

# **FUJITSU Software PRIMECLUSTER GDS 4.4A00**

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-2100-03ENZ0(01)  
December 2017

# Preface

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## Purpose

This manual explains how to install PRIMECLUSTER GDS.

## 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) Vista operating system is abbreviated as Windows(R) Vista.
- Microsoft(R) Windows(R) 7 operating system is abbreviated as Windows(R) 7.
- Microsoft(R) Windows(R) 8.1 operating system is abbreviated as Windows(R) 8.1.
- Microsoft(R) Windows(R) 10 operating system is abbreviated as Windows(R) 10.
- Global Disk Services is abbreviated as GDS.

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## Editing record

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"Appendix C Necessary OS packages to be installed" has been modified.	C.3	J2UL-2100-03ENZ0(01) J2UL-2100-03ENZ2(01)

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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.

## PRIMEQUEST

- Red Hat Enterprise Linux 6 (for x86)
- Red Hat Enterprise Linux 6 (for Intel64)
- Red Hat Enterprise Linux 7 (Intel64)

## 1.1 Red Hat Enterprise Linux 6 (for x86) for PRIMEQUEST

No.	Component	Package	Version	Function
1	PCLsnap	FJSVpclsnap	4.4.0	Tool for collecting troubleshooting information
2	Web-Based Admin View	SMAWcj2re	1.7.0	GUI common framework
		FJSVwvbs	4.4.0	
		FJSVwvmpc	4.4.0	
3	Global Disk Services(GDS)	kmod-FJSVsdx-drvcore	4.4.0	High-availability volume manager
		FJSVsdx-cmd	4.3.1	
		FJSVsdx-drv	4.4.0	
		FJSVsdx-bas	4.4.0	
		FJSVsdxma-ja	4.3.4	
		FJSVsdxma-en	4.3.4	
		FJSVsdxwv	4.4.0	
		devlabel	0.48.03	
		FJSVsdx-nm	4.4.0	

## 1.2 Red Hat Enterprise Linux 6 (for Intel64) for PRIMEQUEST

No.	Component	Package	Version	Function
1	PCLsnap	FJSVpclsnap	4.4.0	Tool for collecting troubleshooting information
2	Web-Based Admin View	SMAWcj2re	1.7.0	GUI common framework
		FJSVwvbs	4.4.0	
		FJSVwvmpc	4.4.0	
3	Global Disk Services(GDS)	kmod-FJSVsdx-drvcore	4.4.0	High-availability volume manager
		FJSVsdx-cmd	4.3.1	
		FJSVsdx-drv	4.4.0	
		FJSVsdx-bas	4.4.0	

No.	Component	Package	Version	Function
		FJSVsdxma-ja	4.3.4	
		FJSVsdxma-en	4.3.4	
		FJSVsdxwv	4.4.0	
		devlabel	0.48.03	
		FJSVsdx-nm	4.4.0	

### **1.3 Red Hat Enterprise Linux 7 (for Intel64) for PRIMEQUEST**

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No.	Component	Package	Version	Function
1	PCLsnap	FJSVpclsnap	4.4.0	Tool for collecting troubleshooting information
2	Web-Based Admin View	SMAWcj2re	1.7.0	GUI common framework
		FJSVwvbs	4.4.0	
		FJSVwvmpc	4.4.0	
3	Global Disk Services(GDS)	kmod-FJSVsdx-drvcore	4.4.0	High-availability volume manager
		FJSVsdx-cmd	4.3.4	
		FJSVsdx-drv	4.4.0	
		FJSVsdx-bas	4.4.0	
		FJSVsdxma-ja	4.3.4	
		FJSVsdxma-en	4.3.4	
		FJSVsdxwv	4.4.0	
		devlabel	0.48.03	

# 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	Errata
1	Red Hat Enterprise Linux 6.2 (for x86)	Supports kernel-2.6.32-220.4.2.el6 or later	RHBA-2012:0124-1 or later (*1) (*2)
2	Red Hat Enterprise Linux 6.3 (for x86)	Supports kernel-2.6.32-279.22.1.el6 or later	RHSA-2013:0223-1 or later (*1)
3	Red Hat Enterprise Linux 6.4 (for x86)	Supports kernel-2.6.32-358.6.1.el6 or later	RHSA-2013:0744-1 or later (*1)
4	Red Hat Enterprise Linux 6.5 (for x86)	Supports kernel-2.6.32-431.el6 or later	
5	Red Hat Enterprise Linux 6.6 (for x86)	Supports kernel-2.6.32-504.el6 or later	
6	Red Hat Enterprise Linux 6.7 (for x86)	Supports kernel-2.6.32-573.el6 or later	
7	Red Hat Enterprise Linux 6.8 (for x86)	Supports kernel-2.6.32-642.el6 or later	
8	Red Hat Enterprise Linux 6.2 (for Intel64)	Supports kernel-2.6.32-220.4.2.el6 or later	RHBA-2012:0124-1 or later (*1) (*2)
9	Red Hat Enterprise Linux 6.3 (for Intel64)	Supports kernel-2.6.32-279.22.1.el6 or later	RHSA-2013:0223-1 or later (*1)
10	Red Hat Enterprise Linux 6.4 (for Intel64)	Supports kernel-2.6.32-358.6.1.el6 or later	RHSA-2013:0744-1 or later (*1)
11	Red Hat Enterprise Linux 6.5 (for Intel64)	Supports kernel-2.6.32-431.el6 or later	
12	Red Hat Enterprise Linux 6.6 (for Intel64)	Supports kernel-2.6.32-504.el6 or later	
13	Red Hat Enterprise Linux 6.7 (for Intel64)	Supports kernel-2.6.32-573.el6 or later	
14	Red Hat Enterprise Linux 6.8 (for Intel64)	Supports kernel-2.6.32-642.el6 or later	
15	Red Hat Enterprise Linux 7 (for Intel64)	Supports kernel-3.10.0-123.el7 or later	
16	Red Hat Enterprise Linux 7.1 (for Intel64)	Supports kernel-3.10.0-229.el7 or later	RHBA-2015:0738-1 or later (*3)

No.	Basic Software	Kernel	Errata
17	Red Hat Enterprise Linux 7.2 (for Intel64)	Supports kernel-3.10.0-327.el7 or later	
18	Red Hat Enterprise Linux 7.3 (for Intel64)	Supports kernel-3.10.0-514.el7 or later	

(\*1) Please apply to all the OS's where this software is installed.

(\*2) In the KVM environment, whether this software is installed or not on the host OS, be sure to apply this patch to the host OS.

(\*3) Please apply to all the OS's where this software is installed and PRIMECLUSTER GDS is used.

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

This software, when operating on the above software, requires additional packages to be added besides the packages which are installed with a minimum OS option installation. Please refer to "Appendix B. Necessary OS packages to be installed" for the necessary additional packages.

## Note

System disk mirroring using GDS requires installation of the operating system in UEFI mode. Please use ServerView Installation Manager (SVIM) for installing the operating system. In case of installing it in UEFI mode, please use the version of SVIM V10.11.07 or later and supported in the environment to be used.

## 2. Required software

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

No.	Software	Package	Version and/or level	Remarks
1	PRIMECLUSTER Clustering Base		4.4A00	Required to use the GDS mirroring function among servers.
2	The SCSI target daemon and utility programs	scsi-target-utils		Required to use the GDS mirroring function among servers on Red Hat Enterprise Linux 6.
3	Utilities for devices that use SCSI command sets	sg3_utils		Required to use the GDS mirroring function among servers on Red Hat Enterprise Linux 6.
4	The administration shell for storage targets	targetcli		Required to use the GDS mirroring function among servers on Red Hat Enterprise Linux 7.

GDS: Global Disk Services

- PC

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

For details, see "3. Related hardware" of the "Hardware environment".

No.	Software	Package	Version and/or level	Remarks
1	Windows(R) Vista, Windows(R) 7,			One of them is required.



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

3. Exclusive software

None.

## 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)	Remarks
1	/	96.6	
2	/usr	0.1	
3	/var	1.1	
4	/var/opt	0.2	
5	/etc/opt	13.5	
6	/opt	176.0	

### 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	When a volume of a GDS local class has been created and GDS Management View has been started.

GDS: Global Disk Services

## 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.

GDS: Global Disk Services

# 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, and the host name corresponding to "127.0.0.1"(for IPv4) and "::1"(for IPv6).

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

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

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

Before change)

```
# cat /etc/hosts <Return>
# Do not remove the following line, or various programs
# that require network functionality will fail.
127.0.0.1    host-name localhost localhost.localdomain localhost4
localhost4.localhostmain4
::1        host-name localhost localhost.localdomain localhost6 localhost6.localhostmain6
```

After change)

```
# cat /etc/hosts <Return>
# Do not remove the following line, or various programs
# that require network functionality will fail.
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localhostmain4
::1        localhost localhost.localdomain localhost6 localhost6.localhostmain6
IP-Address  host-name
```

3. Check the auto startup of the NetworkManager service.

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

Red Hat Enterprise Linux 6

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

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

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

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

Red Hat Enterprise Linux 7

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

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

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

```
# /usr/bin/systemctl stop NetworkManager.service
# /usr/bin/systemctl disable NetworkManager.service
```

#### 4. Package check

In case of Red Hat Enterprise Linux 6 (for Intel64) or later, also check if the following package is installed on the system by executing below command:

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

If the command encounters an error, install the package 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.

[Red Hat Enterprise Linux 6]

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

### Note

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

[Before Modification]

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

```
# 3 - Full multiuser mode
# 4 - unused
# 5 - X11
# 6 - reboot (Do NOT set initdefault to this)
#
id:3:initdefault:
```

[After Modification]

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

Start the system again in single-user mode.

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

[Red Hat Enterprise Linux 7]

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>
rm '/etc/systemd/system/default.target'
ln -s '/usr/lib/systemd/system/rescue.target' '/etc/systemd/system/default.target'
```

Start the system again in single-user mode.

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

3. Insert 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 DVD.

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

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

```
[Red Hat Enterprise Linux 6]
```

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

```
[Before Modification]
```

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

```
[After Modification]
```

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

Start the system again.

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

```
[Red Hat Enterprise Linux 7]
```

The default target changes in multi-user mode.

```
# systemctl set-default multi-user.target <Return>
rm '/etc/systemd/system/default.target'
ln -s '/usr/lib/systemd/system/multi-user.target' '/etc/systemd/system/default.target'
```

Start the system again.

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

## 7. Patch download

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

 **Note**

- Please do not apply the following patches.

[Red Hat Enterprise Linux 7 (for Intel64)]  
T013098LP-01

8. Please apply the patch for PRIMECLUSTER.

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

## **3.3 Environment configuration**

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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 if it is installed on the system. For information on how to uninstall GDS Snapshot, refer to the "Installation Guide for PRIMECLUSTER(TM) GDS Snapshot".
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.

```
[Red Hat Enterprise Linux 6]
```

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

### Note

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

[Before Modification]

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

[After Modification]

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



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

Start the system again in single-user mode.

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

[Red Hat Enterprise Linux 7]

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>  
rm '/etc/systemd/system/default.target'  
ln -s '/usr/lib/systemd/system/rescue.target' '/etc/systemd/system/default.target'
```

Start the system again in single-user mode.

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

4. 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.
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](#)" 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>
```

[Red Hat Enterprise Linux 6]

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

[Before Modification]

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

[After Modification]

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

Start the system again.

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

[Red Hat Enterprise Linux 7]

The default target changes in multi-user mode.

```
# systemctl set-default multi-user.target <Return>
rm '/etc/systemd/system/default.target'
ln -s '/usr/lib/systemd/system/multi-user.target' '/etc/systemd/system/default.target'
```

Start the system again.

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

# Appendix A Troubleshooting

This chapter explains how to address problems that occur.

## A.1 CLI installer

This section explains CLI installer.

### A.1.1 Log file

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

- /var/log/install/cluster\_install

### A.1.2 Information messages

#### INFO: The installation process stopped by user request

##### Description

Installation process was stopped according at user's request.

##### Workaround

Execute the command again.

#### INFO: no package to update

##### Description

Since the package same as that in 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.

### A.1.3 Error messages

#### Installation failed

##### Description

Installation failed.

##### Workaround

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

#### ERROR: syntax error

##### Description

An incorrect option was specified.

##### Workaround

Correct the option then execute the command again.

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

##### Description

An incorrect option was specified.  
Installation of the product set <PSET> is not supported for this software.

## Workaround

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

---

### **ERROR: </usr/sbin/dmidecode> command not found**

#### Description

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

#### Workaround

Check if the OS is installed with a right procedure.

---

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

#### Description

The command was executed by a non-root user.

#### Workaround

Execute the command using root user access privileges.

---

### **ERROR: /tmp needs *TMP\_LEASTKB* at least**

#### Description

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

#### Workaround

Reserve at least *TMP\_LEASTKB* on the /tmp file system then execute the command again.

---

### **ERROR: /var needs *VAR\_LEASTKB* at least**

#### Description

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

#### Workaround

Reserve at least *VAR\_LEASTKB* on the /var file system then execute the command again.

---

### **ERROR: /tmp not writable**

#### Description

Creation of a temporary file in /temp failed.

#### Workaround

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

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

---

### **ERROR: CF driver is loaded**

#### Description

The CF driver is loaded.

#### Workaround

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

---

### **ERROR: the installation process is running now**

## Description

The other installation process is running.

## Workaround

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

## Note

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

---

## **ERROR: platform <PLAT> not supported**

### Description

This software is not supported.

### Workaround

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

---

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

### Description

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

### Workaround

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

---

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

### Description

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

### Workaround

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

---

## **ERROR: failed: rpm \***

### Description

The rpm command failed.

### Workaround

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

---

## **ERROR: internal error: \***

### Description

An internal error occurred.

### Workaround

Put down the message then contact your Fujitsu system engineers.

---

**Please see the following log file.**  
**[/var/log/install/cluster\\_install](#)**

## Description

See the /var/log/install/cluster\_install log file.

## Workaround

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

---

### ERROR: Failed to install FJQSS<Information Collection Tool>

## Description

Installation of FJQSS failed.

## Workaround

Collect the following information then contact your Fujitsu system engineers.

- /tmp/fjqssinstaller.log

---

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

## Description

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

## Workaround

Please confirm whether there is required patch of PRIMECLUSTER corresponding to the kernel version of OS. If the patch is existing, please apply the patch and execute "rpm -V --nodigest --nofiles --noscripts --nosignature <PackageName >" afterwards. When nothing is output, it means the execution of the CLI installer succeeded. Please perform the subsequent procedure.

If the above action fails to solve the problem, put down the message then contact your Fujitsu system engineers.

---

## A.1.4 When segmentation violation causes an installation failure

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

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

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

2. Delete PRIMECLUSTER from the system according to "4.2 Uninstallation".
3. Execute the following command.

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

4. Install PRIMECLUSTER again.

---

## A.2 CLI uninstaller

This section explains CLI uninstaller.

---

### A.2.1 Log file

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

- /var/log/install/cluster\_uninstall

---

### A.2.2 Information messages

---

**INFO: no package to uninstall**

## Description

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

## Workaround

None.

---

### **INFO: The uninstallation process stopped by user request**

## Description

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

## Workaround

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

---

## **A.2.3 Error messages**

---

### **Uninstallation failed.**

## Description

Uninstallation failed.

## Workaround

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

---

### **ERROR: syntax error**

## Description

The incorrect option was specified.

## Workaround

Correct the option and execute the command again.

---

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

## Description

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

## Workaround

Run the command with the right option.

---

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

## Description

The command was executed by a non-root user.

## Workaround

Execute the command with root user access privileges.

---

### **ERROR: /tmp needs TMP\_LEAST KB at least**

## Description

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

## Workaround

Reserve at least *TMP\_LEASTKB* on the /tmp file system then execute the command again.

---

### **ERROR: /tmp not writable**

#### Description

Creation of a temporary file in /tmp failed.

#### Workaround

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

Example: If the file system including /tmp is mounted as a read-only file system, make /tmp 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: there exists GDS object(s)**

#### Description

Some GDS objects are not deleted.

#### Workaround

Delete all the GDS objects then execute the command again.

---

### **ERROR: the installation process is running now**

#### Description

The other installation process is being executed.

#### Workaround

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

#### Note

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

---

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

#### Description

The product set <PROD> package is invalid.



## Workaround

Specify a correct command option then execute the command again.

---

### **ERROR: failed: rpm \***

#### Description

The rpm command failed.

#### Workaround

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

---

### **ERROR: internal error: \***

#### Description

An internal error occurred.

#### Workaround

Put down the message then contact your Fujitsu system engineers.

---

### **Please see the following log file. /var/log/install/cluster\_uninstall**

#### Description

See the /var/log/install/cluster\_uninstall log file.

#### Workaround

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

---

## **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/FJSVsdx/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 GDS which has been installed on a single server. In case of a cluster system, see the installation guide of the cluster product.

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.

```
[Red Hat Enterprise Linux 6]
```

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

### Note

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

```
[Before Modification]
```

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

```
[After Modification]
```

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

Start the system again in single-user mode.

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

```
[Red Hat Enterprise Linux 7]
```

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>
rm '/etc/systemd/system/default.target'
ln -s '/usr/lib/systemd/system/rescue.target' '/etc/systemd/system/default.target'
```

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. In case of Red Hat Enterprise Linux 6 (for Intel64), 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. In case of Red Hat Enterprise Linux 6 (for Intel64), 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>
```

4. Reboot the system.

[Red Hat Enterprise Linux 6]

Edit the contents of the id entry of the /etc/inittab file, which has been changed in Step 3, to the original contents to start the system in multi-user mode.

[Before Modification]

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

[After Modification]

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

Start the system again.

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

[Red Hat Enterprise Linux 7]

The default target changes in multi-user mode.

```
# systemctl set-default multi-user.target <Return>
rm '/etc/systemd/system/default.target'
ln -s '/usr/lib/systemd/system/multi-user.target' '/etc/systemd/system/default.target'
```

Start the system again.

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

5. Patch download

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

 **Note**

- Please do not apply the following patches.

[Red Hat Enterprise Linux 7 (for Intel64)]  
T013098LP-01

6. Please apply the patch for PRIMECLUSTER GDS.

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

## 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 6 (for x86)

Package	Architecture
OpenIPMI	i686
OpenIPMI-libs	i686
alsa-lib	i686
at	i686
autoconf	noarch
bc	i686
bind	i686
bind-utils	i686
compat-libstdc++-33	i686
cpp	i686
crash	i686
cvs	i686
device-mapper	i686
device-mapper-multipath	i686
dhcp	i686
docbook-utils	noarch
dump	i686
eatables	i686
ed	i686
eject	i686
fontconfig	i686
freetype	i686
ftp	i686
gcc	i686
gdb	i686
ghostscript	i686
graphviz	i686
hdparm	i686
httpd	i686
httpd-tools	i686
indent	i686
ipmitool	i686
iscsi-initiator-utils	i686

Package	Architecture
iw	i686
kernel-devel	i686
kernel-headers	i686
kexec-tools	i686
libICE	i686
libSM	i686
libX11	i686
libXau	i686
libXext	i686
libXft	i686
libXi	i686
libXmu	i686
libXp	i686
libXrender	i686
libXt	i686
libXtst	i686
libjpeg/libjpeg-turbo(*1)	i686
libpng	i686
libproxy-bin	i686
libreport	i686
libvirt-client	i686
libxcb	i686
lsof	i686
lvm2	i686
make	i686
man	i686
mlocate	i686
mod_wsgi	i686
mt-st	i686
mtools	i686
mtr	i686
mysql-server	i686
nc	i686
net-snmp	i686
net-snmp-utils	i686
nfs-utils	i686
ntp	i686
openmotif	i686
openmotif22	i686



Package	Architecture
opensp	i686
openssh-clients	i686
openssl098e	i686
pam-devel	i686
parted	i686
patch	i686
pciutils	i686
perl	i686
perl-libwww-perl	noarch
pinfo	i686
prelink	i686
procmail	i686
psacct	i686
quota	i686
rpcbind	i686
rsh	i686
samba-common	i686
scsi-target-utils	i686
setuptool	i686
sg3_utils	i686
strace	i686
subversion	i686
sysstat	i686
tcpdump	i686
telnet	i686
time	i686
tree	i686
vconfig	i686
vim-common	i686
xinetd	i686
xorg-x11-apps	i686
xorg-x11-server-Xorg	i686
xorg-x11-server-utils	i686
xterm	i686
xz	i686
zip	i686

(\*1) For Red Hat Enterprise Linux 6.3 or earlier, use the libjpeg package.  
For Red Hat Enterprise Linux 6.4 or later, use the libjpeg-turbo package.

## C.2 For Red Hat Enterprise Linux 6 (for Intel64)

---

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

Package	Architecture
kernel-devel	x86_64
kernel-headers	x86_64
kexec-tools	x86_64
libICE	x86_64
libSM	x86_64
libX11	i686
libX11	x86_64
libXau	i686
libXau	x86_64
libXext	i686
libXext	x86_64
libXft	x86_64
libXi	i686
libXi	x86_64
libXmu	x86_64
libXp	x86_64
libXrender	x86_64
libXt	x86_64
libXtst	i686
libXtst	x86_64
libgcc	i686
libjpeg/libjpeg-turbo(*1)	x86_64
libpng	x86_64
libstdc++	i686
libvirt-client	x86_64
libxcb	x86_64
lsof	x86_64
lvml2	x86_64
make	x86_64
man	x86_64
mlocate	x86_64
mt-st	x86_64
mtools	x86_64
mtr	x86_64
nc	x86_64
net-snmp	x86_64
net-snmp-utils	x86_64
nfs-utils	x86_64
ntp	x86_64

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

(\*1) For Red Hat Enterprise Linux 6.3 or earlier, use the libjpeg package.  
For Red Hat Enterprise Linux 6.4 or later, use the libjpeg-turbo package.

## **C.3 For Red Hat Enterprise Linux 7 (for Intel64)**

---

Package	Architecture
ImageMagick	x86_64
OpenIPMI	x86_64
OpenIPMI-libs	x86_64
PyQt4-devel	x86_64
alsa-lib	i686
at	x86_64
audit-libs	i686
autoconf	noarch
bc	x86_64
bind	x86_64
bind-utils	x86_64
cpp	x86_64
crash	x86_64
device-mapper-multipath	x86_64
dialog	x86_64
docbook-utils	noarch
ed	x86_64
efibootmgr	x86_64
fontconfig	i686
fontconfig	x86_64
gcc	x86_64
gdb	x86_64
ghostscript	x86_64
glibc	i686
graphviz	x86_64
httpd	x86_64
httpd-tools	x86_64
indent	x86_64
ipmitool	x86_64
iscsi-initiator-utils	x86_64
iw	x86_64
kernel-devel	x86_64
kernel-headers	x86_64
libICE	x86_64
libSM	x86_64
libX11	i686
libX11	x86_64
libXau	i686
libXau	x86_64

Package	Architecture
libXext	i686
libXext	x86_64
libXft	x86_64
libXi	i686
libXi	x86_64
libXmu	x86_64
libXp	x86_64
libXrender	x86_64
libXt	x86_64
libXtst	i686
libXtst	x86_64
libgcc	i686
libjpeg-turbo	x86_64
libpng	x86_64
libreport	x86_64
libstdc++	i686
libvirt-client	x86_64
libxcb	x86_64
lsof	x86_64
m4	x86_64
mlocate	x86_64
motif	x86_64
motif-devel	x86_64
mt-st	x86_64
mtools	x86_64
mtr	x86_64
net-snmp	x86_64
net-snmp-utils	x86_64
nfs-utils	x86_64
ntp	x86_64
opensp	i686
pam-devel	x86_64
patch	x86_64
pciutils	x86_64
perl	x86_64
perl-libwww-perl	noarch
pinfo	x86_64
prelink	x86_64
psacct	x86_64

Package	Architecture
psmisc	x86_64
quota	x86_64
rpcbind	x86_64
ruby	x86_64
samba-common	x86_64/noarch(*1)
setuptool	x86_64
strace	x86_64
subversion	x86_64
sysstat	x86_64
targetcli	noarch
tcpdump	x86_64
time	x86_64
xorg-x11-server-utils	x86_64
xterm	x86_64

(\*1) For Red Hat Enterprise Linux 7.1 or earlier, use x86\_64.  
For Red Hat Enterprise Linux 7.2 or later, use noarch.