

FUJITSU Software PRIMECLUSTER HA Server 4.4A00 for SAP HANA(R)

A horizontal band featuring a red abstract graphic with flowing, curved lines and bright light flares.

Installation Guide

Linux

J2UL-2167-01ENZ0(01)
December 2016

Preface

Purpose

This manual explains how to install FUJITSU Software PRIMECLUSTER HA Server 4.4A00 for SAP HANA(R).

Target Readers

This manual is written for people who will install this product.

It is strongly recommended that you read the Software Release Guide from the product media before using this manual.

When setting up systems, it is assumed that readers have the basic knowledge required to configure the servers, storage and network devices to be installed.

Organization

This manual consists of four chapters, and appendices. The contents of these chapters, the appendices are listed below.

Title	Description
Chapter 1 Program components	Explains the packages of which this product is composed.
Chapter 2 Operation Environment	Explains the operational environment of this product.
Chapter 3 Installation	Explains how to install this product.
Chapter 4 Uninstallation	Explains how to uninstall this product.
Appendix A Troubleshooting	Explains how to address problems that occur.
Appendix B Necessary OS packages to be installed.	Explains about the necessary OS packages to be installed.

Notational Conventions

The notation in this manual conforms to the following conventions.

- References and character strings or values requiring emphasis are indicated using double quotes (").
- Text to be entered by the user is indicated using bold text.
- Variables are indicated using italic text.

The following abbreviations are used in this manual:

- Microsoft(R) Windows(R) Vista operating system is abbreviated as Windows(R) Vista.
- Microsoft(R) Windows(R) 7 operating system is abbreviated as Windows(R) 7.
- Microsoft(R) Windows(R) 8.1 operating system is abbreviated as Windows(R) 8.1.
- Microsoft(R) Windows(R) 10 operating system is abbreviated as Windows(R) 10.
- Cluster Foundation is abbreviated as CF.
- Reliant Monitor Services is abbreviated as RMS.
- Global Disk Services is abbreviated as GDS.
- Global File Services is abbreviated as GFS.
- Global Link Services is abbreviated as GLS.
- PRIMEQUEST 2000/1000 Series is abbreviated as PRIMEQUEST.

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Changes	Section	Manual code
Required software has been modified.	2.1.1	J2UL-2167-01ENZ0(01) J2UL-2167-01ENZ2(01)

Contents

Chapter 1 Program components.....	1
1.1 Red Hat Enterprise Linux 6 for SAP HANA for PRIMERGY.....	1
1.2 Red Hat Enterprise Linux 6 for SAP HANA for PRIMEQUEST.....	2
Chapter 2 Operation Environment.....	5
2.1 Cluster node operating environment.....	5
2.1.1 Software environment.....	5
2.1.2 Hardware environment.....	6
2.1.3 Static disk resources.....	6
2.1.3.1 Required disk space.....	6
2.1.3.2 Required work area.....	7
2.1.4 Dynamic disk resources.....	7
2.1.4.1 Required disk space.....	7
2.1.5 Required memory.....	7
2.2 Cluster management server operating environment.....	8
2.2.1 Software environment.....	8
2.2.2 Hardware environment.....	8
2.2.3 Static disk resources.....	9
2.2.3.1 Required disk space.....	9
2.2.3.2 Required work area.....	9
2.2.4 Dynamic disk resources.....	9
2.2.4.1 Required disk space.....	9
2.2.5 Required memory.....	9
Chapter 3 Installation.....	10
3.1 Installation on cluster nodes.....	10
3.1.1 Preparations.....	10
3.1.2 Installation.....	11
3.1.3 Environment configuration.....	13
3.2 Installation on cluster management server.....	13
3.2.1 Preparations.....	14
3.2.2 Installation.....	14
3.2.3 Environment configuration.....	16
Chapter 4 Uninstallation.....	17
4.1 Uninstallation on cluster nodes.....	17
4.1.1 Preparations.....	17
4.1.2 Uninstallation.....	17
4.2 Uninstallation on cluster management server.....	19
4.2.1 Preparation.....	19
4.2.2 Uninstallation.....	19
Appendix A Troubleshooting.....	22
A.1 CLI installer.....	22
A.1.1 Log file.....	22
A.1.2 Information messages.....	22
A.1.3 Error messages.....	22
A.1.4 When segmentation violation causes an installation failure.....	25
A.2 CLI uninstaller.....	25
A.2.1 Log file.....	25
A.2.2 Information messages.....	25
A.2.3 Error messages.....	26
Appendix B Necessary OS packages to be installed.....	29
B.1 For Red Hat Enterprise Linux 6 (for Intel64).....	29

Chapter 1 Program components

The unit of the program that composes the system is called a package.
This chapter explains about the packages of which this software is composed.

PRIMERGY

- Red Hat Enterprise Linux 6 for SAP HANA

PRIMEQUEST

- Red Hat Enterprise Linux 6 for SAP HANA

1.1 Red Hat Enterprise Linux 6 for SAP HANA for PRIMERGY

No.	Component	Package	Version	Function
1	PCLsnap	FJSVpclsnap	4.4.0	Tool for collecting troubleshooting information
2	Web-Based Admin View	SMAWcj2re	1.7.0	GUI common framework, Cluster management GUI
		FJSVwvbs	4.4.0	
		FJSVwvmpe	4.4.0	
		SMAWrcadm	4.4A00	
3	Cluster Foundation(CF)	kmod-FJSVclotr-drv	4.3.3	Basic cluster Services
		SMAWskel	4.4A00	
		SMAWhvksh	4.3A00	
		kmod-SMAWcf	4.4A00	
		SMAWcf	4.4A00	
		SMAWsf	4.4A00	
		FJSVclapi	4.4.0	
		FJSVcldbm	4.4.0	
		FJSVcldev	4.3.4	
		FJSVclotr	4.3.3	
4	Cluster Configuration Backup/Restore(CCBR)	SMAWccbr	4.3A40	Configuration file backup and restoration
5	Reliant Monitor Services(RMS)	SMAWRrms	4.4A00	Application takeover for operational continuity
		SMAWRdfw	4.3A20	
6	Wizard Tools(WT)	SMAWRhv-to	4.3A30	Tool for defining RMS configuration
		SMAWRhv-ba	4.3A30	
		SMAWRhv-do	4.3A30	
		SMAWRhv-de	4.3A30	
		FJSVhvgl	2.15	
		FJSVhvvd	4.3.4	
7	Global Disk Services(GDS)	kmod-FJSVsdx-drvcore	4.4.0	High-availability volume manager

No.	Component	Package	Version	Function
		FJSVsdxcmd	4.3.1	
		FJSVsdxdrv	4.4.0	
		FJSVsdxbas	4.4.0	
		FJSVsdxma-ja	4.3.4	
		FJSVsdxma-en	4.3.4	
		FJSVsdxwv	4.4.0	
		devlabel	0.48.03	
		FJSVsdxn timer	4.4.0	
8	Global File Services(GFS)	kmod-FJSVsfcs-knl	4.4.0	High-availability file system
		FJSVsfcs-cmd	4.4.0	
		FJSVsfcwv	4.4.0	
		FJSVsfema-en	4.4.0	
		FJSVsfema-ja	4.4.0	
9	Global Link Services(GLS)	kmod-FJSVhanet-drv	2.16-x	High-availability network
		FJSVhanet	2.16-1	
10	CF Add-On(CAO)	FJSVclapm	4.4.0	CF add-on package
11	RMS Add-On(RAO)	FJSVclrms	4.4.0	RMS add-on package
		FJSVclrwz	4.4.0	
		FJSVclsfw	4.4.0	
12	SA_LKCD	FJSVcllkcd	4.3.3	LKCD shutdown agent
13	GUIs	FJSVwvfrm	4.4.0	CRM view
14	Kdump Tool	kmod-kdump-poffinhibit	2.0.1	Kdump Cluster Tool (For physical environment)
		kdump-poffinhibit	2.0.1	

1.2 Red Hat Enterprise Linux 6 for SAP HANA for PRIMEQUEST

No.	Component	Package	Version	Function
1	PCLsnap	FJSVpclsnap	4.4.0	Tool for collecting troubleshooting information
2	Web-Based Admin View	SMAWcj2re	1.7.0	GUI common framework, Cluster management GUI
		FJSVwvbs	4.4.0	
		FJSVwvmpe	4.4.0	
		SMAWrcadm	4.4A00	
3	Cluster Foundation(CF)	kmod-FJSVclotr-drv	4.3.3	Basic cluster Services
		SMAWskel	4.4A00	
		SMAWhvksh	4.3A00	
		kmod-SMAWcf	4.4A00	
		SMAWcf	4.4A00	

No.	Component	Package	Version	Function
		SMAWsf	4.4A00	
		FJSVclapi	4.4.0	
		FJSVcldbm	4.4.0	
		FJSVcldev	4.3.4	
		FJSVclotr	4.3.3	
4	Cluster Configuration Backup/Restore(CCBR)	SMAWccbr	4.3A40	Configuration file backup and restoration
5	Reliant Monitor Services(RMS)	SMAWRrms	4.4A00	Application takeover for operational continuity
		SMAWRdfw	4.3A20	
6	Wizard Tools(WT)	SMAWRhv-to	4.3A30	Tool for defining RMS configuration
		SMAWRhv-ba	4.3A30	
		SMAWRhv-do	4.3A30	
		SMAWRhv-de	4.3A30	
		FJSVhvgl	2.15	
		FJSVhvgd	4.3.4	
7	Global Disk Services(GDS)	kmod-FJSVsdx-drvcore	4.4.0	High-availability volume manager
		FJSVsdx-cmd	4.3.1	
		FJSVsdx-drv	4.4.0	
		FJSVsdx-bas	4.4.0	
		FJSVsdxma-ja	4.3.4	
		FJSVsdxma-en	4.3.4	
		FJSVsdxwv	4.4.0	
		devlabel	0.48.03	
		FJSVsdx-nm	4.4.0	
8	Global File Services(GFS)	kmod-FJSVsfefs-knl	4.4.0	High-availability file system
		FJSVsfefs-cmd	4.4.0	
		FJSVsfewv	4.4.0	
		FJSVsfema-en	4.4.0	
		FJSVsfema-ja	4.4.0	
9	Global Link Services(GLS)	kmod-FJSVhanet-drv	2.16-x	High-availability network
		FJSVhanet	2.16-1	
10	CF Add-On(CAO)	FJSVclapm	4.4.0	CF add-on package
11	RMS Add-On(RAO)	FJSVclrms	4.4.0	RMS add-on package
		FJSVclrwz	4.4.0	
		FJSVclsfw	4.4.0	
12	SA_LKCD	FJSVcllkcd	4.3.3	LKCD shutdown agent

No.	Component	Package	Version	Function
13	GUIs	FJSVwvfrm	4.4.0	CRM view

Chapter 2 Operation Environment

This chapter explains the operation environment of this software.

Before you install this software, your system must meet the following prerequisites.

- PRIMERGY

1. Cluster node

This software must be installed and a cluster system is configured on a cluster node.

2. Cluster management server

For information about the Web-Based Admin View topologies, see "2.4 Determining the Web-based Admin View Operation Mode" of the "PRIMECLUSTER Installation and Administration Guide".

- PRIMEQUEST

1. Cluster node

This software must be installed and a cluster system is configured on a cluster node.

2.1 Cluster node operating environment

This section explains operating environment of cluster node.

2.1.1 Software environment

1. Basic software prerequisites

Install the following software product on a cluster node on PRIMERGY:

- Red Hat Enterprise Linux 6 for SAP HANA

Install the following software product on a cluster node on PRIMERGY:

- Red Hat Enterprise Linux 6 for SAP HANA

For the supported versions of the kernel, please contact your local Fujitsu sales representative.

This software, when operating on the above software, requires additional packages to be added besides the packages which are installed with a minimum OS option installation.

Please refer to "Appendix B. Necessary OS packages to be installed" for the necessary additional packages.

2. Required software

To operate this software, the following software products are required:

- PRIMEQUEST physical environment

No.	Software	Package	Version and/or level	Remarks
1	ServerView Mission Critical Option	SVMco		Required to coordinate with Management Board.
2	HBA Blockage Function	FJSVfepcl		For PRIMEQUEST 1400S2 Lite/1400S2/1400E2/1400L2/1800E2/1800L2 and PRIMEQUEST 2000 Series.

- VMware environment

No.	Software	Package	Version and/or level	Remarks
1	VMware vSphere		5.5 or later	

- PC

It is used as a client of Web-Based Admin View.

For details, see "3. Related hardware" of the "[2.1.2 Hardware environment](#)".

No.	Software	Package	Version and/or level	Remarks
1	Windows(R) Vista, Windows(R) 7, Windows(R) 8.1, Windows(R) 10			One of them is required.
2	J2SE(TM) Runtime Environment		8	The use of the latest version is recommended.
3	Microsoft Internet Explorer		9 11	One of them is required. You can download from the site of the software company.

3. Exclusive software

None.

2.1.2 Hardware environment

The following hardware requirements must be satisfied to operate this software.

1. Memory

1024MB or more of memory is required.

2. Required hardware

None.

3. Related hardware

No.	Machine	Model	Remark
1	Personal Computer	FM-V, etc	Required to use as a client of Web-Based Admin View.

2.1.3 Static disk resources

The disk space requirements for this software are shown below.

2.1.3.1 Required disk space

The following table lists the disk space requirements for installing this software. If necessary, expand the size of the relevant file systems.

No.	Directory	Disk space (in MB)	Remarks
1	/	111.9	
2	/usr	9.8	

No.	Directory	Disk space (in MB)	Remarks
3	/var	6.0	
4	/var/opt	1.1	
5	/etc/opt	15.3	
6	/opt	265.0	

2.1.3.2 Required work area

None.

2.1.4 Dynamic disk resources

The dynamic disk space requirements for this software are shown below.

2.1.4.1 Required disk space

When this software is operated in the following environment, the additional disk space shown below is required for each directory as well as the disk space required for installing this software as described in "2.1.3 Static disk resources". If free space is insufficient, expand the size of the relevant file system.

No.	Directory	Disk space (in MB)	Operation
1	/var	84.9	<p>A cluster system is operated under the following conditions:</p> <ul style="list-style-type: none"> - One cluster application is registered in a cluster system. <p>Note that 1.5 MB is required for each additional cluster application.</p> <ul style="list-style-type: none"> - Web-Based Admin View is operated in two-tier model. - GLS takeover IP address service registration.
2	/var/tmp	500.0	When FJQSS (Information Collection Tool) of PRIMECLUSTER is executed for collecting information.

2.1.5 Required memory

The following table shows the memory required when this software is operated in the following environment:

No.	Memory (in MB)	Operation
1	329.6	<p>A cluster system is operated under the following conditions:</p> <ul style="list-style-type: none"> - One cluster application is registered in a cluster system. Note that 11.4 MB is required for each additional cluster application. - Web-Based Admin View is operated in two-tier model. - GLS takeover IP address service registration. <p>In addition to the aforementioned user memory, 2.0 MB of kernel memory will be allocated per CPU by vmalloc.</p>
2	38.0	After a GFS shared file system is set up.
3	145.0	When one GFS shared file system is activated. If multiple file systems are activated, 145.0 MB is required for each file system. 2.0 MB out of 145.0

No.	Memory (in MB)	Operation
		MB is allocated in virtual address space by vmalloc. Overestimate the amount of memory because memory usage may vary according to the file system load and cache tuning.

2.2 Cluster management server operating environment

This section explains operating environment of cluster management server.

2.2.1 Software environment

1. Basic software prerequisites

Install the following software product on a cluster management server on PRIMERGY:

- Red Hat Enterprise Linux 6 for SAP HANA

For the supported versions of the kernel, please contact your local Fujitsu sales representative.

This software, when operating on the above software, requires additional packages to be added besides the packages which are installed with a minimum OS option installation.

Please refer to "Appendix B. Necessary OS packages to be installed" for the necessary additional packages.

2. Required software

To operate this software, the following software products are required:

No.	Software	Package	Version and/or level	Remarks
1	Windows(R) Vista, Windows(R) 7, Windows(R) 8.1, Windows(R) 10			Required to use as a client of Web-Based Admin View.
2	J2SE(TM) Runtime Environment		8	Required to use Web-Based Admin View. The use of the latest version is recommended.
3	Microsoft Internet Explorer		9 11	To use Web-Based Admin View, one of them is required. You can download from the site of the software company.

3. Exclusive software

None.

4. Required patches

None.

2.2.2 Hardware environment

The following hardware requirements must be satisfied to operate this software.

1. Memory

1024MB or more of memory is required.

2. Required hardware

None.

3. Related hardware

No.	Machine	Model	Remark
1	Personal Computer	FM-V, etc	Required to use as a client of Web-Based Admin View.

2.2.3 Static disk resources

The disk space requirements for this software are shown below.

2.2.3.1 Required disk space

The following table lists the disk space requirements for installing this software. If necessary, expand the size of the relevant file systems.

No.	Directory	Disk space (in MB)	Remarks
1	/	1.2	
2	/usr	0.0	
3	/var	0.0	
4	/var/opt	0.1	
5	/etc/opt	1.0	
6	/opt	203.1	

2.2.3.2 Required work area

None.

2.2.4 Dynamic disk resources

The dynamic disk space requirements for this software are shown below.

2.2.4.1 Required disk space

When this software is operated in the following environment, the additional disk space shown below is required for each directory as well as the disk space required for installing this software as described in "[2.2.3 Static disk resources](#)". If free space is insufficient, expand the size of the relevant file system.

No.	Directory	Disk space (in MB)	Operation
1	/var	14	Required to operate Web-Based Admin View.
2	/var/tmp	500	When FJQSS (Information Collection Tool) of PRIMECLUSTER is executed for collecting information.

2.2.5 Required memory

The following table shows the memory required when this software is operated in the following environment:

No.	Memory (in MB)	Operation
1	145	When the management server is operated.
2	167.2	When the management server is operated, and a single instance of Internet Explorer is started on the server.

Chapter 3 Installation

This chapter explains the installation of this software.

You can install this software on each node where basic and required software is installed. For details about error messages during installation, see "[Appendix A Troubleshooting](#)".

3.1 Installation on cluster nodes

This section explains installation on cluster nodes with CLI installer.

3.1.1 Preparations

1. Time required

It takes approximately 15 minutes to install this software.

2. Kernel header

Before installing this software, it is necessary to install the kernel header that supports OS of the system. Check if the kernel header is installed on the system by executing the following command:

```
# rpm -qi kernel-devel <Return>
```

If the command encounters an error, or the kernel source version different than the system OS, install the kernel source according to the OS document.

3. System environment check

1. When installing this software on PRIMEQUEST, it is necessary that the setting of SVMco is completed.
For setup instructions, refer to the following manuals:

PRIMEQUEST 1000 Series

- PRIMEQUEST 1000 Series Installation Manual
- PRIMEQUEST 1000 Series ServerView Mission Critical Option User Manual

PRIMEQUEST 2000 Series

- PRIMEQUEST 2000 Series Installation Manual
- PRIMEQUEST 2000 Series ServerView Mission Critical Option User Manual

2. To install Web-Based Admin View, it is necessary to modify the IP address of the admin LAN for Web-Based Admin View and its corresponding host name, and the host name corresponding to "127.0.0.1"(for IPv4) and "::1"(for IPv6).

1. Login to the system and become the root user.

```
# su <Return>
Password: password <Return>
```

2. Delete the host name allocated to "127.0.0.1"(for IPv4) and "::1"(for IPv6) using vi(1) and allocate it to the IP address of the admin LAN.

Before change)

```
# cat /etc/hosts <Return>
# Do not remove the following line, or various programs
# that require network functionality will fail.
127.0.0.1    host-name localhost localhost.localdomain localhost4
localhost4.localhostdomain4
::1         host-name localhost localhost.localdomain localhost6 localhost6.localhostdomain6
```

After change)

```
# cat /etc/hosts <Return>
# Do not remove the following line, or various programs
# that require network functionality will fail.
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
::1         localhost localhost.localdomain localhost6 localhost6.localdomain6
IP-Address  host-name
```

3. Check the auto startup of the NetworkManager service.

PRIMECLUSTER does not support the NetworkManager service.
Check the auto startup of the NetworkManager service setting.

Check that the setting of auto startup of the NetworkManager service is "off" using the following command.

```
# /sbin/chkconfig --list NetworkManager
NetworkManager 0:off 1:off 2:off 3:off 4:off 5:off 6:off
```

If there is runlevel that is in "on", disable the NetworkManager service using the following command.

```
# /sbin/service NetworkManager stop
# /sbin/chkconfig NetworkManager off
```

4. Package check

1. Check if the package is installed on the system by executing the following command:

```
# rpm -qi ruby <Return>
```

If the command encounters an error, install the package from CD-ROM(DVD) of the OS.

3.1.2 Installation

1. Login to the system and become the root user.

```
# su <Return>
Password: password <Return>
```

2. The system is changed to the single user mode.

Edit the contents of the id entry of the /etc/inittab file using vi(1) etc. as shown below to start the system in single-user mode.



Note

- The default runlevel varies depending on the environment when the patch is applied (3 in the example below).
- Put down the default target before upgrading as you can restore the system to the state prior to upgrading later.

[Before Modification]

```
# Default runlevel. The runlevels used by RHS are:
# 0 - halt (Do NOT set initdefault to this)
# 1 - Single user mode
# 2 - Multiuser, without NFS (The same as 3, if you do not have networking)
# 3 - Full multiuser mode
# 4 - unused
# 5 - X11
# 6 - reboot (Do NOT set initdefault to this)
```

```
#  
id:3:initdefault:
```

[After Modification]

```
# Default runlevel. The runlevels used by RHS are:  
# 0 - halt (Do NOT set initdefault to this)  
# 1 - Single user mode  
# 2 - Multiuser, without NFS (The same as 3, if you do not have networking)  
# 3 - Full multiuser mode  
# 4 - unused  
# 5 - X11  
# 6 - reboot (Do NOT set initdefault to this)  
#  
id:1:initdefault:
```

Start the system again in single-user mode.

```
# shutdown -r now <Return>
```

3. Insert CD in the CD drive.

```
# mount -t iso9660 -r /dev/<device file name> <CD-ROM mount point> <Return>
```

<CDROM_DIR> will be used as the mount point.

4. Execute the CLI installer.

PRIMERGY

```
# cd <CDROM_DIR>/Tool <Return>  
# ./cluster_install -e HA-PG <Return>  
  
Installation of PRIMECLUSTER started.  
  
PRODUCT : PCLsnap  
  
Installing package <FJSVpclsnap> ... finished.  
.  
.  
  
The installation finished successfully.
```

PRIMEQUEST

```
# cd <CDROM_DIR>/Tool <Return>  
# ./cluster_install -e HA-PQ <Return>  
  
Installation of PRIMECLUSTER started.  
  
PRODUCT : PCLsnap  
  
Installing package <FJSVpclsnap> ... finished.  
.  
.  
  
The installation finished successfully.
```

5. Eject CD.

```
# cd / <Return>  
# umount <CDROM_DIR> <Return>  
# eject <Return>
```


6. Reboot the system by executing the shutdown(8) command.

Edit the contents of the id entry of the /etc/inittab file, which has been changed in Step 2, to the original contents to start the system in multi-user mode.

[Before Modification]

```
# Default runlevel. The runlevels used by RHS are:
# 0 - halt (Do NOT set initdefault to this)
# 1 - Single user mode
# 2 - Multiuser, without NFS (The same as 3, if you do not have networking)
# 3 - Full multiuser mode
# 4 - unused
# 5 - X11
# 6 - reboot (Do NOT set initdefault to this)
#
id:1:initdefault:
```

[After Modification]

```
# Default runlevel. The runlevels used by RHS are:
# 0 - halt (Do NOT set initdefault to this)
# 1 - Single user mode
# 2 - Multiuser, without NFS (The same as 3, if you do not have networking)
# 3 - Full multiuser mode
# 4 - unused
# 5 - X11
# 6 - reboot (Do NOT set initdefault to this)
#
id:3:initdefault:
```

Start the system again.

```
# shutdown -r now <Return>
```

7. Patch download

Download the latest PRIMECLUSTER patch by UpdateSite format and update information file from Updatesite.

8. Please apply the patch for PRIMECLUSTER.

Please refer to the update information file of each patch for installation instructions and points of concern, etc.



- After the uninstallation of this software, the /etc/opt/FJSVsdx/sysdb.d.tmp directory may remain undeleted. Even if this directory remains, there will be no effect on the system operation. If you want to delete it, use the following command.

```
kernel: symsrv: module license 'Proprietary' taints kernel.
kernel: Disabling lock debugging due to kernel taint
kernel: clonltrc: module license 'Proprietary' taints kernel.
kernel: Disabling lock debugging due to kernel taint
```

3.1.3 Environment configuration

Configure the system environment according to "4.3 Preparations for Starting the Web-Based Admin View Screen" and "Chapter 5 Building a cluster", and "Chapter 6 Building cluster application" of the "PRIMECLUSTER Installation and Administration Guide".

3.2 Installation on cluster management server

This section explains installation on cluster management server with CLI installer.

If you want to operate Web-Based Admin View in the three tier model, install a cluster management server using the procedure described below. For information on how to operate Web-Based Admin View, see "2.4 Determining the Web-Based Admin View Operation Mode" of the "PRIMECLUSTER Installation and Administration Guide".

3.2.1 Preparations

1. Time required

It takes approximately 10 minutes to install this software.

2. System environment check

To install Web-Based Admin View, it is necessary to modify the IP address of the admin LAN for Web-Based Admin View and its corresponding host name, and the host name corresponding to "127.0.0.1"(for IPv4) and "::1"(for IPv6).

1. Login to the system and become the root user.

```
# su <Return>
Password:password <Return>
```

2. Delete the host name allocated to "127.0.0.1"(for IPv4) and "::1"(for IPv6) using vi(1) and allocate it to the IP address of the admin LAN.

Before change)

```
# cat /etc/hosts <Return>
# Do not remove the following line, or various programs
# that require network functionality will fail.
127.0.0.1    host-name localhost localhost.localdomain localhost4 localhost4.localdomain4
::1         host-name localhost localhost.localdomain localhost6 localhost6.localdomain6
```

After change)

```
# cat /etc/hosts <Return>
# Do not remove the following line, or various programs
# that require network functionality will fail.
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
::1          localhost localhost.localdomain localhost6 localhost6.localdomain6
IP-Address  host-name
```

3.2.2 Installation

1. Login to the system and become the root user.

```
# su <Return>
Password:password <Return>
```

2. The system is changed to the single user mode.

Edit the contents of the id entry of the /etc/inittab file using vi(1) etc. as shown below to start the system in single-user mode.



- The default runlevel varies depending on the environment when the patch is applied (3 in the example below).
- Put down the default target before upgrading as you can restore the system to the state prior to upgrading later.

[Before Modification]

```
# Default runlevel, The runlevels used by RHS are:
# 0 - halt (Do NOT set initdefault to this)
# 1 - Single user mode
# 2 - Multiuser, without NFS (The same as 3, if you do not have networking)
# 3 - Full multiuser mode
# 4 - unused
# 5 - X11
# 6 - reboot (Do NOT set initdefault to this)
#
id:3:initdefault:
```

[After Modification]

```
# Default runlevel, The runlevels used by RHS are:
# 0 - halt (Do NOT set initdefault to this)
# 1 - Single user mode
# 2 - Multiuser, without NFS (The same as 3, if you do not have networking)
# 3 - Full multiuser mode
# 4 - unused
# 5 - X11
# 6 - reboot (Do NOT set initdefault to this)
#
id:1:initdefault:
```

Start the system again in single-user mode.

```
# shutdown -r now <Return>
```

3. Insert CD in the CD drive.

```
# mount -t iso9660 -r /dev/<device file name> <CD-ROM mount point> <Return>
```

<CDROM_DIR> will be used as the mount point.

4. Execute the CLI installer.

```
# cd <CDROM_DIR>/Tool <Return>
# ./cluster_install -e HA-M <Return>

Installation of PRIMECLUSTER started.

PRODUCT : PCLsnap

Installing package <FJSVpclsnap> ... finished.
.
.

The installation finished successfully.
```

5. Eject CD.

```
# cd / <Return>
# umount <CDROM_DIR> <Return>
# eject <Return>
```

6. Reboot the system by executing the shutdown(8) command.

Edit the contents of the id entry of the /etc/inittab file, which has been changed in Step 2, to the original contents to start the system in multi-user mode.

[Before Modification]

```
# Default runlevel, The runlevels used by RHS are:
# 0 - halt (Do NOT set initdefault to this)
```

```
# 1 - Single user mode
# 2 - Multiuser, without NFS (The same as 3, if you do not have networking)
# 3 - Full multiuser mode
# 4 - unused
# 5 - X11
# 6 - reboot (Do NOT set initdefault to this)
#
id:1:initdefault:
```

[After Modification]

```
# Default runlevel, The runlevels used by RHS are:
# 0 - halt (Do NOT set initdefault to this)
# 1 - Single user mode
# 2 - Multiuser, without NFS (The same as 3, if you do not have networking)
# 3 - Full multiuser mode
# 4 - unused
# 5 - X11
# 6 - reboot (Do NOT set initdefault to this)
#
id:3:initdefault:
```

Start the system again.

```
# shutdown -r now <Return>
```

7. Patch download

Download the latest PRIMECLUSTER patch by UpdateSite format and update information file from Updatesite.

8. Please apply the patch for PRIMECLUSTER.

Please refer to the update information file of each patch for installation instructions and points of concern, etc.

3.2.3 Environment configuration

Configure the system environment according to "4.3 Preparations for Starting the Web-Based Admin View Screen" of the "PRIMECLUSTER Installation and Administration Guide".

Chapter 4 Uninstallation

This chapter explains the uninstallation of this software.

4.1 Uninstallation on cluster nodes

This section explains uninstallation on cluster nodes with CLI uninstaller.

4.1.1 Preparations

1. Before uninstalling, if you are applying patch for PRIMECLUSTER by UpdateSite format, remove them by UpdateAdvisor (middleware).

For details, see help information on UpdateAdvisor(middleware) and the update information file of the patch.

4.1.2 Uninstallation

1. Login to the system as the root user.

```
# su <Return>
Password:password <Return>
```

2. If you are using RMS, stop RMS.

```
# hvshut -a <Return>
```

3. Boot the system in single user mode.

Edit the contents of the id entry of the /etc/inittab file using vi(1) etc. as shown below to start the system in single-user mode.



Note

- The default runlevel varies depending on the environment when the patch is applied (3 in the example below).
- Put down the default target before upgrading as you can restore the system to the state prior to upgrading later.

[Before Modification]

```
# Default runlevel. The runlevels used by RHS are:
# 0 - halt (Do NOT set initdefault to this)
# 1 - Single user mode
# 2 - Multiuser, without NFS (The same as 3, if you do not have networking)
# 3 - Full multiuser mode
# 4 - unused
# 5 - X11
# 6 - reboot (Do NOT set initdefault to this)
#
id:3:initdefault:
```

[After Modification]

```
# Default runlevel. The runlevels used by RHS are:
# 0 - halt (Do NOT set initdefault to this)
# 1 - Single user mode
# 2 - Multiuser, without NFS (The same as 3, if you do not have networking)
# 3 - Full multiuser mode
# 4 - unused
# 5 - X11
# 6 - reboot (Do NOT set initdefault to this)
```

```
#  
id:1:initdefault:
```

Start the system again in single-user mode.

```
# shutdown -r now <Return>
```

4. If you are using GDS, check the file in the /dev/sfdsk directory. If there are other files than _adm, _diag, _sysadm, and _sysdiag, delete them.

5. Insert CD and mount the CD device.

```
# mount -t iso9660 -r /dev/<device file name> <CD-ROM mount point> <Return>
```

<CDROM_DIR> will be used as the mount point.

6. Execute the CLI uninstaller.

```
# cd <CDROM_DIR>/Tool <Return>  
# ./cluster_uninstall <Return>  
Are you sure to remove PRIMECLUSTER from your system (y or n) ? y <Return>  
  
.  
.  
  
The uninstallation finished successfully.
```

7. Eject CD, then reboot the system by executing the "shutdown(8)" command.

```
# cd / <Return>  
# umount <CDROM_DIR> <Return>  
# eject cdrom <Return>
```

Edit the contents of the id entry of the /etc/inittab file, which has been changed in Step 5, to the original contents to start the system in multi-user mode.

[Before Modification]

```
# Default runlevel. The runlevels used by RHS are:  
# 0 - halt (Do NOT set initdefault to this)  
# 1 - Single user mode  
# 2 - Multiuser, without NFS (The same as 3, if you do not have networking)  
# 3 - Full multiuser mode  
# 4 - unused  
# 5 - X11  
# 6 - reboot (Do NOT set initdefault to this)  
#  
id:1:initdefault:
```

[After Modification]

```
# Default runlevel. The runlevels used by RHS are:  
# 0 - halt (Do NOT set initdefault to this)  
# 1 - Single user mode  
# 2 - Multiuser, without NFS (The same as 3, if you do not have networking)  
# 3 - Full multiuser mode  
# 4 - unused  
# 5 - X11  
# 6 - reboot (Do NOT set initdefault to this)  
#  
id:3:initdefault:
```

Start the system again.

```
# shutdown -r now <Return>
```



Note

- In PRIMECLUSTER Global Link Services:
Redundant Line Control Function, when using the user command execution function and script files remains, the directory under /etc/opt/FJSVhanet/script is not deleted. Delete this directory after saving or deleting script files.

```
# cd /etc/opt <Return>
# rm -rf FJSVhanet <Return>
```

4.2 Uninstallation on cluster management server

This section explains uninstallation on cluster management server with CLI uninstaller.

4.2.1 Preparation

Before uninstalling, if you are applying patch for PRIMECLUSTER by UpdateSite format, remove them by UpdateAdvisor (middleware). For details, see help information on UpdateAdvisor(middleware) and the update information file of the patch.

4.2.2 Uninstallation

1. Login to the system and become the root user.

```
# su <Return>
Password:password <Return>
```

2. Start the system in single user mode.

Edit the contents of the id entry of the /etc/inittab file using vi(1) etc. as shown below to start the system in single-user mode.



Note

- The default runlevel varies depending on the environment when the patch is applied (3 in the example below).
- Put down the default target before upgrading as you can restore the system to the state prior to upgrading later.

[Before Modification]

```
# Default runlevel. The runlevels used by RHS are:
# 0 - halt (Do NOT set initdefault to this)
# 1 - Single user mode
# 2 - Multiuser, without NFS (The same as 3, if you do not have networking)
# 3 - Full multiuser mode
# 4 - unused
# 5 - X11
# 6 - reboot (Do NOT set initdefault to this)
#
id:3:initdefault:
```

[After Modification]

```
# Default runlevel, The runlevels used by RHS are:
# 0 - halt (Do NOT set initdefault to this)
# 1 - Single user mode
# 2 - Multiuser, without NFS (The same as 3, if you do not have networking)
# 3 - Full multiuser mode
```

```
# 4 - unused
# 5 - X11
# 6 - reboot (Do NOT set initdefault to this)
#
id:1:initdefault:
```

Start the system again in single-user mode.

```
# shutdown -r now <Return>
```

3. Insert CD in the CD drive.

```
# mount -t iso9660 -r /dev/<device file name> <CD-ROM mount point> <Return>
```

<CDROM_DIR> will be used as the mount point.

4. Execute the CLI uninstaller.

```
# cd <CDROM_DIR>/Tool <Return>
# ./cluster_uninstall <Return>
Are you sure to remove PRIMECLUSTER from your system (y or n) ? y <Return>

.
.

The uninstallation finished successfully.
```

5. Eject CD, then reboot the system by executing the shutdown(8) command.

```
# cd / <Return>
# umount <CDROM_DIR> <Return>
# eject cdrom <Return>
```

Edit the contents of the id entry of the /etc/inittab file, which has been changed in Step 2, to the original contents to start the system in multi-user mode.

[Before Modification]

```
# Default runlevel. The runlevels used by RHS are:
# 0 - halt (Do NOT set initdefault to this)
# 1 - Single user mode
# 2 - Multiuser, without NFS (The same as 3, if you do not have networking)
# 3 - Full multiuser mode
# 4 - unused
# 5 - X11
# 6 - reboot (Do NOT set initdefault to this)
#
id:1:initdefault:
```

[After Modification]

```
# Default runlevel. The runlevels used by RHS are:
# 0 - halt (Do NOT set initdefault to this)
# 1 - Single user mode
# 2 - Multiuser, without NFS (The same as 3, if you do not have networking)
# 3 - Full multiuser mode
# 4 - unused
# 5 - X11
# 6 - reboot (Do NOT set initdefault to this)
#
id:3:initdefault:
```

Start the system again.


```
# shutdown -r now <Return>
```

Appendix A Troubleshooting

This chapter explains how to address problems that occur.

A.1 CLI installer

This section explains CLI installer.

A.1.1 Log file

The CLI installer log including the rpm(8) command output will be saved in the following log file:

- /var/log/install/cluster_install

A.1.2 Information messages

INFO: The installation process stopped by user request

Description

Installation process was stopped according at user's request.

Workaround

Execute the command again.

INFO: no package to update

Description

Since the package same as that in CD or newer than that in CD is installed, the package in CD cannot be installed.

Workaround

According to the procedure of "4.1.2 Uninstallation", execute the command again after removing PRIMECLUSTER from the system.

A.1.3 Error messages

Installation failed

Description

Installation failed.

Workaround

Remove the cause of the problem referring to the error message and log file then execute the command again.

ERROR: syntax error

Description

An incorrect option was specified.

Workaround

Correct the option then execute the command again.

ERROR: syntax error (<PSET> <PLAT>)

Description

An incorrect option was specified.

Installation of the product set <PSET> is not supported for this software.

Workaround

Check if the command option is correct. If it is, check whether the environment meets operating conditions as prescribed in "[Chapter 2 Operation Environment](#)".

ERROR: `</usr/sbin/dmidecode>` command not found

Description

The command `</usr/sbin/dmidecode>` not installed on the system.

Workaround

Check if the OS is installed with a right procedure.

ERROR: to use this installer you will need to be the root user.

Description

The command was executed by a non-root user.

Workaround

Execute the command using root user access privileges.

ERROR: `/tmp` needs `TMP_LEASTKB` at least

Description

There is not enough free space on the `/tmp` file system.

Workaround

Reserve at least `TMP_LEASTKB` on the `/tmp` file system then execute the command again.

ERROR: `/var` needs `VAR_LEASTKB` at least

Description

There is not enough free space on the `/var` file system.

Workaround

Reserve at least `VAR_LEASTKB` on the `/var` file system then execute the command again.

ERROR: `/tmp` not writable

Description

Creation of a temporary file in `/temp` failed.

Workaround

After `/temp` is made writable, execute the command again.

Example: If the file system including `/temp` is mounted as a read-only file system, make `/temp` writable by executing "`mount -o remount <mount point of the file system including /tmp>`".

ERROR: CF driver is loaded

Description

The CF driver is loaded.

Workaround

Unload the CF driver then execute the command again. For details, see "PRIMECLUSTER Cluster Foundation Configuration and Administration Guide".

ERROR: the installation process is running now

Description

The other installation process is running.

Workaround

Wait until the other installation process is completed then execute the command again.

Note

If this message appears although the other installation process is not being executed, delete the `"/tmp/cluster_install"` and `"/tmp/cluster_uninstall"` flag files then execute the command again.

ERROR: platform <PLAT> not supported

Description

This software is not supported.

Workaround

Check if the environment meets operating conditions as prescribed in "[Chapter 2 Operation Environment](#)". If there is nothing wrong with the environment, put down the message then contact your Fujitsu system engineers.

ERROR: product <PROD> on platform <PLAT> not supported

Description

Installation of the product set <PROD> is not supported for this software.

Workaround

Check if the command option is correct. If it is, then check if the environment meets operating conditions as prescribed in "[Chapter 2 Operation Environment](#)". If there is nothing wrong with the environment, put down the message then contact your Fujitsu system engineers.

ERROR: product <PROD1> and <PROD2> contains the same package <PKG>

Description

The products <PROD1> and <PROD2> are included in the same package <PKG>, so they cannot be installed at the same time.

Workaround

An option cannot be specified for the products <PROD1> and <PROD2>.

ERROR: failed: rpm *

Description

The rpm command failed.

Workaround

Remove the cause of the error referring to the log file then execute the command again.

ERROR: internal error: *

Description

An internal error occurred.

Workaround

Put down the message then contact your Fujitsu system engineers.

Please see the following log file.
`/var/log/install/cluster_install`

Description

See the /var/log/install/cluster_install log file.

Workaround

Remove the cause of the error referring to the log file then execute the command again.

ERROR: Failed to install FJQSS<Information Collection Tool>

Description

Installation of FJQSS failed.

Workaround

Collect the following information then contact your Fujitsu system engineers.
- /tmp/fjqssinstaller.log

ERROR: The installation of following package(s) failed. <PackageName>

Description

The installation of <PackageName> failed. You may have tried to install in the kernel version of OS not supported.

Workaround

Please confirm whether there is required patch of PRIMECLUSTER corresponding to the kernel version of OS. If the patch is existing, please apply the patch and execute "rpm -V --nodigest --nofiles --noscripts --nosignature <PackageName >" afterwards. When nothing is output, it means the execution of the CLI installer succeeded. Please perform the subsequent procedure.
If the above action fails to solve the problem, put down the message then contact your Fujitsu system engineers.

A.1.4 When segmentation violation causes an installation failure

If segmentation violation is due to the rpm(8) command, take the following corrective steps. If the problem still remains unresolved, contact Fujitsu customer support engineers.

1. Reboot the system by executing the shutdown(8) command.

```
# shutdown -r now <Return>
```

2. Delete PRIMECLUSTER from the system according to "4.1.2 Uninstallation" or "4.2.2 Uninstallation".
3. Execute the following command.

```
# rpm --rebuilddb <Return>
```

4. Install PRIMECLUSTER again.

A.2 CLI uninstaller

This section explains CLI uninstaller.

A.2.1 Log file

Logs of the CLI uninstaller including the output of the rpm(8) command will be saved into the log file below:

- /var/log/install/cluster_uninstall

A.2.2 Information messages

INFO: no package to uninstall

Description

Currently, no packages that need to be uninstalled are installed on the system.

Workaround

None.

INFO: The uninstallation process stopped by user request

Description

The uninstallation process has been stopped at user's request.

Workaround

If you want to continue the uninstallation process, execute the command again.

A.2.3 Error messages

Uninstallation failed.

Description

Uninstallation failed.

Workaround

Remove the cause of the error referring to the log file or error message then execute the command again.

ERROR: syntax error

Description

The incorrect option was specified.

Workaround

Correct the option and execute the command again.

ERROR: syntax error (<PSET> <PLAT>)

Description

An incorrect option was specified.
The product set <PSET> package is invalid.

Workaround

Run the command with the right option.

ERROR: to use this uninstaller you will need to be the root user

Description

The command was executed by a non-root user.

Workaround

Execute the command with root user access privileges.

ERROR: /tmp needs TMP_LEAST KB at least

Description

There is not enough free space on the /tmp file system.

Workaround

Reserve at least *TMP_LEASTKB* on the /tmp file system then execute the command again.

ERROR: /tmp not writable

Description

Creation of a temporary file in /temp failed.

Workaround

After /temp is made writable, execute the command again.

Example: If the file system including /temp is mounted as a read-only file system, make /temp writable by executing "mount -o remount <mount point of the file system including /tmp>".

ERROR: /var needs VAR_LEASTKB at least

Description

There is not enough free space on the /var file system.

Workaround

Reserve at least *VAR_LEASTKB* on the /var file system then execute the command again.

ERROR: CF driver is loaded

Description

The CF driver is loaded.

Workaround

Unload the CF driver then execute the command again. For details see the "PRIMECLUSTER Cluster Foundation Configuration and Administration Guide".

ERROR: the installation process is running now

Description

The other installation process is being executed.

Workaround

Wait until the other installation process is completed then execute the command again.

Note

If this message appears although the other installation process is not being executed, delete the "/tmp/cluster_install" and "/tmp/cluster_uninstall" flag files then execute the command again.

ERROR: product <PROD> on platform <PLAT> not supported

Description

The product set <PROD> package is invalid.

Workaround

Specify a correct command option then execute the command again.

ERROR: failed: rpm *

Description

The rpm command failed.

Workaround

Remove the cause of the error referring to the log file then execute the command again.

ERROR: internal error: *

Description

An internal error occurred.

Workaround

Put down the message then contact your Fujitsu system engineers.

Please see the following log file. /var/log/install/cluster_uninstall

Description

See the /var/log/install/cluster_uninstall log file.

Workaround

Remove the cause of the error referring to the log file then execute the command again.

Appendix B Necessary OS packages to be installed

When operating this software on Red Hat Enterprise Linux, in addition to the packages that are installed with a minimum OS option installation, the following packages are used.

B.1 For Red Hat Enterprise Linux 6 (for Intel64)

Package	Architecture
OpenIPMI	x86_64
OpenIPMI-libs	x86_64
PyQt4	x86_64
PyQt4-devel	i686
PyQt4-devel	x86_64
alsa-lib	i686
alsa-lib	x86_64
at	x86_64
audit-libs	i686
autoconf	noarch
bc	x86_64
bind	x86_64
bind-utils	x86_64
compat-libstdc++-33	i686
compat-libstdc++-33	x86_64
cpp	x86_64
crash	x86_64
cvs	x86_64
device-mapper	x86_64
device-mapper-multipath	x86_64
dhcp	x86_64
docbook-utils	noarch
dump	x86_64
ebtables	x86_64
ed	x86_64
eject	x86_64
fontconfig	i686
fontconfig	x86_64
freetype	x86_64
gcc	x86_64
gdb	x86_64
ghostscript	x86_64
glibc	i686

Package	Architecture
hdparm	x86_64
httpd	x86_64
indent	x86_64
ipmitool	x86_64
iscsi-initiator-utils	x86_64
kernel-devel	x86_64
kernel-headers	x86_64
kexec-tools	x86_64
libICE	x86_64
libSM	x86_64
libX11	i686
libX11	x86_64
libXau	i686
libXau	x86_64
libXext	i686
libXext	x86_64
libXft	x86_64
libXi	i686
libXi	x86_64
libXmu	x86_64
libXp	x86_64
libXrender	x86_64
libXt	x86_64
libXtst	i686
libXtst	x86_64
libgcc	i686
libjpeg-turbo	x86_64
libpng	x86_64
libstdc++	i686
libvirt-client	x86_64
libxcb	x86_64
lsod	x86_64
lvm2	x86_64
make	x86_64
man	x86_64
mlocate	x86_64
mt-st	x86_64
mttools	x86_64
mtr	x86_64

Package	Architecture
nc	x86_64
net-snmp	x86_64
net-snmp-libs	i686
net-snmp-utils	x86_64
nfs-utils	x86_64
ntp	x86_64
openmotif	x86_64
openmotif22	x86_64
opensp	i686
openssh-clients	x86_64
openssl	i686
openssl098e	x86_64
pam-devel	x86_64
parted	x86_64
patch	x86_64
pciutils	x86_64
perl	x86_64
perl-libwww-perl	noarch
pinfo	x86_64
prelink	x86_64
psacct	x86_64
quota	x86_64
rpcbind	x86_64
rsh	x86_64
ruby	x86_64
samba-common	x86_64
scsi-target-utils	x86_64
setuptools	x86_64
sg3_utils	x86_64
strace	x86_64
subversion	x86_64
sysstat	x86_64
tcpdump	x86_64
time	x86_64
tree	x86_64
vconfig	x86_64
xinetd	x86_64
xorg-x11-apps	x86_64
xorg-x11-server-utils	x86_64

Package	Architecture
xterm	x86_64
zip	x86_64