

FUJITSU Software PRIMECLUSTER GD 4.6A00

Installation Guide

Linux

J2UL-2499-02ENZ0(00)
July 2020

Preface

Purpose

This manual explains how to install PRIMECLUSTER GD.

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.
- Global Disk Services is abbreviated as GDS.
- PRIMEQUEST 3000/2000 Series is abbreviated as PRIMEQUEST.

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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	FJSPclsnap	4.6.0	Tool for collecting troubleshooting information
2	Web-Based Admin View	SMAWcj2re	1.8.0	GUI common framework
		FJSVwvbs	4.6.0	
		FJSVwvmpc	4.6.0	
3	Global Disk Services(GDS)	kmod-FJSVsdx-drvcore	4.6.0	High-availability volume manager
		FJSVsdx-cmd	4.6.0	
		FJSVsdx-drv	4.6.0	
		FJSVsdx-bas	4.6.0	
		FJSVsdxma-ja	4.6.0	
		FJSVsdxma-en	4.6.0	
		FJSVsdxwv	4.6.0	
		devlabel	0.48.03	
		FJSVsdx-nm	4.6.0	

1.2 Red Hat Enterprise Linux 8 (for Intel64)

No.	Component	Package	Version	Function
1	PCLsnap	FJSPclsnap	4.6.0	Tool for collecting troubleshooting information
2	Web-Based Admin View	SMAWcj2re	1.8.0	GUI common framework
		FJSVwvbs	4.6.0	
		FJSVwvmpc	4.6.0	
3	Global Disk Services(GDS)	kmod-FJSVsdx-drvcore	4.6.0	High-availability volume manager
		FJSVsdx-cmd	4.6.0	
		FJSVsdx-drv	4.6.0	
		FJSVsdx-bas	4.6.0	
		FJSVsdxma-ja	4.6.0	
		FJSVsdxma-en	4.6.0	

No.	Component	Package	Version	Function
		FJSVsdxwv	4.6.0	
		devlabel	0.48.03	
		FJSVsdx-nm	4.6.0	

Chapter 2 Operation Environment

This chapter explains the operation environment of this software.

2.1 Software environment

1. Basic software prerequisites

Install the following software product:

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

System disk mirroring using GDS requires installation of the operating system in UEFI mode.

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	

[Red Hat OpenStack Platform environment]

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

[PC]

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

For details, see "3. Related hardware" of the "[2.2 Hardware environment](#)".

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		

3. Exclusive software

None.

4. Required patches

None.

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.

2.3 Static disk resources

This section explains static disk space requirements for this software.

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	/	0.3
2	/usr	0.1
3	/var	0.1
4	/var/opt	0.1

No.	Directory	Disk space (in MB)
5	/etc/opt	168.5
6	/opt	157.1

2.3.2 Required work area

None.

2.4 Dynamic disk resources

This section explains dynamic disk space requirements for this software.

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 "2.3 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/opt	55.0	When a volume of a GDS local class has been created and GDS Management View has been started.

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	88.6	GDS shared class is configured.

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 Preparations

1. Time required

It takes approximately 5 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. Check if you have sufficient free space on your disk. For the size of the disk, see "[2.3 Static disk resources](#)". If there is not enough free disk space, set the disk partition configuration again.
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 (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.localhostdomain4
::1        host-name localhost localhost.localdomain localhost6 localhost6.localdomain6
```

[After change]

```
# cat /etc/hosts <Return>
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localhostdomain4
::1        localhost localhost.localdomain localhost6 localhost6.localdomain6
IP-Address  host-name
```

3. 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>
```

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:

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

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

In case of Red Hat Enterprise Linux 7.4 (for Intel64) or later, and when using GDS on a system with firmware in UEFI mode, check if the following package is installed on the system by executing below command:

```
# rpm -qi grub2-efi-x64-modules <Return>
```

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

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

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

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.

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>
```

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. When the package is already installed, it is a same procedure.

```
# cd <DVDROM_DIR>/Tool <Return>
# ./cluster_install -e PCL-GDS <Return>
```

Installation of PRIMECLUSTER started.

.
.

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 Environment configuration

Configure the system environment according to the "PRIMECLUSTER Global Disk Services Configuration and Administration Guide".

Chapter 4 Uninstallation

This chapter explains the uninstallation of this software.

4.1 Preparations

1. Uninstall GDS Snapshot and GDS I/O Monitor Option if one or all of them are installed on the system. For information on how to uninstall these products, refer to the installation guide of each product.
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.

4.2 Uninstallation

1. Login to the system as the root user.

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

2. If you are using GDS, cancel the GDS settings. For details see the "PRIMECLUSTER Global Disk Services Configuration and Administration Guide".
3. 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>
```

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 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 CLI uninstaller.

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

```
The uninstallation finished successfully.
```

If the following message appears and uninstallation fails, take corrective action according to "[A.2.4 When "there exists GDS object\(s\)" appears and uninstallation fails](#)" then perform step 6 again.

```
ERROR: there exists GDS object(s)
Uninstallation failed.
```

7. Eject 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>
```

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

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 "4.2 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 "4.2 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.

A.2.4 When "there exists GDS object(s)" appears and uninstallation fails

If the following message appears and uninstallation fails, take the corrective steps described as the resolution below.

Message

```
ERROR: there exists GDS object(s)
Uninstallation failed.
```

Resolution

1. Check whether there are GDS classes using the `sdxinfo` command. If any, delete the classes. For the class deletion method, see the "PRIMECLUSTER Global Disk Services Configuration and Administration Guide".
2. Check the file in the `/etc/opt/FJVSdx/sysdb.d` directory using the `ls(1)` command. If there are other files than `class.db`, delete the files by executing the `rm(1)` command.
3. Check the file in the `/dev/sfdsk` directory using the `ls(1)` command. If there are other files or directories than `_adm`, `_diag`, `_sysadm`, and `_sysdiag`, delete the files and the directories.
4. Perform the procedure of "4.2 Uninstallation" from step 5 again.

Appendix B Upgrading from old versions

This section explains how to upgrade PRIMECLUSTER GD which has been installed on a single server. In case of a cluster system, see the installation guide of the cluster product.

Note

When upgrading in a system where `/etc/modprobe.d/gds.conf` file exists and `"options sfdsksys sfdsksys_major = <major>"` is specified, perform the following operation.

[pre-upgrade]

- Delete the `/etc/modprobe.d/gds.conf` file.
- Cancel the mirroring of the system disk.

[after-upgrade]

If the mirroring of the system disk has been canceled in the pre-upgrade operation, upgrade the cluster node and then set mirroring again.

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

1. 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>
```

2. When update the basic software from existing environment, updating basic software, see the following document Operating Update manual.
3. Proceed the following steps.

1. Create a backup directory.

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

2. Back up the PRIMECLUSTER Web-Based Admin View 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. 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. 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 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.

```
# cd <DVDROM_DIR>/Tool <Return>
# ./cluster_install -e PCL-GDS <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. Eject DVD.

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

10. Restore the PRIMECLUSTER Web-Based Admin View 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">
```

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

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

12. 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>
```

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

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

4. Reboot the system.

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 GD 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
efibootmgr	x86_64
gdb	x86_64
grub2-efi-x64-modules (*1)	noarch
iscsi-initiator-utils (*2)	x86_64
pam-devel	x86_64
ruby	x86_64
targetcli (*2)	noarch

(*1) In case of Red Hat Enterprise Linux 7.4 (for Intel64) or later, and when using GDS on a system with firmware in UEFI mode.

(*2) When using the mirroring among the servers of GDS.

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

Package	Architecture
efibootmgr	x86_64
gdb	x86_64
grub2-efi-x64-modules (*1)	noarch
iscsi-initiator-utils (*2)	x86_64
pam-devel	x86_64
ruby	x86_64
rubygems	noarch
tar	x86_64
targetcli (*2)	noarch

(*1) When using GDS on a system with firmware in UEFI mode.

(*2) When using the mirroring among the servers of GDS.