

FUJITSU Software

PRIMECLUSTER Clustering Base

4.6A00

A decorative horizontal band with a red-to-dark-red gradient, featuring abstract, glowing white and red lines that swirl and intersect, creating a sense of motion and technology.

Installation Guide

Linux

J2UL-2496-02ENZ0(00)
July 2020

Preface

Purpose

This manual explains how to install PRIMECLUSTER Clustering Base.

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 Upgrading from old versions	Explains how to upgrade from old versions.
Appendix C 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) 8.1 is abbreviated as Windows(R) 8.1.
- Microsoft(R) Windows(R) 10 is abbreviated as Windows(R) 10.
- Microsoft(R) Windows Server(R) 2012 is abbreviated as Windows Server(R) 2012.
- Microsoft(R) Windows Server(R) 2012 R2 is abbreviated as Windows Server(R) 2012 R2.
- Microsoft(R) Windows Server(R) 2016 is abbreviated as Windows Server(R) 2016.
- Microsoft(R) Windows Server(R) 2019 is abbreviated as Windows Server(R) 2019.
- Cluster Foundation is abbreviated as CF.
- Reliant Monitor Services is abbreviated as RMS.
- Global Disk Services is abbreviated as GDS.
- Global Link Services is abbreviated as GLS.

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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.

- Red Hat Enterprise Linux 7 (for Intel64)
- Red Hat Enterprise Linux 8 (for Intel64)

1.1 Red Hat Enterprise Linux 7 (for Intel64)

No.	Component	Package	Version	Function
1	PCLsnap	FJSVpclsnap	4.6.0	Tool for collecting troubleshooting information
2	Web-Based Admin View	SMAWcj2re	1.8.0	GUI common framework, Cluster management GUI
		FJSVwvbs	4.6.0	
		FJSVwvmcpc	4.6.0	
		SMAWrcadm	4.6A00	
3	Cluster Foundation(CF)	kmod-FJSVclotr-drv	4.6.0	Basic cluster Services
		SMAWskel	4.6A00	
		SMAWhvksh	4.3A40	
		kmod-SMAWcf	4.6A00	
		SMAWcf	4.6A00	
		SMAWsf	4.6A00	
		FJSVclapi	4.6.0	
		FJSVcldbm	4.6.0	
		FJSVcldev	4.6.0	
		FJSVclotr	4.6.0	
4	Cluster Configuration Backup/Restore(CCBR)	SMAWccbr	4.6A00	Configuration file backup and restoration
5	Reliant Monitor Services(RMS)	SMAWRrms	4.6A00	Application takeover for operational continuity
		SMAWRdfw	4.3A40	
6	Wizard Tools(WT)	SMAWRhv-to	4.6A00	Tool for defining RMS configuration
		SMAWRhv-ba	4.6A00	
		SMAWRhv-do	4.6A00	
		SMAWRhv-de	4.6A00	
		FJSVhvgl	2.20	
		FJSVhvgd	4.6.0	
7	CF Add-On(CAO)	FJSVclapm	4.6.0	CF add-on package
8	RMS Add-On(RAO)	FJSVclrms	4.6.0	RMS add-on package
		FJSVclrwz	4.6.0	

No.	Component	Package	Version	Function
		FJSVclsfw	4.6.0	
9	SA_LKCD	FJSVcllkcd	4.6.0	LKCD shutdown agent
10	GUIs	FJSVwvfrm	4.6.0	CRM view
11	Kdump Tool	kmod-kdump-poffinhibit	3.0.0	Kdump Cluster Tool (For PRIMERGY physical environment)
		kdump-poffinhibit	3.0.0	
12	Easy Design and Configuration	FJSVpcl-easyconf	1.1	Easy Design and Configuration feature (For other than VMware)

1.2 Red Hat Enterprise Linux 8 (for Intel64)

No.	Component	Package	Version	Function
1	PCLsnap	FJSVpclsnap	4.6.0	Tool for collecting troubleshooting information
2	Web-Based Admin View	SMAWcj2re	1.8.0	GUI common framework, Cluster management GUI
		FJSVwvbs	4.6.0	
		FJSVwvmpc	4.6.0	
		SMAWrcadm	4.6A00	
3	Cluster Foundation(CF)	kmod-FJSVclotr-drv	4.6.0	Basic cluster Services
		SMAWskel	4.6A00	
		SMAWhvksh	4.6A00	
		kmod-SMAWcf	4.6A00	
		SMAWcf	4.6A00	
		SMAWsf	4.6A00	
		FJSVclapi	4.6.0	
		FJSVcldbm	4.6.0	
		FJSVcldev	4.6.0	
FJSVclotr	4.6.0			
4	Cluster Configuration Backup/Restore(CCBR)	SMAWccbr	4.6A00	Configuration file backup and restoration
5	Reliant Monitor Services(RMS)	SMAWRrms	4.6A00	Application takeover for operational continuity
		SMAWRdfw	4.6A00	
6	Wizard Tools(WT)	SMAWRhv-to	4.6A00	Tool for defining RMS configuration
		SMAWRhv-ba	4.6A00	
		SMAWRhv-do	4.6A00	
		SMAWRhv-de	4.6A00	
		FJSVhvgl	2.20	

No.	Component	Package	Version	Function
		FJSVhvgd	4.6.0	
7	CF Add-On(CAO)	FJSVclapm	4.6.0	CF add-on package
8	RMS Add-On(RAO)	FJSVclrms	4.6.0	RMS add-on package
		FJSVclrwz	4.6.0	
		FJSVclsfw	4.6.0	
9	SA_LKCD	FJSVcllkcd	4.6.0	LKCD shutdown agent
10	GUIs	FJSVwvfrm	4.6.0	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.

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".

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:

No.	Basic Software	Kernel	Remarks
1	Red Hat Enterprise Linux 7.2 (for Intel64)	Supports kernel-3.10.0-327.el7 or later	
2	Red Hat Enterprise Linux 7.3 (for Intel64)	Supports kernel-3.10.0-514.el7 or later	
3	Red Hat Enterprise Linux 7.4 (for Intel64)	Supports kernel-3.10.0-693.el7 or later	
4	Red Hat Enterprise Linux 7.5 (for Intel64)	Supports kernel-3.10.0-862.el7 or later	
5	Red Hat Enterprise Linux 7.6 (for Intel64)	Supports kernel-3.10.0-957.el7 or later	
6	Red Hat Enterprise Linux 8.0 (for Intel64)	Supports kernel-4.18.0-80.el8 or later	

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 C Necessary OS packages to be installed](#)" for the necessary additional packages.

Note

Set the operating system to Red Hat Enterprise Linux 7 (for Intel64) when configuring a cluster system in a FUJITSU Cloud Service for OSS environment.

2. Required software

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

[VMware environment]

No.	Software	Package	Version and/or level	Remarks
1	VMware vSphere		6.0 6.5 6.7	
2	VMware vCenter Server		6.0 6.5 6.7	Required to use the VMware vCenter Server functional cooperation.

[Red Hat OpenStack Platform environment]

No.	Software	Package	Version and/or level	Remarks
1	Red Hat OpenStack Platform		13 or later	

[FUJITSU Cloud Service for OSS environment]

None.

[PC]

It is used as a client of Web-Based Admin View and Easy Design and Configuration.

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

- Web-Based Admin View

No.	OS	Browser	Remarks
1	Windows(R) 10	Internet Explorer 11 Microsoft Edge	One of them is required.
2	Windows(R) 8.1	Internet Explorer 11	
3	Windows Server(R) 2019		
4	Windows Server(R) 2016		
5	Windows Server(R) 2012 R2		
6	Windows Server(R) 2012		

(*) To use Web-Based Admin View in FUJITSU Cloud Service for OSS environment, use the following software instead of the software mentioned above.

No.	OS	Browser	Remarks
1	Windows Server(R) 2012 R2	Internet Explorer 11	One of them is required.
2	Windows Server(R) 2012		

- Easy Design and Configuration

No.	OS	Remarks
1	Windows(R) 10	Screen resolution: 1366x768 pixel or higher.
2	Windows(R) 8.1	

3. Exclusive software

None.

4. Required patches

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 and Easy Design and Configuration.

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)
1	/	262.7
2	/usr	2.4
3	/var	0.1
4	/var/opt	0.1
5	/etc/opt	27.7
6	/opt	210.2

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	63.8	A cluster system is operated under the following conditions: - One cluster application is registered in a cluster system. Note that 2.3 MB is required for each additional cluster application. - Web-Based Admin View is operated in two-tier model.
2	/var	216.0	A clustered system is operated and start the node.
3	/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	253.2	A cluster system is operated under the following conditions: - One cluster application is registered in a cluster system. Note that 19.6 MB is required for each additional cluster application. - Web-Based Admin View is operated in two-tier model. In addition to the aforementioned user memory, 2.0 MB of kernel memory will be allocated per CPU by vmalloc.
2	Required memory for resources	Estimate the memory requirement according to the resources to be registered in the cluster application. For details, see "2.1.5.1 Required memory for resources"

2.1.5.1 Required memory for resources

2.1.5.1.1 Red Hat Enterprise Linux 7 (for Intel64)

No.	Resources	Memory
1	Cmdline resources	22 MB x ((number of resources + 1) / 2 (*))
2	Fsystem resources	22 MB x (number of resources / 5 (*))
3	RemoteFileSystems resources	22 MB x (number of resources / 3 (*))
4	Takeover network resources	24 MB x (number of resources / 10 (*))
5	Procedure resources	34 MB x number of resources
6	NFS resources	22 MB x (number of resources / 10 (*))

(*) Round up

2.1.5.1.2 Red Hat Enterprise Linux 8 (for Intel64)

No.	Resources	Memory
1	Cmdline resources	23 MB x ((number of resources + 1) / 2 (*))
2	Fsystem resources	24 MB x (number of resources / 5 (*))
3	RemoteFileSystems resources	24 MB x (number of resources / 3 (*))
4	Takeover network resources	25 MB x (number of resources / 10 (*))
5	Procedure resources	40 MB x number of resources
6	NFS resources	23 MB x (number of resources / 10 (*))

(*) Round up

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:

No.	Basic Software	Kernel	Remarks
1	Red Hat Enterprise Linux 7.2 (for Intel64)	Supports kernel-3.10.0-327.el7 or later	
2	Red Hat Enterprise Linux 7.3 (for Intel64)	Supports kernel-3.10.0-514.el7 or later	
3	Red Hat Enterprise Linux 7.4 (for Intel64)	Supports kernel-3.10.0-693.el7 or later	
4	Red Hat Enterprise Linux 7.5 (for Intel64)	Supports kernel-3.10.0-862.el7 or later	
5	Red Hat Enterprise Linux 7.6 (for Intel64)	Supports kernel-3.10.0-957.el7 or later	
6	Red Hat Enterprise Linux 8.0 (for Intel64)	Supports kernel-4.18.0-80.el8 or later	

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 C Necessary OS packages to be installed](#)" for the necessary additional packages.

2. Required software

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

[PC]

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

For details, see "3. Related hardware" of the "[2.2.2 Hardware environment](#)".

No.	OS	Browser	Remarks
1	Windows(R) 10	Internet Explorer 11 Microsoft Edge	One of them is required.

No.	OS	Browser	Remarks
2	Windows(R) 8.1	Internet Explorer 11	
3	Windows Server(R) 2019		
4	Windows Server(R) 2016		
5	Windows Server(R) 2012 R2		
6	Windows Server(R) 2012		

(*) To use Web-Based Admin View in FUJITSU Cloud Service for OSS environment, use the following software instead of the software mentioned above.

No.	OS	Browser	Remarks
1	Windows Server(R) 2012 R2	Internet Explorer 11	One of them is required.
2	Windows Server(R) 2012		

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)
1	/	0.1
2	/var	0.1

No.	Directory	Disk space (in MB)
3	/var/opt	0.1
4	/etc/opt	26.4
5	/opt	138.4

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	14.0	Required to operate Web-Based Admin View.
2	/var/tmp	500.0	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	145.0	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](#)".

This software can be also upgraded on a system where the old version is already installed. For details, see "[Appendix B Upgrading from old versions](#)".

See "[3.2 Installation on Cluster nodes \(cloud environment\)](#)" when installing in the cloud environment. In this manual, FUJITSU Cloud Service for OSS environment is abbreviated to as cloud environments.

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. 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 (node name output in `uname -n`), and the host name (node name output in `uname -n`) 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>
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>
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
::1        localhost localhost.localdomain localhost6 localhost6.localdomain6
IP-Address host-name
```


2. Check the auto startup of the NetworkManager service.

[Red Hat Enterprise Linux 7]

PRIMECLUSTER does not support the NetworkManager service in Red Hat Enterprise Linux 7.

Check the auto startup of the NetworkManager service setting.

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

```
# /usr/bin/systemctl is-enabled NetworkManager.service <Return>
disabled
```

If the setting is "enabled", disable the NetworkManager service using the following command.

```
# /usr/bin/systemctl stop NetworkManager.service <Return>
# /usr/bin/systemctl disable NetworkManager.service <Return>
```

[Red Hat Enterprise Linux 8]

Check the auto startup of the NetworkManager service setting.

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

```
# /usr/bin/systemctl is-enabled NetworkManager.service <Return>
enabled
```

If the setting is "disabled", enable the NetworkManager service using the following command.

```
# /usr/bin/systemctl start NetworkManager.service <Return>
# /usr/bin/systemctl enable NetworkManager.service <Return>
```

3. Check the "OS Status Notification" (For Red Hat Enterprise Linux 8)

When installing this software on PRIMERGY(without RX4770M3, RX1330M3, TX1320M3, TX1330M3), it is necessary that the installation of software prerequisites is completed.

- "OS Status Notification"

Follow these steps to download.

1. Open <https://support.ts.fujitsu.com/Index.asp?lng=COM> by a web browser.
 2. Enter "OS Status Notification" to the search form, and search.
 3. Download from "PRIMERGY Tools" - "PRIMERGY Specific Software".
4. To enable Secure Boot in a virtual environment, public key of PRIMECLUSTER must be registered in the system. Refer to the OS manual and the virtual environment manual to register the following public key in the system.

```
<DVD-ROM mount point>/Tool/etc/certs/fjmw_pubkey.der
```

4. Package check

1. Before installing this software, check if the necessary OS packages listed in "[Appendix C Necessary OS packages to be installed](#)" are installed on the system.

```
# rpm -qi <Package>.<Architecture> <Return>
```

If the command encounters an error, install the OS packages according to the OS document.

2. Check if the packages are installed on the system by executing the following command:

In case of Red Hat Enterprise Linux 8.0 (for Intel64) or later, check if the following packages are installed on the system by executing below command:

```
# rpm -qi policycoreutils-python-utils <Return>
# rpm -qi strace <Return>
```

If the command encounters an error, install the packages 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.

Check the default target.



- The default target before upgrading ([multi-user.target] in the following example) varies depending on the system.
- Put down the default target before upgrading as you can restore the system to the state prior to upgrading later.

```
# systemctl get-default <Return>
multi-user.target
```

The default target changes in single-user mode.

```
# systemctl set-default rescue.target <Return>
```

Start the system again in single-user mode.

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

3. Insert the DVD in the DVD drive.

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

<DVDROM_DIR> will be used as the mount point.

4. Execute the CLI installer.

[PRIMERGY physical environment]

```
# cd <DVDROM_DIR>/Tool <Return>
# ./cluster_install -e CB-PG <Return>

Installation of PRIMECLUSTER started.

PRODUCT : PCLsnap

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

The installation finished successfully.
```

[Virtual environment, Red Hat OpenStack Platform environment]

```
# cd <DVDROM_DIR>/Tool <Return>
# ./cluster_install -e CB-OT <Return>

Installation of PRIMECLUSTER started.

PRODUCT : PCLsnap

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

```
The installation finished successfully.
```

5. Eject the DVD.

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

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

The default target changes in multi-user mode.

```
# systemctl set-default multi-user.target <Return>
```

Start the system again.

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

7. Download patch(es)

Download the latest PRIMECLUSTER patch(es) and update information file from Updatesite.

8. Apply the patch(es) for this software.

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



The following messages maybe output to the console and system log during system starts, but there is no influence in operation.

[Red Hat Enterprise Linux 7.2]

```
kernel: clonltrc: module license 'Proprietary' taints kernel.
kernel: Disabling lock debugging due to kernel taint
kernel: clonltrc: module verification failed: signature and/or required key missing - tainting
kernel
```

[Red Hat Enterprise Linux 7.3 or later]

```
kernel: clonltrc: loading out-of-tree module taints kernel.
kernel: clonltrc: module license 'Proprietary' taints kernel.
kernel: Disabling lock debugging due to kernel taint
kernel: clonltrc: module verification failed: signature and/or required key missing - tainting
kernel
```

3.1.3 Environment configuration

Configure the system environment according to "3.3 PRIMECLUSTER Installation", "4.3 Preparations for Starting the Web-Based Admin View Screen", "Chapter 5 Building a cluster", and "Chapter 6 Building cluster application" of the "PRIMECLUSTER Installation and Administration Guide".

3.2 Installation on Cluster nodes (cloud environment)

This section explains cluster node installation using the CLI installer in the cloud environment.



Before installing PRIMECLUSTER, take a snapshot of the system disk.

1. 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.



When using the yum command, check that the security groups and firewall rules have been set properly.

2. Package check

Before installing this software, check if the necessary OS packages listed in "[Appendix C Necessary OS packages to be installed](#)" are installed on the system.

```
# rpm -qi <Package>.<Architecture> <Return>
```

If the command encounters an error, install the OS packages according to the OS document.



- Before installing packages in FUJITSU Cloud Service for OSS environment, it is necessary to do the settings for Red Hat Update Infrastructure. For details, refer to "FUJITSU Cloud Service for OSS IaaS Features Handbook."
- The following error message might be output and yum installation fails.

```
Protected multilib versions: *****.x86_64 != *****.i686
```

Follow the procedure below and install the x86_64 package after first updating the i686 package.

Example) If the libXp.x86_64 installation fails

```
# yum update libXp.i686 <Return>
# yum install libXp.x86_64 <Return>
```

Specify the same version as the i686 package and install the x86_64 package.

3. Correcting the /etc/hosts file

To install the Web-Based Admin View, it is necessary to edit the IP address of the public LAN (and administrative LAN) as well as its host name (node name output in `uname -n`), as well as the host name (node name output in `uname -n`) for "127.0.0.1" (for IPv4), ":::1" (for IPv6), used by the Web-Based Admin View in the /etc/hosts file.

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

```
$ sudo 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>
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>
127.0.0.1 localhost localhost.localdomain localhost4 localhost4.localdomain4
::1      localhost localhost.localdomain localhost6 localhost6.localdomain6
IP-Address host-name
```

4. Check the auto startup of the NetworkManager service.

[Red Hat Enterprise Linux 7]

PRIMECLUSTER does not support the NetworkManager service in Red Hat Enterprise Linux 7.

Check the auto startup of the NetworkManager service setting.

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

```
# /usr/bin/systemctl is-enabled NetworkManager.service <Return>
disabled
```

If the setting is "enabled", disable the NetworkManager service using the following command.

```
# /usr/bin/systemctl stop NetworkManager.service <Return>
# /usr/bin/systemctl disable NetworkManager.service <Return>
```

[Red Hat Enterprise Linux 8]

Check the auto startup of the NetworkManager service setting.

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

```
# /usr/bin/systemctl is-enabled NetworkManager.service <Return>
enabled
```

If the setting is "disabled", enable the NetworkManager service using the following command.

```
# /usr/bin/systemctl start NetworkManager.service <Return>
# /usr/bin/systemctl enable NetworkManager.service <Return>
```

5. Copy the data from the DVD and deploy it in the environment where the installation is done.

Prepare separate environments where the DVD can be set and mounted and mount the DVD.

```
Copy source system # mount -t iso9660 -r /dev/<Device file name> <DVD-ROM mountpoint> <Return>
```

Copy the entire directory under <DVD-ROM mountpoint> to all the target systems copied to. Set the directory copied to as <Directory copied to>.

Note

When you copy to the target system, use the tar command to archive and make sure that the symbolic link is not made into an actual file.

6. Execute the CLI installer.

Prepare separate environments where the DVD can be set and mounted and mount the DVD.

```
# cd <Directory copied to>/Tool <Return>
# ./cluster_install -e CB-OT <Return>
Installation of PRIMECLUSTER started.
PRODUCT : PCLsnap
Installing package <FJSVpclsnap> ... finished.
.
.
The installation finished successfully.
```

When using GLS, execute the CLI installer again to install PRIMECLUSTER GL.

```
# ./cluster_install -e PCL-GLS <Return>
Installation of PRIMECLUSTER started.
PRODUCT : GLS
.
.
The installation finished successfully.
```

7. Download the latest PRIMECLUSTER patch(es) and update information file from Updatesite.
8. Apply the corrections to PRIMECLUSTER.

For how to apply changes, refer to "Software Maintenance" in "PRIMECLUSTER Installation and Administration Guide Cloud Services", and see the points of concern in the correction information file of each correction.

3.3 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".

3.3.1 Preparations

1. Time required

It takes approximately 10 minutes to install this software.

2. Package check

Before installing this software, check if the necessary OS packages listed in "[Appendix C Necessary OS packages to be installed](#)" are installed on the system.

```
# rpm -qi <Package>.<Architecture> <Return>
```

If the command encounters an error, install the OS packages according to the OS document.

3. 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>
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>
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
::1        localhost localhost.localdomain localhost6 localhost6.localdomain6
IP-Address host-name
```

3.3.2 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.

Check the default target.



- The default target before upgrading ([multi-user.target] in the following example) varies depending on the system.
- Put down the default target before upgrading as you can restore the system to the state prior to upgrading later.

```
# systemctl get-default <Return>
multi-user.target
```

The default target changes in single-user mode.

```
# systemctl set-default rescue.target <Return>
```

Start the system again in single-user mode.

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

3. Insert the DVD in the DVD drive.

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

<DVDROM_DIR> will be used as the mount point.

4. Execute the CLI installer.

```
# cd <DVDROM_DIR>/Tool <Return>
# ./cluster_install -e CB-M <Return>

Installation of PRIMECLUSTER started.

PRODUCT : PCLsnap

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

The installation finished successfully.
```

5. Eject the DVD.

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

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

The default target changes in multi-user mode.

```
# systemctl set-default multi-user.target <Return>
```

Start the system again.

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

7. Download patch(es)

Download the latest PRIMECLUSTER patch(es) and update information file from Updatesite.

8. Apply the patch(es) for this software.

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

3.3.3 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.

Refer to "4.2 Uninstallation from Cluster nodes (cloud environment)" when uninstalling this software from the cloud environment.

4.1 Uninstallation on cluster nodes

This section explains uninstallation on cluster nodes with CLI uninstaller.



If the following products are installed, when this software is uninstalled, they are also uninstalled at the same time.

- PRIMECLUSTER GD
- PRIMECLUSTER GL

4.1.1 Preparations

1. Before uninstalling PRIMECLUSTER from the host OS where the migration function is used in KVM environment, cancel the prerequisites for using the migration function.

For details, see "G.4.1 Canceling Prerequisites" in "PRIMECLUSTER Installation and Administration Guide."

2. 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.
3. Before uninstalling this software, check the following:

1. Check if the server function of Symfoware Server(Native) is installed using the following command:

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

2. Take corrective action as instructed below if the Server function of Symfoware Server(Native) is installed.

[When Symfoware Server(Native) is installed]

1. Uninstall the middleware products that use the Server function of Symfoware Server(Native). See the manual of each middleware product.
2. Uninstall Symfoware Server(Native). See the installation guide of Symfoware Server(Native).

[When Symfoware Server(Native) is not installed]

1. Uninstall the middleware products that use the Server function of Symfoware Server(Native). See the manual of each middleware product.
2. Uninstall the Server function of Symfoware Server(Native). See the installation guide of Server function of Symfoware Server(Native).

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>
```

- If you are using GDS, cancel the GDS settings. For details see the "PRIMECLUSTER Global Disk Services Configuration and Administration Guide".
- Boot the system in single user mode.

Check the default target.

Note

- The default target before upgrading ([multi-user.target] in the following example) varies depending on the system.
- Put down the default target before upgrading as you can restore the system to the state prior to upgrading later.

```
# systemctl get-default <Return>
multi-user.target
```

The default target changes in single-user mode.

```
# systemctl set-default rescue.target <Return>
```

Start the system again in single-user mode.

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

- If you are using GDS, check the file in the /dev/sfdisk directory. If there are other files than _adm, _diag, _sysadm, and _sysdiag, delete them.
- Insert the DVD and mount the DVD device.

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

<DVDROM_DIR> will be used as the mount point.

- Execute the CLI uninstaller.

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

The uninstallation finished successfully.
```

- Eject the DVD, then reboot the system by executing the "shutdown(8)" command.

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

The default target changes in multi-user mode.

```
# systemctl set-default multi-user.target <Return>
```

Start the system again.

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

- If the blacklist of kdump or KDUMP_COMMANDLINE_APPEND is configured after this product has been installed according to the procedure described in "PRIMECLUSTER Installation" of "PRIMECLUSTER Installation and Administration Guide", restore the configuration.

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 from Cluster nodes (cloud environment)

This section explains cluster node uninstallation using the CLI installer in the cloud environment.

Note

- If the following settings were set erroneously it might not be possible to access the system. Before doing the following settings, take a snapshot of the system storage.
- When this software is uninstalled, if the following product is installed, it is also uninstalled at the same time.

- PRIMECLUSTER GL

1. Login to the system as the root user.

```
$ sudo su - <Return>
Password: password <Return>
```

2. If RMS is running, stop RMS.

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

3. If you are using GLS, reset the IP address etc. set in the GLS virtual interface to the standard NIC of the OS.

If GLS is set as follows, set sha0 to eth0. If there are multiple virtual GLS interfaces, redo the setting for all of them.

```
# /opt/FJSVhanet/usr/sbin/hanetconfig print <Return>
[IPv4,Patrol / Virtual NIC]

Name          Hostname      Mode Physical ipaddr      Interface List
+-----+-----+-----+-----+-----+
sha0                v                eth0

[IPv6]
```

```
Name          Hostname/prefix      Mode Interface List
+-----+-----+-----+-----+-----+-----+-----+
```

```
# cat /etc/sysconfig/network-scripts/ifcfg-eth0 <Return>
DEVICE=eth0
BOOTPROTO=static
UUID=<Fixed value of the environment (not necessary to change)>
HOTPLUG=no
ONBOOT=yes
DEVICETYPE=hanet
```

```
# cat /etc/sysconfig/network-scripts/ifcfg-sha0 <Return>
DEVICE=sha0
#IPADDR=
#NETMASK=
```

```

BOOTPROTO=dhcp
ONBOOT=yes
DEVICETYPE=sha
HOTPLUG=no
PEERDNS=yes
DNS1=<IP address of primary DNS server>
DNS2=<IP address of secondary DNS server>

```

Edit the ifcfg-eth0 file and the ifcfg-sha0 as follows.

- Comment out DEVICETYPE from /etc/sysconfig/network-scripts/ifcfg-eth0 and change BOOTPROTO to dhcp.

```

DEVICE=eth0
#TYPE=Ethernet
BOOTPROTO=shadhcp
UUID=<Fixed value of the environment (not necessary to change)>
HOTPLUG=no
ONBOOT=yes
#DEVICETYPE=hanet

```

- Set the ONBOOT of /etc/sysconfig/network-scripts/ifcfg-sha0 to no.

```

DEVICE=sha0
#IPADDR=
#NETMASK=
BOOTPROTO=dhcp
ONBOOT=no
DEVICETYPE=sha
HOTPLUG=no
PEERDNS=yes
DNS1=<IP address of primary DNS server>
DNS2=<IP address of secondary DNS server>

```

Edit the /etc/sysconfig/network as follow.

- Set the GATEWAYDEV of /etc/sysconfig/network to eth0.

```
GATEWAYDEV=eth0
```

- Execute the following command and stop automatic start of the RC script.

```
# /opt/FJSPclinst/bin/pclservice off <Return>
```

- Restart the system.

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

- If you are using GLS, delete the GLS settings.

```

# /opt/FJShanet/usr/sbin/hanethvrsc print <Return>
ifname      takeover-ipv4      takeover-ipv6      vlan-id/logical ip address list
+-----+-----+-----+-----+
sha0:65     172.16.0.100      -                  -

```

```

# /opt/FJShanet/usr/sbin/hanetconfig print <Return>
[IPv4,Patrol / Virtual NIC]

Name          Hostname          Mode Physical ipaddr      Interface List
+-----+-----+-----+-----+-----+
sha0          v                  eth0
[IPv6]

```

```
Name      Hostname/prefix      Mode Interface List
+-----+-----+-----+-----+
```

```
# /opt/FJSVhanet/usr/sbin/hanethvrsc delete -n sha0:65 <Return>
hanet: 00000: information: normal end.
```

```
# /opt/FJSVhanet/usr/sbin/hanetconfig delete -n sha0 <Return>
hanet: 00000: information: normal end.
```

```
# /opt/FJSVhanet/usr/sbin/hanetconfig print <Return>
[IPv4,Patrol / Virtual NIC]

Name      Hostname      Mode Physical ipaddr      Interface List
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+

[IPv6]

Name      Hostname/prefix      Mode Interface List
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+

#
```

7. Check PEERDNS, DNS1, DNS2 of /etc/sysconfig/network-scripts/ifcfg-ethX (X is 0, 1) and /etc/sysconfig/network of GATEWAYDEV and change the DNS client settings as necessary.
8. If an UpdateSite format PRIMECLUSTER correction is applied, delete this correction.
For details, see help in UpdateAdvisor (middleware) and refer to the correction information file.
9. Copy the data from the DVD and deploy it in the environment where the installation is done.
Prepare separate environments where the DVD can be set and mounted and mount the DVD.

```
Copy source system # mount -t iso9660 -r /dev/<Device file name> <DVD-ROM mountpoint> <Return>
```

Copy the entire directory under <DVD-ROM mountpoint> to all the target systems copied to. Set the directory copied to as <Directory copied to>.

Note

When you copy to the target system, use the tar command to archive and make sure that the symbolic link is not made into an actual file.

10. Execute the CLI uninstaller.

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

11. Restart the system.

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

Note

If you use GLS, the script file in the /etc/opt/FJSVhanet/script directory used by the user command execution function might not be deleted and may remain after this software has been uninstalled. This directory and file remaining will not affect the operations of the system, but if you want to delete them, use the following commands and delete them.

For the script file, remove the directory after removing or deleting the file.

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

4.3 Uninstallation on cluster management server

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

4.3.1 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.

4.3.2 Uninstallation

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

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

2. Start the system in single user mode.

Check the default target.



- The default target before upgrading ([multi-user.target] in the following example) varies depending on the system.
- Put down the default target before upgrading as you can restore the system to the state prior to upgrading later.

```
# systemctl get-default <Return>
multi-user.target
```

The default target changes in single-user mode.

```
# systemctl set-default rescue.target <Return>
```

Start the system again in single-user mode.

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

3. Insert the DVD in the DVD drive.

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

<DVDROM_DIR> will be used as the mount point.

4. Execute the CLI uninstaller.

```
# cd <DVDROM_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 the DVD, then reboot the system by executing the shutdown(8) command.

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

The default target changes in multi-user mode.

```
# systemctl set-default multi-user.target <Return>
```

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: no package to update

Description

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

Workaround

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

INFO: The installation process stopped by user request

Description

Installation process was stopped according at user's request.

Workaround

Execute the command again.

A.1.3 Error messages

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_LEAST*KB 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_LEAST* KB 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: </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: 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: 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: failed: rpm *

Description

The rpm command failed. ("*" indicates the error details.)

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. ("*" indicates the error details.)

Workaround

Put down the message then contact your Fujitsu system engineers.

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: 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: 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.

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: 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.

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.

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.

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 "[4.3.2 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

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: /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: failed: rpm *

Description

The rpm command failed. ("*" indicates the error details.)

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. ("*" indicates the error details.)

Workaround

Put down the message then contact your Fujitsu system engineers.

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: 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: 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: there exists GDS object(s)

Description

Some GDS objects are not deleted.

Workaround

Delete all the GDS objects then execute the command again.

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.

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.

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.

Appendix B Upgrading from old versions

Before upgrading, back up the entire system using the `dd(1)` command on all the nodes. Proceed this steps on the console of each system.

B.1 Upgrading cluster nodes

This section explains upgrading cluster nodes.



- If you are using Host OS failover function in your environment, upgrade both host and guest OSes. You can upgrade either the host OS or the guest OSes first.
- Before upgrading the host OS, stop the guest OSes.

B.1.1 Upgrading from PRIMECLUSTER Clustering Base 4.5A10

1. If you are using Cluster Applications, check the configuration name of RMS by executing the following command on any one of the cluster nodes. Put down the name as you can use it later.

```
# hvdisp -a | grep Configuration <Return>
Configuration: /opt/SMAW/SMAWRrms/build/<configuration_name>.us
```

2. Stop RMS if you are using Cluster Applications.

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

3. Boot each cluster node in single user mode.

Check the default target.



- The default target before upgrading ([multi-user.target] in the following example) varies depending on the system.
- Put down the default target before upgrading as you can restore the system to the state prior to upgrading later.

```
# systemctl get-default <Return>
multi-user.target
```

The default target changes in single-user mode.

```
# systemctl set-default rescue.target <Return>
```

Start the system again in single-user mode.

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

4. When update the basic software from existing environment, updating basic software, see the following document Operating Update manual.
5. Proceed the following steps on each cluster node.

1. Create a backup directory.

```
# mkdir /<mydir> <Return>
```

2. Back up the PRIMECLUSTER operating environment.

```
# cp -p /usr/opt/reliant/etc/hvipalias /<mydir> <Return>
# cp -p /var/opt/FJSVclapm/etc/Tuning_Param /<mydir> <Return>
# cp -p /etc/services /<mydir> <Return>
# crontab -u root -l > /<mydir>/crontab.bak <Return>
# cp -p /opt/FJSVwvbs/etc/webview.cnf /<mydir> <Return>
# cp -p /opt/FJSVwvbs/etc/.policy /<mydir> <Return>
# cp -p /opt/FJSVwvbs/etc/wvlocal.cnf /<mydir> <Return>
```

Check if the Plugin.html file has not been changed.

Open the /opt/FJSVwvbs/etc/Plugin.html file using vi(1) etc. then check the default value(60) is set for the following entry:Back up the GLS operating environment.

```
<PARAM NAME = Initial_wait VALUE ="60">
```

If it is different from the default value, take a note of the value.

This value will be used to restore it later.

3. If you are using GLS, back up the GLS operating environment.

```
# /opt/FJSVhanet/usr/sbin/hanetbackup -d /<mydir> <Return>
```

The backup file name is "hanetYYYYMMDD.bk". YYYYYMMDD shows information of the command execution date. (YYYY: year, MM: month, DD: day)

4. If you are using GDS, back up the GDS operating environment.

```
# cp -p /etc/sysconfig/devlabel /<mydir> <Return>
# cp -p /etc/sysconfig/devlabel.d/devname_conf /<mydir> <Return>
```

5. Insert the DVD and mount the DVD device.

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

<DVDROM_DIR> will be used as the mount point.

6. Execute the following script then delete a part of the PRIMECLUSTER package.

```
# cd <DVDROM_DIR>/Tool <Return>
# ./upgrade_uninstall <Return>
Are you sure to remove a part of PRIMECLUSTER from your system (y or n) ? y <Return>
:
:
The uninstallation finished successfully.
```

7. Execute the following cluster_install script, and install the package or overwrite it.

[PRIMERGY physical environment]

```
# cd <DVDROM_DIR>/Tool <Return>
# ./cluster_install -e CB-PG <Return>
:
:
The installation finished successfully.
```

[Virtual environment, Red Hat OpenStack Platform environment]

```
# cd <DVDROM_DIR>/Tool <Return>
# ./cluster_install -e CB-OT <Return>
:
:
The installation finished successfully.
```


Note

- The following message might be output:

```
# ./cluster_install -x xx <Return>
INFO: no package to update
```

This message indicates that the newer version of all the packages is installed, so it is not necessary to upgrade.

- While executing the cluster_install script, the following message might be output

```
# ./cluster_install -x xx <Return>
Installing package <XXXXXXXXXXXX> ... skipped.
```

This message indicates that the same version of all the packages is installed, so it is not necessary to upgrade.

8. If you are using GLS, execute the following cluster_install script, and install the package or overwrite it.

```
# cd <DVDROM_DIR>/Tool <Return>
# ./cluster_install -e PCL-GLS <Return>
:
:
The installation finished successfully.
```

9. If you are using GDS, execute the following cluster_install script, and install the package or overwrite it.

```
# cd <DVDROM_DIR>/Tool <Return>
# ./cluster_install -e PCL-GDS <Return>
:
:
The installation finished successfully.
```

10. Eject the DVD.

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

11. Restore the PRIMECLUSTER operating environment that was backed up at step 2.

```
# cp -p /<mydir>/Tuning_Param /var/opt/FJSVclapm/etc <Return>
# cp -p /<mydir>/hvipalias /usr/opt/reliant/etc <Return>
# cp -p /<mydir>/services /etc <Return>
# crontab -u root /<mydir>/crontab.bak <Return>
# cp -p /<mydir>/webview.cnf /opt/FJSVwvbs/etc/webview.cnf <Return>
# cp -p /<mydir>/policy /opt/FJSVwvbs/etc/policy <Return>
# cp -p /<mydir>/wvlocal.cnf /opt/FJSVwvbs/etc/wvlocal.cnf <Return>
```

If you find the Plugin.html file has been changed at step 2, restore the value.

There is no need to do this step if it has *not* been changed.

Edit the /opt/FJSVwvbs/etc/Plugin.html file using vi(1) etc. then write the value noted at step 2 back to the file (in the example "xx"):

```
(Example)
[Before Modification]
  <PARAM NAME = Initial_wait VALUE = "60">
[After Modification]
  <PARAM NAME = Initial_wait VALUE = "xx">
```

12. If you are using GLS, restore the GLS operating environment that was backed up at step 3.

```
# /opt/FJShanet/usr/sbin/hanetrestore -f /<mydir>/hanetYYYYMMDD.bk <Return>
```

13. If you are using GDS, restore the GDS operating environment that was backed up at step 4.

```
# cp -p /<mydir>/devlabel /etc/sysconfig/devlabel <Return>
# cp -p /<mydir>/devname_conf /etc/sysconfig/devlabel.d/devname_conf <Return>
```

14. Set the java_home environment variable of Web-Based Admin View.

```
# /etc/opt/FJShvws/etc/bin/wvSetparam java_home /opt/FJShvws/jre <Return>
```

15. Check the settings of the current automatic startup of RMS and execute the following command according to the settings.

```
# hvsetenv HV_RCSTART
1 <- Check this value.
```

If "0" is set, the automatic startup of RMS has been restricted. Go to Step 10.

If "1" is set, execute the following command to restrict the automatic startup of RMS.

```
# hvsetenv HV_RCSTART 0
# hvsetenv HV_RCSTART
0 <- Check "0" is output.
```

6. After completing step 5 on all the cluster nodes, reboot all the cluster nodes.

The default target changes in multi-user mode.

```
# systemctl set-default multi-user.target <Return>
```

Start the system again.

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

7. Download patch(es)

Download the latest PRIMECLUSTER patch(es) and update information file from Updatesite.

8. Apply the patch(es) for this software.

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

9. Check if they are all active then go to the following steps. If you are using Cluster Applications, enable the RMS setting on any one of the cluster nodes.

1. Start RMS Wizard using the following command. The configuration name is the same as that of step 1.

```
# hvw -n <configuration name> <Return>
```

2. Select "Configuration-Activate" from "Main configuration menu" then execute Activate of the RMS setting.

3. Exit RMS Wizard.

10. Change HV_RCSTART variable from "0" to "1" on all the nodes as follows:

1. If you change the settings that restrict the automatic startup of RMS in step 5-14, return the settings back to its previous settings.

```
# hvsetenv HV_RCSTART 1
# hvsetenv HV_RCSTART
1 <- Check "1" is output.
```

2. Start RMS.

```
# hvcm <Return>
```

B.2 Cluster management server upgrading

This section explains upgrading cluster management server.

B.2.1 Upgrading from PRIMECLUSTER Clustering Base 4.5A10

1. Boot all the cluster management servers in single user mode.

Check the default target.



- The default target before upgrading ([multi-user.target] in the following example) varies depending on the system.
- Put down the default target before upgrading as you can restore the system to the state prior to upgrading later.

```
# systemctl get-default <Return>
multi-user.target
```

The default target changes in single-user mode.

```
# systemctl set-default rescue.target <Return>
```

Start the system again in single-user mode.

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

2. When update the basic software from existing environment, Updating basic software, see the following document Operating Update manual.
3. Proceed the following steps on each cluster management server.

1. Create a backup directory.

```
# mkdir /<mydir> <Return>
```

2. Back up the PRIMECLUSTER operating environment.

```
# cp -p /opt/FJSVwvbs/etc/webview.cnf /<mydir> <Return>
# cp -p /opt/FJSVwvbs/etc/.policy /<mydir> <Return>
# cp -p /opt/FJSVwvbs/etc/wvlocal.cnf /<mydir> <Return>
```

Check if the Plugin.html file has not been changed.

Open the /opt/FJSVwvbs/etc/Plugin.html file using vi(1) etc. then check the default value(60) is set for the following entry:Back up the GLS operating environment.

```
<PARAM NAME = Initial_wait VALUE ="60">
```

If it is different from the default value, take a note of the value.

This value will be used to restore it later.

3. Insert the DVD and mount the DVD device.

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

<DVDROM_DIR> will be used as the mount point.

4. Execute the following script then delete part of the PRIMECLUSTER package.

```
# cd <DVDROM_DIR>/Tool <Return>
# ./upgrade_uninstall <Return>
Are you sure to remove a part of PRIMECLUSTER from your system (y or n) ? y <Return>
```

```
:  
:  
The uninstallation finished successfully.
```

5. Execute the following cluster_install script, and install the package or override it.

```
# cd <DVDROM_DIR>/Tool <Return>  
# ./cluster_install -e CB-M <Return>  
:  
:  
The installation finished successfully.
```

Note

- The following message might be output:

```
# ./cluster_install -x xx <Return>  
INFO: no package to update
```

This message indicates that the newer version of all the packages is installed, so it is not necessary to upgrade.

- While executing the cluster_install script, the following message might be output

```
# ./cluster_install -x xx <Return>  
Installing package <XXXXXXXXXXXX> ... skipped.
```

This message indicates that the same version of all the packages is installed, so it is not necessary to upgrade.

6. Eject the DVD.

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

7. Restore the PRIMECLUSTER operating environment that was backed up at step 2.

```
# cp -p /<mydir>/webview.cnf /opt/FJSVwvbs/etc/webview.cnf <Return>  
# cp -p /<mydir>/policy /opt/FJSVwvbs/etc/policy <Return>  
# cp -p /<mydir>/wvlocal.cnf /opt/FJSVwvbs/etc/wvlocal.cnf <Return>
```

If you find the Plugin.html file has been changed at step 2, restore the value.

There is no need to do this step if it has *not* been changed.

Edit the /opt/FJSVwvbs/etc/Plugin.html file using vi(1) etc. then write the value noted at step 2 back to the file (in the example "xx"):

```
(Example)  
[Before Modification]  
<PARAM NAME = Initial_wait VALUE = "60">  
[After Modification]  
<PARAM NAME = Initial_wait VALUE = "xx">
```

8. Set the java_home environment variable of Web-Based Admin View.

```
# /etc/opt/FJSVwvbs/etc/bin/wvSetparam java_home /opt/FJSVwvbs/jre <Return>
```

4. After completing step 3 on all the cluster management servers, reboot all the cluster management servers.

The default target changes in multi-user mode.

```
# systemctl set-default multi-user.target <Return>
```

Start the system again.

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

5. Download patch(es)

Download the latest PRIMECLUSTER patch(es) and update information file from Updatesite.

6. Apply the patch(es) for this software.

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

Appendix C 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.

C.1 For Red Hat Enterprise Linux 7 (for Intel64)

Package	Architecture
gdb	x86_64
glibc	i686
ipmitool (*1)	x86_64
libICE	x86_64
libvirt-client (*2)	x86_64
lsof	x86_64
make	x86_64
man-db	x86_64
net-snmp (*3)	x86_64
net-snmp-utils (*3)	x86_64
nfs-utils	x86_64
ntp (*4)	x86_64
pam-devel	x86_64
psacct	x86_64
psmisc	x86_64
python (*5)	x86_64
strace	x86_64

(*1) When using SA_ipmi, or iRMC asynchronous monitoring function.

(*2) In the case of KVM environment.

(*3) When using iRMC asynchronous monitoring function, or SA_blade.

(*4) If you use chrony this is not necessary.

(*5) When using VMware vCenter Server functional cooperation.

C.2 For Red Hat Enterprise Linux 8 (for Intel64)

Package	Architecture
chrony	x86_64
gdb	x86_64
glibc	i686
ipmitool (*1)	x86_64
libICE	x86_64
libvirt-client (*2)	x86_64
lsof	x86_64
make	x86_64

Package	Architecture
man-db	x86_64
net-snmp (*3)	x86_64
net-snmp-utils (*3)	x86_64
nfs-utils	x86_64
pam-devel	x86_64
policycoreutils-python-utils	noarch
psacct	x86_64
psmisc	x86_64
python2 (*4)	x86_64
strace	x86_64
tar	x86_64

(*1) When using SA_ipmi, or iRMC asynchronous monitoring function.

(*2) In the case of KVM environment.

(*3) When using iRMC asynchronous monitoring function, or SA_blade.

(*4) When using VMware vCenter Server functional cooperation.