resource is displayed.

#### Label

The label for the network resource is displayed.

#### Comment

Comments for the network resource are displayed.

### Capacity

#### IP address

##### Total Number

The total number of IP addresses registered in the network pool is displayed.

##### Unused Number

The number of unused IP addresses registered in the network pool is displayed.

### Attribute Information

#### Admin LAN

Whether it is to be used as an admin LAN is displayed.

- When used as an admin LAN  
"yes" is displayed.
- When not used as an admin LAN  
"no" is displayed.

#### iSCSI boot

The LAN for iSCSI boot is displayed.

#### Use of configured virtual switches/port profiles

Whether configured virtual switches/port profiles are used is displayed.

- When configured virtual switches/port profiles are used  
"yes" is displayed.
- When configured virtual switches/port profiles are not used  
"no" is displayed.

#### Automatically configure VLANs for the uplink ports

Whether automatic VLAN configuration for uplink ports is performed is displayed.

- When automatic configuration is performed  
"yes" is displayed.
- When automatic configuration is not performed  
"no" is displayed.

#### Start Address

The start address of the IP addresses to be automatically configured is displayed.

#### End Address

The end address of the IP addresses to be automatically configured is displayed.

#### Subnet address

The subnet address of the network resource is displayed.

#### Subnet Mask

The subnet mask of the network resource is displayed.

#### Gateway

The default gateway is displayed.

#### VLAN ID

The VLAN ID for the network resource is displayed.

#### Ruleset

The ruleset for the network resource is displayed.

A hyphen ("-") is displayed if the ruleset has not been set.

#### physical LAN segment

The physical LAN segment set for the network resource is displayed.

When no physical LAN segment is set, a hyphen ("-") is displayed.

The physical LAN segment item will not be displayed if no server NIC has been defined.

#### Excluded IP List

##### Start IP Address

The start address of the IP addresses to be excluded from automatic configuration is displayed.

##### End IP Address

The end address of the IP addresses to be excluded from automatic configuration is displayed.

#### External Connection List

##### Chassis Name

The chassis name is displayed.

For Ethernet fabric switches, a hyphen ("-") is displayed.

##### Switch Name

The switch name is displayed.

##### Port number/port name

The external connection port number of the LAN switch blade or the port name of the Ethernet fabric switch is displayed.

For link aggregation of LAN switch blades, the physical port numbers of the member ports that constitute the link aggregation are displayed.

A hyphen ("-") is displayed if the link aggregation configuration has been released.

##### Link aggregation group name

If link aggregation, then the link aggregation group name is displayed.

A hyphen ("-") is displayed in the following cases:

- Physical ports of LAN switch blades
- Ethernet fabric switches



## VLAN Type

The VLAN type is displayed.

- When used as Tagged VLAN  
"tagged" is displayed.
- When used as Untagged VLAN  
"untagged" is displayed.
- When VLAN is not used  
"none" is displayed.
- For Ethernet fabric switches  
A hyphen ("-") is displayed.

## Status of virtual switch automatic configuration

The following information is displayed when automatic network configuration has been performed on the target of network resource automatic configuration or when a VM host on which automatic network configuration has been performed exists in the cluster.

### Cluster Group

The cluster is displayed.

### VM host name

The VM host name is displayed.

### VM Type

The VM Type (VMware or Hyper-V) is displayed.

- VMware
- Hyper-V

### Virtual Switch / Port Group

When the VM type is VMware, the virtual switch and port group names are displayed.

When it is Hyper-V, the virtual network name is displayed.

A hyphen ("-") is displayed in the following cases.

- When a configuration change made by the user with VM management software after automatic configuration is detected by this product

In the following case, "(manual)" is displayed after the virtual switch and port group names.

- When the same configuration as the one to be configured automatically has been created by the user beforehand

## A.7.23 Address Pool Attributes

---

### General Area

#### Name (Label)

The name of the resource is displayed.

#### Type

The type of the resource is displayed.

#### Label

The label set for the resource is displayed.

#### Comment

Comments set for the resource are displayed.

#### Priority

The priority of the address pool is displayed.

#### Capacity

##### Number Of Address

###### Total Number

The total number of IP addresses stored in the address pool is displayed.

###### Unused Number

The number of unused IP addresses stored in the address pool is displayed.

#### General Area

##### Name (Label)

The name of the address set is displayed.

##### Address Type

The address type of the address set is displayed.

##### Start Address

The start address of the address set is displayed.

##### End Address

The end address of the address set is displayed.

##### Address Number (Unused Number/Total Number)

The unused number and total number of IP addresses in the address set are displayed.

### **Address Set Attributes**

#### General Area

##### Name (Label)

The name of the resource is displayed.

##### Type

The type of the resource is displayed.

##### Label

The label set for the resource is displayed.

##### Comment

Comments set for the resource are displayed.

#### Attribute Information

##### Start Address

The start address of the address set is displayed.

##### End Address

The end address of the address set is displayed.

### Address Type

The address type of the address set is displayed.

### Excluded Address List

#### Address

The list of IP addresses to be excluded from the address set is displayed.

## A.7.24 Image Pool Attributes

---

### General Area

#### Name (Label)

The name of the resource is displayed.

#### Type

The type of the resource is displayed.

#### Label

The label set for the resource is displayed.

#### Comment

Comments set for the resource are displayed.

#### Priority

The priority of the image pool is displayed.

### Cloning Image List

#### Name (Label)

The name of the image is displayed.

#### Version

The version of the image is displayed.

#### Collection Date

The date and time the image was collected is displayed.

#### Image Type

The image type of the image is displayed.

#### VM type

The VM type of the image is displayed.

#### Disk Information

The disk capacity of the cloning image is displayed in the order of system disk and data disk.

Information is displayed only for the following VM types.

- VMware
- Hyper-V
- Citrix-Xen

#### Comment

Comments for the image are displayed.

## Cloning Image Attributes

### General Area

#### Name (Label)

The name of the resource is displayed.

#### Type

The type of the resource is displayed.

### Image Information

#### Image Type

The image type of the cloning image is displayed.

#### OS

The name of the operating system stored in the cloning image is displayed.

#### Image Location Type

Displays the type of the location where cloning images are stored.

When the VM type is RHEL-KVM, the type of disk resource where cloning images are stored is displayed.

### Version List

#### Name (Label)

The name of the image is displayed.

#### Version

The version of the image is displayed.

#### Collection Date

The date and time the image was collected is displayed.

#### Image Type

The image type of the image is displayed.

#### VM type

The VM type of the image is displayed.

#### Disk Information

The disk capacity of the cloning image is displayed in the order of system disk and data disk.

Information is displayed only for the following VM types.

- VMware
- Hyper-V
- Citrix-Xen

#### Comment

Comments for the image are displayed.

## Image Details

### General

#### Name (Label)

The name of the resource is displayed.

#### Type

The type of the resource is displayed.

#### Label

The label set for the resource is displayed.

#### Comment

Comments set for the resource are displayed.

### Image Information

#### Detail Information

##### Image Type

The image type of the cloning image is displayed.

##### OS

The name of the operating system stored in the cloning image is displayed.

##### Version

The version of the cloning image is displayed.

##### Collection Date

The date and time the cloning image was collected is displayed.

##### Image Location Type

Displays the type of the location where cloning images are stored.

When the VM type is RHEL-KVM, the type of disk resource where cloning images are stored is displayed.

##### Image Location

Displays the storage location of cloning images.

When the VM type is RHEL-KVM, the disk resource where cloning images are stored is displayed.

##### Related Product

Products related to the cloning image are displayed.

When the VM type is SolarisContainer or OVMforSPARC, the following information is displayed.

- When coordinating with BladeLogic: "BladeLogic"
- When not coordinating with BladeLogic: "None"

##### Image Type Specifications

Information is displayed only for the following VM types.

- Citrix-Xen
- OVM for x86 3.x

##### OS Settings on Deployment

On is displayed if the "On (when deployed)" checkbox of OS settings is selected (checked) when collecting the cloning image.

##### System type

The system type, which was specified when the cloning image was collected, is displayed.

## Disk Information

The disk information of the cloning image is displayed.

Information is displayed only for the following VM types.

- VMware
- Hyper-V
- Citrix-Xen

No.

The No. of disk is displayed.

Size

The Size of disk is displayed.

## A.8 [Recovery Settings] Tab

---

The [Recovery Settings] tab displays a list of spare servers assigned to the resource selected in the server resource tree.

The table below shows the information displayed in the [Recovery Settings] tab.

### [Recovery Settings] Tab

Server Name

The name used to identify a physical OS or VM host is displayed.

Admin LAN IP Address

The IP address on the admin LAN is displayed.

Primary Server

The name of the server on which the physical OS or VM host is operating is displayed.

Switchover State

The current switchover state is displayed.

Spare Server

The configured spare server is displayed.

The switchover state is indicated by an arrow shown next to the currently active Primary Server. The messages "Switchover in progress", "Failback in progress", or "Takeover in progress" are displayed respectively during a server switchover, failback, or takeover process. If more than one spare server has been set, the first server listed is the one that is currently running.

Clicking a column heading in this list will change the color of the selected column and sort the displayed recovery settings in either ascending or descending order.

In each page of the list, 10 items can be displayed. It is possible to move forwards and backwards by single pages, and to the first or last page.

## A.9 [Image List] Tab

---

The [Image List] tab displays information regarding available images.

Those lists can be used to manage both system images and cloning images.

The following two tables list the items that are displayed in System Image List and Cloning Image List.

## System Image List

### Server Name

The name used to identify a physical OS or VM host is displayed.

### Version

The latest version of the system image is displayed.

### Backup Date

The date and time of the most recent system image backup is displayed.

### Comment

Comments describing the system image are displayed.

## Cloning Image List Area

### Cloning Image Name

The name used to identify a cloning image is displayed.

### Version

The version of the cloning image is displayed.

### Collection Date

The name used to identify a cloning image is displayed.

### OS

The name of the operating system stored in the cloning image is displayed.

### Comment

Comments describing the cloning image are displayed.

Right-clicking a resource in the list displays a list of available operations in a popup menu.

Refer to "[A.2.2 Popup Menus](#)" for details on the operations available from popup menus.

Clicking a column heading in this list will change the color of the selected column and sort images in either ascending or descending order. In each page of the list, 10 items can be displayed. It is possible to move forwards and backwards by single pages, and to the first or last page.

## A.10 Available Pool

---

This section describes the available pools displayed in the ROR console.

For each resource pool type, the list of resource pools that can be used according to the role and scope of access of the logged in user is displayed.

### VM Pool

#### Name (Label)

The name used to identify the resource pool is displayed.

#### Path

The path to the location of the folder or the tenant on the orchestration tree in which a resource pool is stored is displayed.

#### Priority

The priority of the resource pool is displayed.

#### Resource Number

The number of resources registered in the resource pool is displayed.

#### CPU Capacity (Unused/Total)

The CPU capacity of the VM host registered in the resource pool is displayed.

#### Memory Capacity (Unused/Total)

The memory capacity of the VM host registered in the resource pool is displayed.

#### Attributes

When using a VM pool with overcommit, [Over Commit] is displayed.

The calculation method for free space is displayed.

#### Max. Number of Possible New L-Servers

When an L-Server template is selected, the number of L-Servers that can be created using resource pools is displayed.

### Server Pool

#### Name (Label)

The name used to identify the resource pool is displayed.

#### Path

The path to the location of the folder or the tenant on the orchestration tree in which a resource pool is stored is displayed.

#### Priority

The priority of the resource pool is displayed.

#### Resource Number

The number of resources registered in the resource pool is displayed.

#### Number of servers(Unused/Total)

The number of physical servers registered in the resource pool is displayed.

#### Max. Number of Possible New L-Servers

When an L-Server template is selected, the number of L-Servers that can be created using resource pools is displayed.

### Storage Pool

#### Name (Label)

The name used to identify the resource pool is displayed.

#### Path

The path to the location of the folder or the tenant on the orchestration tree in which a resource pool is stored is displayed.

#### Priority

The priority of the resource pool is displayed.

#### Resource Number

The number of resources registered in the resource pool is displayed.

#### Capacity(Unused/Total)

The capacity of the virtual storage or disk resources registered in the resource pool is displayed.

#### Attributes

The setting status of Thin Provisioning attributes is displayed.

- When Thin Provisioning attributes are set

[Thin Provisioning] is displayed.



- When Thin Provisioning attributes are not set

[Thick Provisioning] is displayed.

#### Max. Number of Possible New L-Servers

When an L-Server template is selected, the number of L-Servers that can be created using resource pools is displayed.

#### Network Pool

##### Name (Label)

The name used to identify the resource pool is displayed.

##### Path

The path to the location of the folder or the tenant on the orchestration tree in which a resource pool is stored is displayed.

##### Priority

The priority of the resource pool is displayed.

##### Resource Number

The number of resources registered in the resource pool is displayed.

##### IP Address Number(Unused/Total)

The number of IP addresses of the network resources registered in the resource pool.

#### Address Pool

##### Name (Label)

The name used to identify the resource pool is displayed.

##### Path

The path to the location of the folder or the tenant on the orchestration tree in which a resource pool is stored is displayed.

##### Priority

The priority of the resource pool is displayed.

##### Resource Number

The number of resources registered in the resource pool is displayed.

##### Number Of Address

The number of addresses of the address set registered in the resource pool is displayed.

#### Image Pool

##### Name (Label)

The name used to identify the resource pool is displayed.

##### Path

The path to the location of the folder or the tenant on the orchestration tree in which a resource pool is stored is displayed.

##### Priority

The priority of the resource pool is displayed.

##### Resource Number

The number of resources registered in the resource pool is displayed.

## A.11 Template List

This section describes the template list displayed in the ROR console.

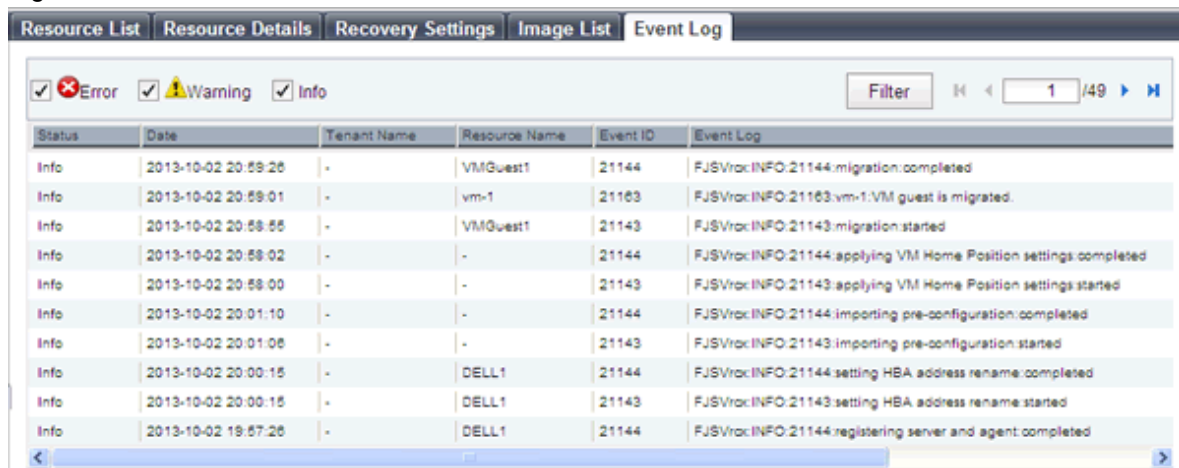
A list of registered L-Server templates is displayed.

The [Create] button is displayed for users with a role that allows L-Server creation. When the [Create] button is clicked, the [Create an L-Server] dialog is displayed.

## A.12 Event

This section describes the event area of the ROR console.

Figure A.19 Event



Status	Date	Tenant Name	Resource Name	Event ID	Event Log
Info	2013-10-02 20:59:26	-	VMGuest1	21144	FJSVrac:INFO:21144:migration:completed
Info	2013-10-02 20:59:01	-	vm-1	21163	FJSVrac:INFO:21163:vm-1:VM guest is migrated.
Info	2013-10-02 20:58:55	-	VMGuest1	21143	FJSVrac:INFO:21143:migration:started
Info	2013-10-02 20:58:02	-	-	21144	FJSVrac:INFO:21144:applying VM Home Position settings:completed
Info	2013-10-02 20:58:00	-	-	21143	FJSVrac:INFO:21143:applying VM Home Position settings:started
Info	2013-10-02 20:01:10	-	-	21144	FJSVrac:INFO:21144:importing pre-configuration:completed
Info	2013-10-02 20:01:06	-	-	21143	FJSVrac:INFO:21143:importing pre-configuration:started
Info	2013-10-02 20:00:15	-	DELL1	21144	FJSVrac:INFO:21144:setting HBA address rename:completed
Info	2013-10-02 20:00:15	-	DELL1	21143	FJSVrac:INFO:21143:setting HBA address rename:started
Info	2013-10-02 19:57:26	-	DELL1	21144	FJSVrac:INFO:21144:registering server and agent:completed

The event log displays a history of events that have occurred on managed resources. These events are added to the log automatically. Each event provides the following information.

### Event Information

#### Status

Displays the level of the event.

There are three levels: "Error", "Warning", or "Info".

#### Date

Date and time at which the event occurred.

#### Tenant Name

Name of the tenant associated with the event.

#### Resource Name

Name of the resource associated with the event.

#### Event ID

Identifier related to the event.

No event ID is displayed for network resources.

#### Event Log

Content of the event.

When the link in the [Event Log] column is clicked, an error dialog is displayed. The error dialog provides detailed information of events.

Events can be filtered using the checkboxes displayed in the window.

Selecting a checkbox will show the events whose status corresponds to that of the selected checkbox. Clearing a checkbox will hide such events.

When the [Filter] button is clicked in the window, the [Filter Settings] dialog is displayed. For the events displayed in the list, the necessary conditions can be set after selecting "match all" or "match any":

- Tenant
- Event Log
- Date

The conditions set for events are displayed above the list. To clear the conditions, click the [x] displayed on the right of the list.

Clicking a column heading will change the color of the selected column and sort events in either ascending or descending order.

In each page of the list, 10 items can be displayed. It is possible to specify the page to display, move forwards and backwards by single pages, and move to the first or last page.

### Note

When a resource's status becomes "fatal", its related event shows an "Error" status in the [Status] column. For this reason, the actual status of a resource should be confirmed from either the resource tree or the [Resource List] tab.

### Information

For the SPARC Enterprise T series, the following levels are displayed for SEVERITY values of hardware SNMP Trap MIBs (SUN-HW-TRAP-MIB.mib).

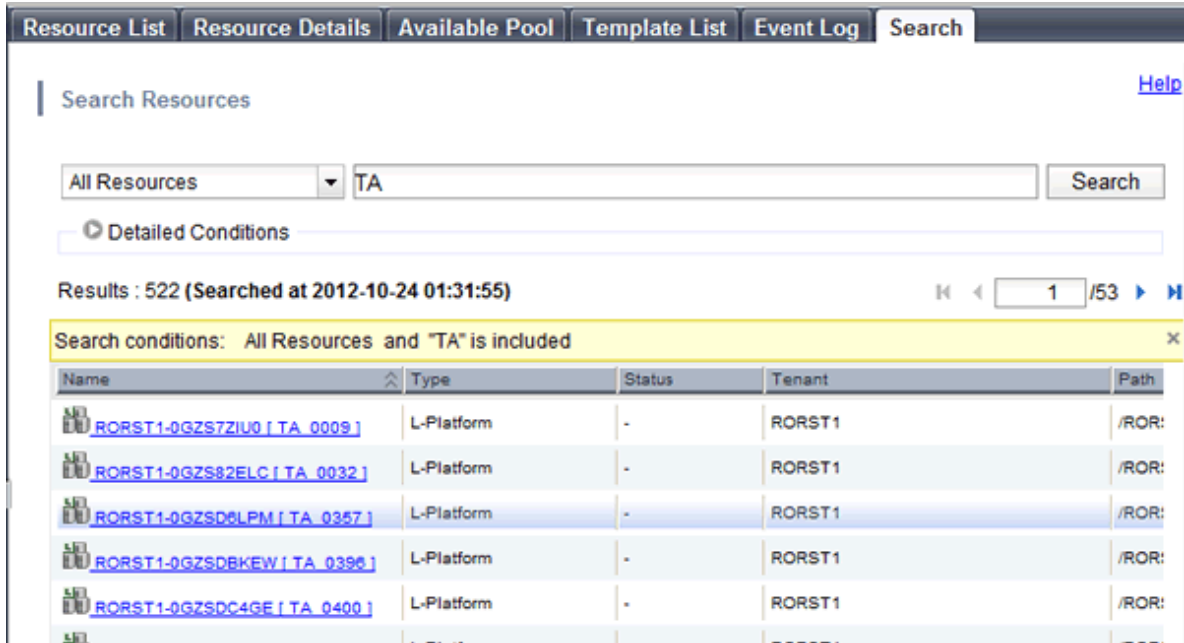
- When SEVERITY is Critical or Major:  
"Error" is displayed.
- When SEVERITY is Minor:  
"Warning" is displayed.
- When SEVERITY is Informational:  
"Info" is displayed.

## A.13 Search

---

This section explains the search screen of the ROR console.

Figure A.20 Search



This screen can be used to search resources on the orchestration tree by type and name.

When performing a search, specify all of the following conditions.

- Resource Type

Specify the research type to search.

When "All Resources" is specified, the following resources are searched.

- L-Platform
- L-Server
- VM Host
- Physical Server
- Virtual Storage Resources
- Disk Resources
- Network Resources
- Network Devices
- Address Set
- Cloning Image
- Resource Name

Specify the character string to search for. A case insensitive search is performed on the resource names, and any resource names that contain the specified string will be listed.

In the case of L-Platforms or L-Servers, the search is performed on the names and comments of resources.

### Point

The "L-Platform Name" or "Server Name" displayed on the [L-Platform] tab may be set for the comment.

Detailed conditions other than the type and name can be specified during a search.

- Tenant

To search only the resources in a certain tenant, specify the name of the tenant.

- Status

To search only the resources that have a certain status, specify the target status.

Selecting a checkbox will show the resources whose status matches that of the selected checkbox.

However, when the following resource types are specified for search conditions, status cannot be specified.

- L-Platform
- Network Resources
- Address Set
- Cloning Image

When "All Resources" is selected in the [Resource Type] field and not even one checkbox is checked in the [Status] field, only the following resources are searched:

- L-Server
- VM Host
- Physical Server
- Virtual Storage Resources
- Disk Resources
- Network Devices



.....  
Search Result Information is not refreshed when the checkbox is checked or cleared.  
After the checking or clearing the checkbox, click [Search] again.  
.....

## Search Result Information

### Name

The name of the resource is displayed.

When the resource type is L-Platform or L-Server, the comment is displayed after the name.

When the link of the name is clicked, the [Resource Details] of the selected resource is displayed.

When the resource is a disk resource not displayed on the orchestration tree, when the link is clicked the [Resource Details] of the storage pool or virtual storage resource which contains the selected disk is displayed.

### Type

The type of the resource is displayed.

### Status

The status of the resource is displayed.

### Tenant

The name of the tenant associated with the resource is displayed.

### Path

The path of the resource on the orchestration tree is displayed.

Clicking a column heading will change the color of the selected column and sort events in either ascending or descending order.

In each page of the list, 10 items can be displayed. It is possible to specify the page to display, move forwards and backwards by single pages, and move to the first or last page.

## Point

Search Result Information is not refreshed automatically.

To display the latest information, click the [Search] button again.

If the total number of resources of the search results has been reduced due to deletion of resources or other operations, the list on the last page may be displayed as empty. If the list on the last page is empty, click [Search] again.

## A.14 Recent Operations

This section describes the recent operations area of the ROR console.

Figure A.21 Recent Operations



Operation	Started	Status
 <a href="#">vm3-1 - Server Power OFF</a>	2012-05-02 18:54:40	2012-05-02 18:55:10 (Completed)
 <a href="#">root_folder - Updating Folder</a>	2012-05-02 18:53:57	2012-05-02 18:53:57 (Completed)
 <a href="#">tenant - Stop L-Server in Folder</a>	2012-05-02 18:49:18	2012-05-02 18:49:18 (Completed)

The recent operations area shows the status of operations that were recently performed. The result of a completed operation shows the operation's completion time and the related resource name. For operations that are still running, a progress bar is shown to indicate the current progress state.

Each operation displayed in the recent operation area provides the following information.

### Information Displayed in the Recent Operations Area

#### Operation

The executed operation and the target resource name are displayed.

The process name is displayed while the process is being executed.

#### Started

The date and time at which the operation was started is displayed.

#### Status

The status of the executed operation is displayed.

The date and time at which the process was completed is displayed.

## Point

When an operation is executed in a tab other than the [Resource] tab, e.g., the [L-Platform] tab, multiple entries might be displayed in the Recent Operations for that single operation.

When multiple entries are displayed, match the resource name displayed in the tab on which the operation has been executed, to the resource name in the [Operation] column to locate the operation in concern.

When the link in the [Operation] column is clicked, the [Progress Details] dialog is displayed.

The [Progress Details] dialog displays the following information:

#### Progress List

The list of the executed processes and the status are displayed for the selected operation.

If an operation is performed simultaneously for multiple resources, the processes are displayed in a tree view for each target resource.

#### Message List

The list of any error messages that occurred during the operation is displayed.

Detailed information is displayed under the list when each message is selected.

#### Cancel

For operations that can be canceled, the [Cancel] link is displayed to the right of the [Status] column.

Clicking this link displays a confirmation dialog for canceling the operation.

## A.15 Dialogs

---

This section explains how to enable or disable display of some of the confirmation (or warning) dialogs used by the ROR console.

Use the following procedure to change dialog display settings:

1. Select [Tools]-[Options] from the ROR console menu.

The [Options] dialog is displayed.

2. Click the "Dialog" category title, and change the following settings in the displayed area.

#### Dialog display options (checkboxes)

To disable further display of a confirmation or warning dialog, select its corresponding checkbox.

To restore display of a disabled dialog, deselect its corresponding checkbox.

#### [Select All] button

Selects all dialog checkboxes.

#### [Deselect All] button

Deselects all dialog checkboxes.

3. Click the [Apply] button.

The new settings are applied.

## Appendix B Format of CSV System Configuration Files

This appendix explains the format of the CSV system configuration files used by Resource Orchestrator's pre-configuration function.

### B.1 Obtaining the System Configuration File (CSV Format)

The system configuration files can be obtained as follows.

- From the selection window of the Resource Orchestrator DVD-ROM [Windows]

Inserting the Resource Orchestrator DVD-ROM in the CD-ROM drive automatically displays the selection window. Select [Tool] and click "System configuration file (CSV format)". The CSV file will be opened from the associated application (such as Excel). Check the file content and save it.

#### Information

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

- From the Resource Orchestrator DVD-ROM

Set the Resource Orchestrator DVD-ROM in the DVD-ROM drive and copy the following file.

[Windows]

*DVD-ROM\_drive\template\ja\template.csv*

[Linux]

*DVD-ROM\_mount\_point/template/ja/template.csv*

- From the ROR console

The System Configuration Template can be obtained from a Resource Orchestrator manager installation.

1. Open and log in to the ROR console according to "Chapter 2 Login and Logout" in the "User's Guide for Infrastructure Administrators CE".
2. Select [File]-[System Configuration File]-[Download Template] from the ROR console menu.  
Displays the [File Download] window.
3. Click the [Save] button.
4. Specify the destination directory and the file name.
5. Click the [Save] button.

### B.2 File Format

The system configuration files (CSV format) used for pre-configuration are comma (",") delimited.

The format of each line is given below:

- File Format Definition

The first line of the file must begin with the following:

```
RCXCSV,V3.5
```

#### Point

Resource Orchestrator can import the following system configuration file formats.

- RCXCSV,V1.0
- RCXCSV,V2.0



- RCXCSV,V3.0
- RCXCSV,V3.1
- RCXCSV,V3.2
- RCXCSV,V3.3
- RCXCSV,V3.4
- RCXCSV,V3.5

However, system definition files are always exported in the most recent format: importing a file in an older format and re-exporting it will produce a file in the latest format.

## Note

Although each RCXCSV version has a different format, those formats are retro-compatible (newer formats include all the information defined in older formats).

As detailed below, some sections (described in "[B.3 Resource Definitions](#)") are only available with the latest format(s).

- RCXCSV V2.0 and Later  
"LanSwitchNet", "ServerAgent", "ServerVMHost", "PowerDevice", "Memo"
- RCXCSV V3.0 and Later  
"VMManager"
- RCXCSV V3.1 and Later  
"SPARCEnterprise"
- RCXCSV V3.2 and Later  
"PRIMERGYPartitionModelChassis", "PRIMERGYPartitionModelServer"
- RCXCSV V3.3 and Later  
"Subnet", "SPARCEnterprisePartitionModelChassis", "SPARCEnterprisePartitionModelServer", "MonitorSetting"
- RCXCSV V3.4 and Later  
"VIOManager"
- RCXCSV V3.5 and Later  
"SPARC", "SPARCM10PartitionModelChassis", "SPARCM10", "SPARCM10PartitionModelServer"

SPARC Enterprise (M3000-/T series) performs import/export of a system configuration file (CSV format) by a section name [SPARC].

The section name [SPARCEnterprise] only imports a system configuration file (CSV format).

## - Comment

The following lines are assumed to be comments and are skipped:

- Lines that begin with the symbol ("#")

## Example

```
#Development environment
definition
```

- Lines that consist of only blank spaces (" "), tab characters, or linefeed code
- Lines that contain only commas (",")

- Unrecognized resource definition
- Resource Definitions

Create the resource definition using the following format. Describe the same type of resource in the same section.

- Resource Definition Format

[Section name] Section Header Operation column, Parameter [,parameter]...
---------------------------------------------------------------------------------

- Section Name

This describes the resource type.

- Section Header

This describes the parameter type unique to the resource.



Do not enter any comments between the section name and section header.

- Operation Column

This describes the operation type for the resource. The following characters can be used in the operation column.

- new

Register

- change

Modification

- Hyphens, ("-")

Do nothing

- Parameters

This describes the parameter value to be set.



The order of operation and parameter columns should follow the order defined in section header under "[B.3 Resource Definitions](#)".

#### Allowed Characters

For details on the characters allowed for each resource definition, refer to "[B.3 Resource Definitions](#)". Optional parameters can be omitted by using hyphens ("-").

However, hyphens ("-") are seen as valid characters for user names, passwords, and SNMP communities. Note that if extra commas (",") are added to the end of a line, those will be simply ignored without errors.

Backslashes ("\") and double quotations ( " ) will be displayed differently in the ROR console from how they appear in the system configuration file.

Refer to the following table for details on such differences.

Table B.1 Differences between System Configuration Files' Contents and Display in the ROR Console

Content of a System Configuration File (CSV)	Display in the ROR Console
\\	\
\n	Line break

Content of a System Configuration File (CSV)	Display in the ROR Console
""	"
, (*)	,

\* Note: The whole value must be enclosed by double quotations ( " ).

## Example

- CSV Content

```
"a\nb,\n"
```

- Display in the ROR Console

```
A
b,\n
```

## Order of Section Definition

Section order and section name are shown below.

Moreover, the section definition order is fixed.

Table B.2 Section Order and Section Names

Order	Section Name
1	Subnet
2	VIOManager
3	Chassis
4	PRIMERGYPartitionModelChassis
5	SPARCEnterprisePartitionModelChassis
6	SPARCM10PartitionModelChassis
7	LanSwitch
8	LanSwitchNet
9	Server
10	SPARCEnterprise
11	PRIMERGYPartitionModelServer
12	ServerNet
13	SPARCEnterprisePartitionModelServer
14	SPARC
15	SPARCM10
16	SPARCM10PartitionModelServer
17	ServerWWNN (*1)
18	SpareServer (*1)
19	VMManager
20	ServerAgent (*2, *3)
21	ServerVMHost (*2, *3)
22	MonitorSetting

Order	Section Name
23	PowerDevice
24	Memo (*2)

- \*1: When loading from the system configuration template in the Excel format, the operation column information will be skipped.
- \*2: When loading from the system configuration template in the Excel format, the whole section will be skipped.
- \*3: Do not enter the information of the same physical server both in the "ServerAgent" and "ServerVMHost" section.

System backup information is automatically added to the end of the system configuration file when exporting in the CSV format. The sections after the line below contain the backup information. The backup information is skipped when loading from the system configuration template in the Excel format.

#Do not edit the following information, which is used to recover the manager.

Do not modify the backup information, as it is automatically created. Note that these sections do not have to be defined if the system configuration file is created for new system configuration.

### Note

- If a system configuration file (CSV format) is imported and then exported, the line order after export may differ from the line order before import.

The following information will also be deleted:

- Comments lines
- Strings enclosed in parenthesis "(" )" indicating omitted values
- Extra commas at the end of lines (",")
- As with chassis for server blades, and chassis for LAN switch blades, items that need to be registered in advance to enable registration of other should be defined in the system configuration file or registered in advance.

### Character Code

The system configuration files (CSV format) used for pre-configuration are saved using ASCII (often referred to as "ANSI" in Windows systems). When files that use a character code other than ASCII are imported, the system may not operate correctly. When directly editing configuration files using a text editor, please do not save the file using a character code other than ASCII.

## B.3 Resource Definitions

---

This section explains the resource definition information specified system configuration files.

### Admin LAN Subnet Data

- **Section Name**

Enter [Subnet] as the section name.

- **Section Header**

operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

subnet\_name

Enter the subnet name.

Enter a character string beginning with an alphabetic character and containing up to 16 alphanumeric characters, underscores ("\_"), hyphens ("-"), and periods (".").

network\_address

Enter the network address for the subnet used as the admin LAN.  
Enter valid values for the network address.

subnet\_mask

Enter valid values for the subnet mask.

gateway

Enter the settings for the gateway used for communication with the admin server on the admin LAN.

## VIOM Data

### - Section Name

Enter [VIOManager] as the section name.

### - Section Header

operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

name

Specify "VIOM".

ip\_address

Enter the IP address of the terminal on which VIOM is installed.  
Specify "127.0.0.1".

login\_name

Enter the name of a VIOM user account.  
When specifying a domain, use the following syntax: "*domain\_name\user\_name*".

login\_passwd

Enter the password of the above VIOM user account.

passwd\_enc

Enter one of the following.

- If login\_passwd is plain text  
"plain"
- If the password is encrypted  
"encrypted"

## Chassis Data

### - Section Name

Enter [Chassis] as the section name.

### - Section Header

operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

chassis\_name

Enter the name that will be used to identify the chassis.

Enter a character string beginning with an alphabetical character and containing up to 10 alphanumeric characters and hyphens ("-").



Chassis names should be unique between all chassis. Names are not case-sensitive.

ip\_address

Enter the same IP address as that set on the management blade.

Enter a string of numeric values (between 0 and 255) and periods.



IP addresses should be unique between all resources.

snmp\_community\_name

Enter the same SNMP community (read-write permission) as that set on the management blade.

Enter a string of up to 32 alphanumeric characters, underscores ("\_"), and hyphens ("-").

## PRIMEQUEST Chassis Management Data

### - Section Name

Enter [PRIMERGYPartitionModelChassis] as the section name.

### - Section Header

operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

chassis\_name

Enter the name that will be used to identify the chassis.

Enter a character string beginning with an alphabetical character and containing up to 10 alphanumeric characters and hyphens ("-").



Chassis names should be unique between all chassis.

Names are not case-sensitive.

ip\_address

Enter the same IP address as that set on the management board.

Enter a string of numeric values (between 0 and 255) and periods.



IP addresses should be unique between all resources.

snmp\_community\_name

Enter the same SNMP community (read-write permission) as that set on the management board.  
Enter a string of up to 32 alphanumeric characters, underscores ("\_"), and hyphens ("-").

mgmt\_user\_name

Enter the name of a remote server management user account with administrative privileges.  
This user name must be between 8 and 16 alphanumeric characters long.

mgmt\_passwd

Enter the password of the remote server management account.  
This password must be between 8 and 16 alphanumeric characters long.

mgmt\_passwd\_enc

Enter one of the following.

- If mgmt\_passwd is plain text  
"plain"
- If the password is encrypted  
"encrypted"

## SPARC Enterprise M4000/M5000/M8000/M9000 Chassis Management Data

### - Section Name

Enter [SPARCEnterprisePartitionModelChassis] as the section name.

### - Section Header

operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

chassis\_name

Enter the name that will be used to identify the chassis.  
Enter a character string beginning with an alphabetical character and containing up to 10 alphanumeric characters and hyphens ("-").



Chassis names should be unique between all chassis.  
Names are not case-sensitive.

ip\_address

Enter the same IP address as that configured on the XSCF.  
Enter a string of numeric values (between 0 and 255) and periods.



IP addresses should be unique between all resources.

snmp\_community\_name

Enter the name of a SNMP community (with read permission) configured on this server's remote management controller (XSCF).  
Enter a string of up to 32 alphanumeric characters, underscores ("\_"), and hyphens ("-").

mgmt\_user\_name

Enter the name of a remote management controller (XSCF) user account with administrative privileges ("platadm" privileges).  
Enter a string of up to 31 alphanumeric characters, hyphens ("-"), and underscores ("\_"). This name must start with an alphabet character.

mgmt\_passwd

Enter the password of the remote management controller (XSCF) user account.  
Enter up to 32 characters, including alphanumeric characters, blank spaces (" "), and any of the following symbols.  
"!","@","#","\$","%","^","&","\*","[","]","{","}", "(" , ")" , "-" , "+" , "=" , "~" , "," , ">" , "<" , "/" , "" , "?" , ";" , ":"

mgmt\_passwd\_enc

Enter one of the following.

- If mgmt\_passwd is plain text  
"plain"
- If the password is encrypted  
"encrypted"

## SPARC M10-4S Chassis Management Data

### - Section Name

Enter [SPARCM10PartitionModelChassis] as the section name.

### - Section Header

operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

chassis\_name

Enter the name that will be used to identify the chassis.  
Enter a character string beginning with an alphabetical character and containing up to 10 alphanumeric characters and hyphens ("-").



Chassis names should be unique between all chassis.  
Names are not case-sensitive.

ip\_address

Enter the same IP address as that configured on the XSCF.  
Enter a string of numeric values (between 0 and 255) and periods.



IP addresses should be unique between all resources.

snmp\_community\_name

Enter the name of a SNMP community (with read permission) configured on this server's remote management controller (XSCF).  
Enter a string of up to 32 alphanumeric characters, underscores ("\_"), and hyphens ("-").



mgmt\_user\_name

Enter the name of a remote management controller (XSCF) user account with administrative privileges ("platadm" privileges).  
Enter a string of up to 31 alphanumeric characters, hyphens ("-"), and underscores ("\_"). This name must start with an alphabet character.

mgmt\_passwd

Enter the password of the remote management controller (XSCF) user account.  
Enter up to 32 characters, including alphanumeric characters, blank spaces (" "), and any of the following symbols.  
"! ", "@ ", "# ", "\$ ", "% ", "^ ", "& ", "\* ", "[ ", "] ", "{ ", " } ", "( ", " ) ", "- ", "+ ", "= ", "~ ", " ", "> ", "< ", "/" , "" , "?" , " ; ", ":"

mgmt\_passwd\_enc

Enter one of the following.

- If mgmt\_passwd is plain text  
"plain"
- If the password is encrypted  
"encrypted"

## LAN Switch Blade Data

### - Section Name

Enter [LanSwitch] as the section name.

### - Section Header

operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

chassis\_name

Enter the chassis name (the value of "chassis\_name" in the [Chassis] section).

slot\_no

Enter the slot number where the LAN switch blade is installed. Enter a number between 1 and 8.

switch\_name

Enter the name to assign to this LAN switch blade.  
Enter a string of up to 15 alphanumeric characters, underscores ("\_"), and hyphens ("-").



### Note

LAN switch blade names should be unique between all LAN switch blades. The names are case-sensitive.

ip\_address

Enter the same IP address as that set on the LAN switch blade.  
Enter a string of numeric values (between 0 and 255) and periods.  
For a LAN switch blade PY CB 10Gb FEX Nexus B22, do not enter anything.  
For a LAN switch blade PY CB Eth Switch 10/40Gb 18/8+2, enter the oob IP address.



### Note

- IP addresses should be unique between all resources.
- When entering the oob IP address for a LAN switch blade PY CB Eth Switch 10/40Gb 18/8+2, be sure to leave cfab\_ip\_address blank (" ").

### cfab\_ip\_address

Enter the value for this item when defining Converged Fabric mode of a LAN switch blade PY CB Eth Switch 10/40Gb 18/8+2.  
Enter the virtual domain representative IP address of the fabric configured for the LAN switch blade.  
Enter a string of numeric values (between 0 and 255) and periods.



When entering the virtual domain representative IP address of the fabric, be sure to leave ip\_address blank ("").

### snmp\_community\_name

Enter the same SNMP community (read-only permission) as that set on the LAN switch blade.  
Enter a string of up to 32 alphanumeric characters, underscores ("\_"), and hyphens ("-").  
For a LAN switch blade PY CB 10Gb FEX Nexus B22, do not enter anything.

### user\_name

Enter the name of the user account used to remotely log in to the LAN switch blade.  
For a LAN switch blade PY CB DCB SW 10Gb 18/6/6, enter the name of the administrator account for the LAN switch blade.  
Enter up to 64 characters, including alphanumeric characters (upper or lower case), underscores ("\_"), or hyphens ("-").  
For a LAN switch blade PY CB 10Gb FEX Nexus B22, do not enter anything.

### passwd

Enter the password of the above user account (for remote login).  
Enter a string of up to 80 alphanumeric characters and symbols (ASCII character codes: 0x20, 0x21 or 0x23 to 0x7e) and no double-quotations (""). Passwords entered in this field are seen as plain text passwords.  
For a LAN switch blade PY CB 10Gb FEX Nexus B22, do not enter anything.

### passwd\_enc

Enter one of the following. For a LAN switch blade PY CB 10Gb FEX Nexus B22, do not enter anything.

- If passwd is plain text  
"plain"
- If the password is encrypted  
"encrypted"

### privileged\_passwd

Enter the admin password of the above user account.  
Enter a string of up to 80 alphanumeric characters and symbols (ASCII character codes: 0x20, 0x21 or 0x23 to 0x7e) and no double-quotations (""). Passwords entered in this field are seen as plain text passwords.  
For a LAN switch blade PY CB 10Gb FEX Nexus B22, do not enter anything.

### privileged\_passwd\_enc

Enter one of the following. For a LAN switch blade PY CB 10Gb FEX Nexus B22, do not enter anything.

- If privileged\_passwd is plain text  
"plain"
- If the password is encrypted  
"encrypted"

### product\_name

Enter the model of the LAN switch blade. Note that if a hyphen ("-") is entered, it is treated as "BX600 GbE Switch Blade 30/12".  
One of the following models can be entered.

- PY CB Eth Switch/IBP 1Gb 36/12
- PY CB Eth Switch/IBP 1Gb 36/8+2

- PY CB Eth Switch/IBP 1Gb 18/6
- PY CB Eth Switch/IBP 10Gb 18/8
- PY CB Eth Switch 10/40Gb 18/8+2
- PY CB DCB SW 10Gb 18/6/6
- PY CB 10Gb FEX Nexus B22
- BX600 GbE Switch Blade 30/12
- PRIMERGY BX600 GbE Switch 16/2x10Gb
- PRIMERGY BX600 GbE Switch 16x1Gb
- Cisco Catalyst Blade Switch 3040

**connection\_type**

Enter the connection method to use for the LAN switch blade.

If you configure "ssh" for a LAN switch blade which does not support SSH, or specify a character string other than ssh, the configuration is regarded as "telnet".

If "PY CB DCB SW 10Gb 18/6/6" or "PY CB Eth Switch 10/40Gb 18/8+2" is specified for the product name (product\_name) and connection\_type is specified as a character string other than telnet, the configuration is regarded as being "ssh".

- For telnet  
"telnet"
- For SSH  
"ssh"

**VLAN Data for LAN Switch Blades**

**- Section Name**

Enter [LanSwitchNet] as the section name.

**- Section Header**

operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

chassis\_name

Enter the chassis name (the value of "chassis\_name" in the [Chassis] section).

port\_no

Enter the port number of an external LAN switch blade port. Enter numeric characters. The port number that can be specified is different depending on the model type.

For details, refer to the manual of the LAN switch blade to be used.

vlan\_id (optional)

Enter the VLAN ID and tag type ("/T" for tagged or "/U" for untagged) to be assigned to the specified LAN switch blade port.

Enter a VLAN ID followed by tag types. To specify multiple VLAN IDs, separate each set of VLAN settings using semicolons (";"). Both tagged ("/T") and untagged ("/U") VLAN IDs can be used together, but only one untagged ("/U") type is allowed.



**Example**

10/U  
10/U;20/T;30/T  
10/T;20/T

## Note

If a hyphen ("-") is entered, VLAN settings will not be performed.

The settings in this section will be ignored for PRIMERGY BX900/BX400 LAN switch blades operating in IBP mode or Converged Fabric mode.

The settings in this section will be ignored for a LAN switch blade PY CB DCB SW 10Gb 18/6/6 or PY CB 10Gb FEX Nexus B22.

## Server Management Information

### - Section Name

Enter [Server] as the section name.

### - Section Header

operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

chassis\_name

Enter the chassis name (the value of "chassis\_name" in the [Chassis] section).

## Note

This field is only required for PRIMERGY BX servers.

slot\_no

Enter the slot number where the server blade is installed. Enter a number between 1 and 18.

## Note

- This field is only required for PRIMERGY BX servers.
- When a server blade is registered, Resource Orchestrator does not check the actual slot position, or whether it has been installed properly.
- When registering multi-slot servers, enter only the master slot number.

server\_name

Enter the resource name that will be used to identify the server. Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters and hyphens ("-"). If enclosed by parentheses "()", this server will be seen as being in a switched over state, and this line will be ignored when importing the system definition file.

## Note

Server names should be unique between all servers. Names are not case-sensitive.

ip\_address

Enter the same IP address as that set within the server's operating system.

Enter a string of numeric values (between 0 and 255) and periods.

## Note

IP addresses should be unique between all resources.

### mac\_address

Enter the MAC address of the admin LAN network interface: NIC1 (Index1).

Enter a string delimited by hyphens ("-") or colons (":") ("xx-xx-xx-xx-xx-xx" or "xx:xx:xx:xx:xx:xx").

### second\_mac\_address

Enter the MAC address of the network interface used for the HBA address rename setup service or for admin LAN redundancy.

The second network interface (Index 2) should be used.

Enter a string delimited by hyphens ("-") or colons (":") ("xx-xx-xx-xx-xx-xx" or "xx:xx:xx:xx:xx:xx").

## Note

- This field can be omitted in the following cases.
  - When not using the HBA address rename setup service
  - When not using GLS for admin LAN redundancy on the managed server
  - For a spare server whose primary servers are not using admin LAN redundancy
- The "second\_mac\_address" header is the equivalent of the "hbaar\_mac\_address" header defined in RCXCSV V3.0.  
"hbaar\_mac\_address" can only be used when "RCXCSV,V3.0" is specified at the top of the imported system configuration file.  
However, this header is automatically changed to "second\_mac\_address" when exporting a new system configuration file.

### snmp\_community\_name

Enter the name of the SNMP community (read permission) assigned to this server.

Enter a string of up to 32 alphanumeric characters, underscores ("\_"), and hyphens ("-").

## Note

This field is not necessary when using servers other than the PRIMERGY series.

### ipmi\_ip\_address

Enter the IP address of this server's remote management controller.

Enter a string of numeric values (between 0 and 255) and periods.

## Note

IP addresses should be unique between all resources.

### ipmi\_user\_name

Enter the name of a remote management controller user account with administrative privileges.

Enter a string of up to 16 alphanumeric characters and symbols (ASCII character codes: 0x20 to 0x7e).

## Note

If the name of the current administrator account on the remote management controller is longer than 16 characters, either create a new account or rename the current account (within 16 characters).

#### ipmi\_passwd

Enter the password of the remote management controller user account.

Enter a string of up to 16 alphanumeric characters and symbols (ASCII character codes: 0x20 to 0x7e).

This field can be omitted if no password has been set for this user account.

#### Note

.....  
If the password of the current administrator account on the remote management controller is longer than 16 characters, either create a new account or change its password (within 16 characters).  
.....

#### ipmi\_passwd\_enc

Enter one of the following.

- If ipmi\_passwd is plain text  
"plain"
- If the password is encrypted  
"encrypted"

#### admin\_lan1\_nic\_number

The index of the NIC to use for the admin LAN.

Enter a number (1 or larger).

#### Note

.....  
This field is only required for PRIMERGY BX servers.  
.....

#### admin\_lan2\_nic\_number

The Index number of NICs used for the HBA address rename setup service or for admin LAN redundancy.

Enter a number (1 or larger).

For the following cases, enter a hyphen ("-").

- When not using the HBA address rename setup service
- When redundancy of the admin LAN for managed servers does not use GLS
- When not using as the spare server of a managed server with redundancy configured

#### Note

.....  
This field is only required for PRIMERGY BX servers.  
.....

#### admin\_lan\_nic\_redundancy

Enter one of the following.

- When using the NIC specified in the admin\_lan2\_nic\_number as the backup for admin LAN redundancy  
"ON"
- When not using the NIC specified in the admin\_lan2\_nic\_number as the backup for admin LAN redundancy  
"OFF"

## SPARC Enterprise M3000/T Series Management Data

### - Section Name

Enter [SPARC] as the section name.

### - Section Header

operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

server\_name

Enter the resource name that will be used to identify the server. Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters and hyphens ("-").

ip\_address

Enter the same IP address as that set within the server's operating system. Enter a string of numeric values (between 0 and 255) and periods.

mgmt\_snmp\_community\_name

Enter the name of a SNMP community (with read permission) configured on this server's remote management controller (ILOM/XSCF).

Enter a string of up to 32 alphanumeric characters, underscores ("\_"), and hyphens ("-").

mgmt\_ip\_address

Enter the IP address of this server's remote management controller (ILOM/XSCF).

Enter a string of numeric values (between 0 and 255) and periods.



### Note

IP addresses should be unique between all resources.

mgmt\_protocol

Enter the type of the remote management controller (ILOM/XSCF) to manage servers.

- For SPARC Enterprise M3000 servers

"XSCF"

- For T Series

"ILOM"

mgmt\_user\_name

Enter the user name (For ILOM, Admin privileges, and for XSCF, platadm privileges) of a remote management controller to manage servers (ILOM/XSCF).

- For XSCF

Enter up to 31 characters, including alphanumeric characters, underscores ("\_"), or hyphens ("-"). This name should start with an alphabet character.

- For ILOM

Enter between 4 and 16 characters, including alphanumeric characters, underscores ("\_"), or hyphens ("-"). This name should start with an alphabet character.

mgmt\_passwd

Enter the password of the remote management controller (ILOM/XSCF) to manage a server.

- For XSCF

Enter up to 32 characters, including alphanumeric characters, blank spaces (" "), and any of the following symbols.

- For ILOM

Enter between 8 and 16 characters, including alphanumeric characters, blank spaces (" "), and any of the following symbols.

"! ", "@ ", "# ", "\$ ", "% ", "^ ", "& ", "\* ", "[ ", "] ", "{ ", " } ", "( ", " ) ", "- ", "+ ", "= ", "~ ", " ", "> ", "< ", "/", " ", "? ", " ", ":"

mgmt\_passwd\_enc

Enter one of the following.

- If mgmt\_passwd is plain text  
"plain"
- If the password is encrypted  
"encrypted"

## FUJITSU M10-1/M10-4 Management Data

### - Section Name

Enter [SPARCM10] as the section name.

### - Section Header

operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

server\_name

Enter the resource name that will be used to identify the server. Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters and hyphens ("-").

ip\_address

Enter the same IP address as that set within the server's operating system. Enter a string of numeric values (between 0 and 255) and periods.

mgmt\_snmp\_community\_name

Enter the name of a SNMP community (with read permission) configured on this server's remote management controller (XSCF). Enter a string of up to 32 alphanumeric characters, underscores ("\_"), and hyphens ("-").

mgmt\_ip\_address

Enter the IP address of this server's remote management controller (XSCF). Enter a string of numeric values (between 0 and 255) and periods.



### Note

IP addresses should be unique between all resources.

mgmt\_protocol

Enter the type of the remote management controller (XSCF) to manage servers.  
Enter "XSCF".

mgmt\_user\_name

Enter the name of a remote management controller (XSCF) user account with administrative privileges (platadm privileges).

- For XSCF

Enter up to 31 characters, including alphanumeric characters, underscores ("\_"), or hyphens ("-"). This name should start with an alphabet character.



mgmt\_passwd

Enter the password of the remote management controller (XSCF) user account.

- For XSCF

Enter up to 32 characters, including alphanumeric characters, blank spaces (" "), and any of the following symbols.

mgmt\_passwd\_enc

Enter one of the following.

- If mgmt\_passwd is plain text  
"plain"
- If the password is encrypted  
"encrypted"

## PRIMEQUEST Server Management Data

### - Section Name

Enter [PRIMERGYPartitionModelServer] as the section name.

### - Section Header

operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

chassis\_name

Enter the chassis name (the value of "chassis\_name" in the [PRIMERGYPartitionModelChassis] section).

partition\_no

The number of a partition. Enter a number between 0 and 3.

server\_name

Enter the resource name that will be used to identify the server. Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters and hyphens ("-"). If enclosed by parentheses "()", this server will be seen as being in a switched over state, and this line will be ignored when importing the system definition file.



### Note

Server names should be unique between all servers. Names are not case-sensitive.

ip\_address

Enter the same IP address as that set within the server's operating system.

Enter a string of numeric values (between 0 and 255) and periods.



### Note

IP addresses should be unique between all resources.

boot\_option

Specify the boot option configured from BIOS when installing the OS.

- When installing using a legacy boot  
"legacy"

- When installing using UEFI  
"uefi"

## Server Blade VLAN Data

### - Section Name

Enter [ServerNet] as the section name.

### - Section Header

operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

server\_name

Enter the server name (the value of "server\_name" in the [Server] section).

nic\_no

This is the index number of the server blade's network interface. Enter a number between 1 and 12.

vlan\_id (optional)

Enter the VLAN ID and tag type ("/T" or "/U") to be assigned to the LAN switch blade port connected to this server's network interface.

Enter a VLAN ID followed by tag types. To specify multiple VLAN IDs, separate each set of VLAN settings using semicolons (";"). Both tagged ("/T") and untagged ("/U") VLAN IDs can be used together, but only one untagged ("/U") type is allowed.



### Example

10/U

10/U;20/T;30/T

10/T;20/T



### Note

If a hyphen ("-") is entered, VLAN settings will not be performed.

Use the following NIC indexes to specify LAN expansion cards (if any was mounted).

- PRIMERGY BX600 Servers

7, 8

- PRIMERGY BX900/BX400 Servers

5 to 12

For the following cases, this section will be ignored.

- PRIMERGY BX900/BX400 LAN switch blades operating in IBP mode or Converged Fabric mode
- A LAN switch blade PY CB 10Gb FEX Nexus B22
- Internal ports of a LAN switch blade PY CB DCB SW 10Gb 18/6/6 for which an Automatic Migration of Port Profile (AMPP) has been configured.

## SPARC Enterprise M4000/M5000/M8000/M9000 Server Management Data

### - Section Name

Enter [SPARCEnterprisePartitionModelServer] as the section name.

### - Section Header

operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

chassis\_name

Enter the chassis name (the "chassis\_name" in the [SPARCEnterprisePartitionModelChassis] section).

partition\_no

The number of a partition. Enter a number between 0 and 23.

server\_name

Enter the resource name that will be used to identify the server.

Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters and hyphens ("-").



Server names should be unique between all servers.

Names are not case-sensitive.

ip\_address

Enter the same IP address as that set within the server's operating system.

Enter a string of numeric values (between 0 and 255) and periods.



IP addresses should be unique between all resources.

## FUJITSU M10-4S Server Management Data

### - Section Name

Enter [SPARCM10PartitionModelServer] as the section name.

### - Section Header

operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

chassis\_name

Enter the chassis name (the value of "chassis\_name" in the [SPARCM10PartitionModelServer] section).

partition\_no

The number of a partition. Enter a number between 0 and 23.

server\_name

Enter the resource name that will be used to identify the server.

Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters and hyphens ("-").

### Note

Server names should be unique between all servers.  
Names are not case-sensitive.

#### ip\_address

Enter the same IP address as that set within the server's operating system.  
Enter a string of numeric values (between 0 and 255) and periods.

### Note

IP addresses should be unique between all resources.

## HBA address rename Information of a Server

### - Section Name

Enter [ServerWWNN] as the section name.

### - Section Header

#### operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

#### server\_name

Enter the server name (the value of "server\_name" in the [Server] section).

#### port\_count

This is the number of ports that use HBA address rename. Enter a number between 1 and 2.

#### wwnn

Enter the 16-digit hexadecimal WWNN string of the physical server which uses the HBA address rename function.  
Enter a hexadecimal string using alphanumeric characters, with "20 0" as the first three characters.

### Note

All WWNNs should be unique between all resources (WWNNs are not case-sensitive). Names are not case-sensitive.

## Server Switchover Management Information

### - Section Name

Enter [SpareServer] as the section name.

### - Section Header

#### operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

#### server\_name

Enter the server name (the value of "server\_name" in the [Server] section).

#### spare\_server

Enter the physical server name of a server to be assigned as a spare server.

To specify multiple spare servers, separate each server name using semicolons (";"). To remove current spare server settings, enter "-DELETE".

#### vlan\_switch (optional)

Specify whether VLAN settings or port group settings should be automatically transferred to the spare server when a server switchover occurs. Enter "ON", "OFF" or a hyphen ("-").

#### auto\_switch (optional)

This value defines whether to trigger an automatic switchover upon detection of a server failure. Enter "ON", "OFF" or a hyphen ("-").

#### boot\_type

Enter the boot type of the server. Enter one of the following.

- SAN boot  
"SAN"
- For local boot  
"local"
- When using the VIOM server profile to conduct boot settings  
Hyphens, ("-")

#### spare\_server\_force\_off

Enter whether the spare server is turned off forcibly, when switching over to the spare server. Enter "ON", "OFF" or a hyphen ("-").

#### spare\_server\_with\_vm\_guest

Enter whether the server is switched to a VM host on which a VM guest exists. Enter "ON", "OFF" or a hyphen ("-").

## VM Management Software Information

### - Section Name

Enter [VMManager] as the section name.

### - Section Header

#### operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

#### name

Enter the name used to identify this VM management software. Enter one of the following.

- When using VMware vCenter Server as VM management software.  
"vCenterServer"
- When using System Center Virtual Machine Manager as VM management software.  
"SCVMM"

#### ip\_address

Enter the IP address used to connect to this VM management software or a hyphen ("-").

Enter a string of numeric values (between 0 and 255) and periods.

If a hyphen ("-") is entered, this VM management software will be seen as being installed on the admin server.

product

Enter the name of this VM management software. Enter one of the following.

- When using VMware vCenter Server as VM management software.  
"vmware-vc"
- When using System Center Virtual Machine Manager as VM management software.  
"ms-scvmm"

login\_name

Enter the name of the user account set for this VM management software.

Use a string of up to 84 alphanumeric characters and symbols (ASCII character codes: from 0x21 to 0x7e). When specifying a domain, use the following syntax: "*domain\_name*\user\_name".

login\_passwd

Enter the password for this VM management software.

Use a string of up to 128 alphanumeric characters and symbols (ASCII character codes: from 0x21 to 0x7e).

passwd\_enc

Enter one of the following.

- If login\_passwd is plain text  
"plain"
- If the password is encrypted  
"encrypted"

## Server Agent Management Information

### - Section Name

Enter [ServerAgent] as the section name.

This is required when registering multiple agents together (for Windows or Linux managed servers).

### - Section Header

operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

The "change" operation cannot be used for this section.

server\_name

Enter the server name (the value of "server\_name" in the [Server] section).

## VM Host Management Information

### - Section Name

Enter [ServerVMHost] as the section name.

This is required when registering multiple agents together (for VM host managed servers).

### - Section Header

operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

server\_name

Enter the server name (the value of "server\_name" in the [Server] section).

vm\_login\_name

Enter the name of the user account used to remotely log into the VM Host.

vm\_login\_passwd

Enter the password of the above user account (for remote login).

vm\_passwd\_enc

Enter one of the following.

- If the password is plain text  
"plain"
- If the password is encrypted  
"encrypted"

## Monitoring Settings

### - Section Name

Enter [MonitorSetting] as the section name.

### - Section Header

operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

server\_name

Enter the server name (the value of "server\_name" in the [Server] section).

ping\_timeout

Enter the time-out value (in seconds) for ping control.

Enter a number from 5 to 3,600.

recovery\_action

Enter a recovery process. Enter one of the following.

- Reboot  
"reboot"
- Reboot (Forced)  
"force\_reboot"
- Switchover  
"switchover"
- Reboot and Switchover  
"reboot\_and\_switchover"
- Reboot (Forced) and Switchover  
"force\_reboot\_and\_switchover"

reboot\_count

Enter the number of times to reboot. Enter a number from 1 to 3.

## Power Monitoring Device Data

### - Section Name

Enter [PowerDevice] as the section name.

### - Section Header

operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

device\_name

Enter the name that will be used to identify the power monitoring device.

Enter a character string beginning with an alphabetical character and containing up to 15 alphanumeric characters and hyphens ("-").



.....  
Device names should be unique between all power monitoring devices. The names are case-sensitive.  
.....

ip\_address

Enter the same IP address as that set on the power monitoring device.

Enter a string of numeric values (between 0 and 255) and periods.



.....  
IP addresses should be unique between all resources.  
.....

snmp\_community\_name

Enter the same SNMP community (read-only permission) as that set on the power monitoring device.

Enter a string of up to 32 alphanumeric characters, underscores ("\_"), and hyphens ("-").

voltage

Enter the voltage (V) that is being supplied to the power monitoring device. Enter a number between 10 and 999.



.....  
Resource Orchestrator calculates power consumption data using the electrical current value obtained from the power monitoring device and its specified voltage.  
.....

comment (optional)

Enter any comments for the power monitoring device.

Enter up to 128 alphanumeric characters or symbols (ASCII characters 0x20 to 0x7e).



.....  
A line break is counted as one character. Use "Alt+Enter" to enter line breaks.  
.....



## Memo

### - Section Name

Enter [Memo] as the section name.

This is required when registering the labels, comments, and contact information (displayed in BladeViewer) using the pre-configuration function.

### - Section Header

operation

Enter the desired operation for the current line. Enter a hyphen ("-") to skip this line.

resource\_type

Enter the type of the resource for which to set this memo. Enter one of the following.

- When a physical server including a VM host is specified

"physical\_server"

- When a VM guest is specified

"vm\_guest"

- When contact information is specified

"common"

resource\_name

Enter the name of the resource name for which to set this memo. Enter one of the following.

- When "resource\_type" is "physical\_server"

Enter one of the following.

- Server name ("server\_name" of [ServerAgent] section)

- VM host name ("server\_name" of [ServerVMHost] section)

- When "resource\_type" is "vm\_guest"

Enter the registered VM guest name

- When "resource\_type" is "common"

Do not enter any characters.

label (optional)

This label is used to identify the applications running on each server. Enter up to 32 alphanumeric characters or symbols (ASCII characters 0x20 to 0x7e). Note that if the value of "resource\_type" is "common", do not enter anything.



Line breaks ("\n") are not available.

comment (optional)

This is a comment that can be set as an option for each application. If the "resource\_type" is "common", this can be used for the contact details, maintenance information, or other information. Enter up to 256 alphanumeric characters or symbols (ASCII characters 0x20 to 0x7e).

## B.4 Examples of CSV Format

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This section shows an example of the system configuration file in the CSV format.

RCXCSV,V3.5

# ServerView Resource Orchestrator

# System configuration file

[Subnet]

operation,subnet\_name,network\_address,subnet\_mask,gateway

-.subnet1,172.16.0.0,255.255.0.0,172.16.0.1

-.subnet2,192.168.1.0,255.255.255.0,192.168.1.1

[VIOManager]

operation,name,ip\_address,login\_name,login\_passwd,passwd\_enc

-.VIOM,127.0.0.1,administrator,administrator,plain

[Chassis]

operation,chassis\_name,ip\_address,snmp\_community\_name

-.chassis01,192.168.3.150,public

[PRIMERGYPartitionModelChassis]

operation,chassis\_name,ip\_address,snmp\_community\_name,mgmt\_user\_name,mgmt\_passwd,mgmt\_passwd\_enc

-.pqchassis0,192.168.3.207,public,administrator,administrator,plain

-.pqchassis1,192.168.3.208,public,administrator,administrator,plain

[SPARCEnterprisePartitionModelChassis]

operation,chassis\_name,ip\_address,snmp\_community\_name,mgmt\_user\_name,mgmt\_passwd,mgmt\_passwd\_enc

-.spechassis,192.168.3.212,public,fujitsu,fujitsu,plain

[SPARCM10PartitionModelChassis]

operation,chassis\_name,ip\_address,snmp\_community\_name,mgmt\_user\_name,mgmt\_passwd,mgmt\_passwd\_enc

-.sparcm10-1,192.168.10.26,public,xscf,Xk8n5z6MfEg=,encrypted

[LanSwitch]

operation,chassis\_name,slot\_no,switch\_name,ip\_address,snmp\_community\_name,user\_name,passwd,passwd\_enc,privileged\_passwd,privileged\_passwd\_enc,product\_name,connection\_type

-.chassis01,1,switch-01,192.168.3.161,public,admin,admin,plain,admin,plain,BX600 GbE Switch Blade 30/12,telnet

-.chassis01,2,switch-02,192.168.3.162,public,admin,admin,plain,admin,plain,BX600 GbE Switch Blade 30/12,telnet

[LanSwitchNet]

operation,chassis\_name,slot\_no,port\_no,vlan\_id

-.chassis01,1,31,1/U;10/T;20/T

-.chassis01,1,32,1/U

-.chassis01,1,33,1/U

-.chassis01,1,34,1/U

-.chassis01,1,35,1/U

-.chassis01,1,36,1/U

-.chassis01,1,37,1/U

-.chassis01,1,38,1/U

-.chassis01,1,39,1/U

-.chassis01,1,40,1/U

-.chassis01,1,41,1/U

-.chassis01,1,42,1/U

-.chassis01,1,43,1/U

-.chassis01,1,44,1/U

-.chassis01,2,31,1/U;10/T;20/T

-.chassis01,2,32,1/U

-.chassis01,2,33,1/U

-.chassis01,2,34,1/U

-.chassis01,2,35,1/U

-.chassis01,2,36,1/U  
-.chassis01,2,37,1/U  
-.chassis01,2,38,1/U  
-.chassis01,2,39,1/U  
-.chassis01,2,40,1/U  
-.chassis01,2,41,1/U  
-.chassis01,2,42,1/U  
-.chassis01,2,43,1/U  
-.chassis01,2,44,1/U

[Server]

operation,chassis\_name,slot\_no,server\_name,ip\_address,mac\_address,second\_mac\_address,snmp\_community\_name,ipmi\_ip\_address,ipmi\_user\_name,ipmi\_passwd,ipmi\_passwd\_enc,admin\_lan1\_nic\_number,admin\_lan2\_nic\_number,admin\_lan\_nic\_redundancy

-.chassis01,1,blade001,192.168.3.151,,,,,,,,,1,4,ON  
-.chassis01,7,blade002,192.168.3.157,,,,,,,,,1,4,ON  
-.chassis01,9,blade003,192.168.3.159,,,,,,,,,1,4,ON  
-,,rackmount001,192.168.3.200,00:E5:35:0C:34:AB,,public,192.168.3.199,admin,admin,plain,,OFF  
-,,rackmount002,192.168.3.202,00:E5:35:0C:34:AC,,public,192.168.3.201,admin,admin,plain,,OFF

[SPARC]

operation,server\_name,ip\_address,mgmt\_snmp\_community\_name,mgmt\_ip\_address,mgmt\_protocol,mgmt\_user\_name,mgmt\_passwd,mgmt\_passwd\_enc

-.spe001,192.168.3.203,public,192.168.3.204,XSCF,fujitsu,fujitsu,plain  
-.spe002,192.168.3.205,public,192.168.3.206,ILOM,fujitsu,fujitsu,plain

[SPARCM10]

operation,server\_name,ip\_address,mgmt\_snmp\_community\_name,mgmt\_ip\_address,mgmt\_protocol,mgmt\_user\_name,mgmt\_passwd,mgmt\_passwd\_enc

-.Sparcm10-1-11,192.168.10.162,public,192.168.10.22,XSCF,xscf,Xk8n5z6MfEg=,encrypted  
-.Sparcm10-1-12,192.168.10.163,public,192.168.10.23,XSCF,xscf,Xk8n5z6MfEg=,encrypted

[SPARCM10PartitionModelServer]

operation,chassis\_name,partition\_no,server\_name,ip\_address

-.sparcm10-1,0,sparcm10-1-0,192.168.10.166

[PRIMERGYPartitionModelServer]

operation,chassis\_name,partition\_no,server\_name,ip\_address,boot\_option

-.pqchassis0,0,pqserver01,192.168.3.209,legacy  
-.pqchassis0,1,pqserver02,192.168.3.210,legacy  
-.pqchassis0,2,pqserver03,192.168.3.211,legacy

[ServerNet]

operation,server\_name,nic\_no,vlan\_id

-.blade001,1,1/U;10/T;20/T  
-.blade001,3,1/U  
-.blade001,5,1/U  
-.blade002,1,1/U;10/T;20/T  
-.blade002,3,1/U  
-.blade002,5,1/U  
-.blade003,1,1/U  
-.blade003,3,1/U  
-.blade003,5,1/U  
-.blade001,2,1/U  
-.blade001,4,1/U  
-.blade001,6,1/U  
-.blade002,2,1/U

-,blade002,4,1/U  
-,blade002,6,1/U  
-,blade003,2,1/U  
-,blade003,4,1/U  
-,blade003,6,1/U

[SPARCEnterprisePartitionModelServer]

operation,chassis\_name,partition\_no,server\_name,ip\_address  
-,spechassis,3,speserver3,192.168.3.213  
-,spechassis,4,speserver4,192.168.3.214

[ServerWWNN]

operation,server\_name,port\_count,wwnn  
-,blade001,1,20 00 00 17 42 51 00 01  
-,blade002,1,20 00 00 17 42 51 00 02

[SpareServer]

operation,server\_name,spare\_server,vlan\_switch,auto\_switch,boot\_type,spare\_server\_force\_off,spare\_server\_with\_vm\_guest  
-,blade001,blade003,ON,ON,local,OFF,OFF

[VMManager]

operation,name,ip\_address,product,login\_name,login\_passwd,passwd\_enc  
-,vCenterServer,127.0.0.1,vmware-vc,Administrator,admin,plain

[ServerAgent]

operation,server\_name  
-,blade001  
-,rackmount001  
-,rackmount002

[ServerVMHost]

operation,server\_name,vm\_login\_name,vm\_login\_passwd,vm\_passwd\_enc  
-,blade002,admin,admin,plain

[MonitorSetting]

operation,server\_name,ping\_timeout,recovery\_action,reboot\_count  
-,blade001,600,reboot\_and\_switchover,3

[PowerDevice]

operation,device\_name,ip\_address,snmp\_community\_name,voltage,comment  
-,ups1,192.168.3.196,public,100,SmartUPS  
-,ups2,192.168.3.197,public,100,SmartUPS

[Memo]

operation,resource\_type,resource\_name,label,comment  
-,common,,,"TEL:0000-0000"

## Appendix C Maintenance Mode

This appendix explains the maintenance mode available in Resource Orchestrator and how to use it.

Maintenance mode is used during hardware maintenance of managed servers. It is also used during the installation and maintenance of physical OSs and VM hosts. Maintenance mode avoids unwanted error notifications and disables execution of Auto-Recovery upon server failure.

The following operations can be performed on a server that has been placed into maintenance mode:

- Maintenance LED

Maintenance LEDs can be controlled.

- Backup and restore

System images can be backed up and restored.

- Cloning

Cloning images can be collected and deployed.

Use the following procedures to set and release maintenance mode:

- Setting Maintenance Mode

In the ROR console server resource tree, right-click the target server (or its physical OS or VM host) and select [Maintenance Mode]-[Set] from the popup menu.

- Releasing Maintenance Mode

In the ROR console server resource tree, right-click the target server (or its physical OS or VM host) and select [Maintenance Mode]-[Release] from the popup menu.



### Note

- When using ServerView Deployment Manager, depending on the operation, servers may be rebooted or temporarily shut down. This also affects servers managed using Resource Orchestrator. It is recommended to place affected servers into maintenance mode before running operations from ServerView Deployment Manager. Then, the maintenance mode should be released once finished.
- L-Servers cannot be created for physical servers that are in maintenance mode.