

FUJITSU Software PRIMECLUSTER GDS 4.3A30



Installation Guide

Linux

J2UL-1392-03ENZ0(01) April 2014

Preface

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 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) XP operating system is abbreviated as Windows(R) XP.
- 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 operating system is abbreviated as Windows(R) 8.
- Global Disk Services is abbreviated as GDS.
- Cluster Foundation is abbreviated as CF.

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Chapter 1 Program components

A system consists of programs, and each program is referred to as a package. This chapter explains about the packages of which this software is composed.

PRIMEQUEST

- Red Hat Enterprise Linux 5 (for x86)
- Red Hat Enterprise Linux 5 (for Intel64)
- Red Hat Enterprise Linux 5 (for Intel64) xen kernel
- Red Hat Enterprise Linux 6 (for x86)
- Red Hat Enterprise Linux 6 (for Intel64)

1.1 Red Hat Enterprise Linux 5 (for x86) for PRIMEQUEST

No.	Component	Package	Version	Function
1	PCLsnap	FJSVpclsnap	4.3.0	Tool for collecting troubleshooting information
2	Web-Based Admin	SMAWcj2re	1.7.0	GUI common
	View	FJSVwvbs	4.3.3	framework
		FJSVwvmpc	4.3.3	
3	Global Disk Services(GDS)	kmod-FJSVsdx- drvcore-PAE	4.3.3	High-availability volume manager
		FJSVsdx-cmd	4.2.3	
		FJSVsdx-drv	4.2.3	
		FJSVsdx-bas	4.3.3	
		FJSVsdxma-ja	4.3.3	
		FJSVsdxma-en	4.3.3	
		FJSVsdxwv	4.3.30	
		devlabel	0.48.03	

1.2 Red Hat Enterprise Linux 5 (for Intel64) for PRIMEQUEST

No.	Component	Package	Version	Function
1	PCLsnap	FJSVpclsnap	4.3.0	Tool for collecting troubleshooting information
2	Web-Based Admin	SMAWcj2re	1.7.0	GUI common
	View	FJSVwvbs	4.3.3	framework
		FJSVwvmpc	4.3.3	
3	Global Disk Services(GDS)	kmod-FJSVsdx- drvcore	4.3.3	High-availability volume manager
		FJSVsdx-cmd	4.2.3	
		FJSVsdx-drv	4.2.3	

No.	Component	Package	Version	Function
		FJSVsdx-bas	4.3.3	
		FJSVsdxma-ja	4.3.3	
		FJSVsdxma-en	4.3.3	
		FJSVsdxwv	4.3.30	
		devlabel	0.48.03	

1.3 Red Hat Enterprise Linux 5 (for Intel64) xen kernel for PRIMEQUEST

No.	Component	Package	Version	Function
1	PCLsnap	FJSVpclsnap	4.3.0	Tool for collecting troubleshooting information
2	Web-Based Admin	SMAWcj2re	1.7.0	GUI common
	View	FJSVwvbs	4.3.3	framework
		FJSVwvmpc	4.3.3	
3	Global Disk Services(GDS)	kmod-FJSVsdx- drvcore-xen	4.3.3	High-availability volume manager
		FJSVsdx-cmd	4.2.3	
		FJSVsdx-drv	4.2.3	
		FJSVsdx-bas	4.3.3	
		FJSVsdxma-ja	4.3.3	
		FJSVsdxma-en	4.3.3	
		FJSVsdxwv	4.3.30	
		devlabel	0.48.03	

1.4 Red Hat Enterprise Linux 6 (for x86) for PRIMEQUEST

No.	Component	Package	Version	Function
1	PCLsnap	FJSVpclsnap	4.3.0	Tool for collecting troubleshooting information
2	Web-Based Admin	SMAWcj2re	1.7.0	GUI common
	View	FJSVwvbs	4.3.3	framework
		FJSVwvmpc	4.3.3	
3	Global Disk Services(GDS)	kmod-FJSVsdx- drvcore	4.3.3	High-availability volume manager
		FJSVsdx-cmd	4.3.1	
		FJSVsdx-drv	4.3.3	
		FJSVsdx-bas	4.3.3	
		FJSVsdxma-ja	4.3.3	
		FJSVsdxma-en	4.3.3	

No.	Component	Package	Version	Function
		FJSVsdxwv	4.3.30	
		devlabel	0.48.03	

1.5 Red Hat Enterprise Linux 6 (for Intel64) for PRIMEQUEST

No.	Component	Package	Version	Function
1	PCLsnap	FJSVpclsnap	4.3.0	Tool for collecting troubleshooting information
2	Web-Based Admin	SMAWcj2re	1.7.0	GUI common
	View	FJSVwvbs	4.3.3	framework
		FJSVwvmpc	4.3.3	
3	Global Disk Services(GDS)	kmod-FJSVsdx- drvcore	4.3.3	High-availability volume manager
		FJSVsdx-cmd	4.3.1	
		FJSVsdx-drv	4.3.3	
		FJSVsdx-bas	4.3.3	
		FJSVsdxma-ja	4.3.3	
		FJSVsdxma-en	4.3.3	
		FJSVsdxwv	4.3.30	
		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	Remarks
1	Red Hat Enterprise Linux 5.3 (for x86)	Supports kernel-2.6.18-128.el5PAE
2	Red Hat Enterprise Linux 5.4 (for x86)	Supports kernel-2.6.18-164.el5PAE
3	Red Hat Enterprise Linux 5.5 (for x86)	Supports kernel-2.6.18-194.el5PAE
4	Red Hat Enterprise Linux 5.6 (for x86)	Supports kernel-2.6.18-238.el5PAE
5	Red Hat Enterprise Linux 5.7 (for x86)	Supports kernel-2.6.18-274.el5PAE
6	Red Hat Enterprise Linux 5.8 (for x86)	Supports kernel-2.6.18-308.el5PAE
7	Red Hat Enterprise Linux 5.9 (for x86)	Supports kernel-2.6.18-348.el5PAE
8	Red Hat Enterprise Linux 5.10 (for x86)	Supports kernel-2.6.18-371.el5PAE
9	Red Hat Enterprise Linux 6 (for x86)	Supports kernel-2.6.32-71.el6
10	Red Hat Enterprise Linux 6.1 (for x86)	Supports kernel-2.6.32-131.0.15.el6
11	Red Hat Enterprise Linux 6.2 (for x86)	Supports kernel-2.6.32-220.4.2.el6 (*1)
12	Red Hat Enterprise Linux 6.3 (for x86)	Supports kernel-2.6.32-279.22.1.el6 (*1)
13	Red Hat Enterprise Linux 6.4 (for x86)	Supports kernel-2.6.32-358.6.1.el6 (*1)
14	Red Hat Enterprise Linux 5.3 (for Intel64)	Supports kernel-2.6.18-128.el5, kernel-2.6.18-128.el5xen
15	Red Hat Enterprise Linux 5.4 (for Intel64)	Supports kernel-2.6.18-164.el5, kernel-2.6.18-164.el5xen
16	Red Hat Enterprise Linux 5.5 (for Intel64)	Supports kernel-2.6.18-194.el5, kernel-2.6.18-194.el5xen
17	Red Hat Enterprise Linux 5.6 (for Intel64)	Supports kernel-2.6.18-238.el5, kernel-2.6.18-238.el5xen
18	Red Hat Enterprise Linux 5.7 (for Intel64)	Supports kernel-2.6.18-274.el5, kernel-2.6.18-274.el5xen
19	Red Hat Enterprise Linux 5.8 (for Intel64)	Supports kernel-2.6.18-308.el5, kernel-2.6.18-308.el5xen

No.	Basic Software	Remarks
20	Red Hat Enterprise Linux 5.9 (for	Supports
	Intel64)	kernel-2.6.18-348.el5
		kernel-2.6.18-348.el5xen
21	Red Hat Enterprise Linux 5.10 (for	Supports
	Intel64)	kernel-2.6.18-371.el5
		kernel-2.6.18-371.el5xen
22	Red Hat Enterprise Linux 6 (for Intel64)	Supports kernel-2.6.32-71.el6
23	Red Hat Enterprise Linux 6.1 (for Intel64)	Supports kernel-2.6.32-131.0.15.el6
24	Red Hat Enterprise Linux 6.2 (for Intel64)	Supports kernel-2.6.32-220.4.2.el6 (*1)
25	Red Hat Enterprise Linux 6.3 (for Intel64)	Supports kernel-2.6.32-279.22.1.el6 (*1)
26	Red Hat Enterprise Linux 6.4 (for Intel64)	Supports kernel-2.6.32-358.6.1.el6 (*1)

^(*1) Please apply errata with reference to "4. Required patches".

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.



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	Windows(R) XP, Windows(R) Vista, Windows(R) 7, Windows(R) 8			Required to use as a client of Web-Based Admin View.
2	J2SE(TM) Runtime Environment		7	Required to use Web-Based Admin View. The use of the latest version is recommended. Version "7u45" is included in the CD.
3	Microsoft Internet Explorer		7 8	To use Web-Based Admin View, one of them is required. You

No.	Software	Package	Version and/or level	Remarks
			9	can download from the
			10	site of the software
				company.

3. Exclusive software

None.

4. Required patches

No.	Software	ID/PTF	Remark
1	Red Hat Enterprise Linux 6.2	RHBA-2012:0124-1 or later	Please apply to all the OS's where this software is installed.
			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.
2	Red Hat Enterprise Linux 6.3	RHSA-2013:0223-1 or later	Please apply to all the OS's where this software is installed.
3	Red Hat Enterprise Linux 6.4	RHSA-2013:0744-1 or later	Please apply to all the OS's where this software is installed.

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	/	20.0	

No.	Directory	Disk space (in MB)	Remarks
2	/usr	0.3	
3	/var	0.4	
4	/var/opt	1.8	
5	/etc	0.1	
6	/etc/opt	10.0	
7	/opt	150	

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.

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 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:

```
Red Hat Enterprise Linux 5 (for x86)
```

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

Red Hat Enterprise Linux 5 (for Intel64)

Red Hat Enterprise Linux 6 (for x86)

Red Hat Enterprise Linux 6 (for Intel64)
```

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

Red Hat Enterprise Linux 5 (for Intel64) xen kernel

```
# rpm -qi kernel-xen-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 a root user.

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

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

Before change)

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

After change)

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

4. Package check

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

```
# rpm -qi compat-libstdc++-33 <Return>
```

In case of Red Hat Enterprise Linux 6 (for Intel64), 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 of the OS.

2. Compiler(gcc) installation

Before installing this software, check that the gcc package is installed and that the version of the package is the same as the version of gcc that compiles the kernel.

Check the version of the gcc package by executing the following command:

```
# gcc --version <Return>
gcc (GCC) 4.4.4 20100726 (Red Hat 4.4.4-13)
```

Check the version of gcc that compiles the running kernel by executing the following command:

```
# cat /proc/version <Return>
Linux version 2.6.32-71.el6.x86_64 (mockbuild@x86-007.build.bos.
redhat.com) (gcc version 4.4.4 20100726 (Red Hat 4.4.4-13) (GCC) )
#1 SMP Wed Sep 1 01:33:01 EDT 2010
```

The first and second numbers of the version (e.g. "4.4" for "4.4.4") must be the same between both gcc.

3. pam-devel installation

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

```
Red Hat Enterprise Linux 5 (for x86)
Red Hat Enterprise Linux 6 (for x86)
```

```
# rpm -qf /usr/lib/libpam.so <Return>
```

Red Hat Enterprise Linux 5 (for Intel64)

```
Red Hat Enterprise Linux 6 (for Intel64)
```

```
# rpm -qf /usr/lib64/libpam.so <Return>
```

If the command encounters an error, install the pam-devel package shown in the following table from CD-ROM of the OS.

OS	package to install
Red Hat Enterprise Linux 5 (for x86)	pam-devel-XX.i386.rpm
Red Hat Enterprise Linux 5 (for Intel64)	pam-devel-XX.x86_64.rpm
Red Hat Enterprise Linux 6 (for x86)	pam-devel-XX.i686.rpm
Red Hat Enterprise Linux 6 (for Intel64)	pam-devel-XX.x86_64.rpm

5. Patch download

Before installing this software, download the latest PRIMECLUSTER patch by UpdateSite format and update information file from Updatesite.

3.2 Installation

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

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

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

```
# shutdown now <Return>
```

3. Insert CD in the CD-ROM drive.

```
# mount /media/cdrom <Return>
```

 $<\!\mathit{CDROM_DIR}\!>$ will be used as the mount point.

4. Execute the CLI installer. When the package is already installed, it is a same procedure.

```
# cd <CDROM_DIR>/Tool <Return>
# ./cluster_install -e PCL-GDS <Return>
Installation of PRIMECLUSTER started.
...
...
The installation finished successfully.
```

5. Eject CD.

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

6. Please apply the patch for PRIMECLUSTER.

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

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

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

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 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 a 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.

```
# shutdown now <Return>
```

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

```
# mount /media/cdrom <Return>
```

 $<\!\mathit{CDROM_DIR}\!>$ will be used as the mount point.

6. Execute the CLI uninstaller.

```
# cd <CDROM_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 CD, then reboot the system by executing the "shutdown(8)" command.

```
# cd / <Return>
# umount /media/cdrom <Return>
# eject <Return>
# shutdown -r now <Return>
```

Appendix A Troubleshooting

This chapter explains how to address problems that occur.

A.1 CLI installer

This section explains CLI installer.

A.1.1 Log file

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

- /var/log/install/cluster_install

A.1.2 Information messages

INFO: The installation process stopped by user request

Description

Installation process was stopped according at user's request.

Workaround

Execute the command again.

INFO: no package to update

Description

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

Workaround

According to the procedure of "4.2 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 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: /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: /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.

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 /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: 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 Necessary OS packages to be installed

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

B.1 For Red Hat Enterprise Linux 5 (for x86)

Package	Architecture
OpenIPMI	i386
OpenIPMI-libs	i386
OpenIPMI-tools	i386
alsa-lib	i386
at	i386
attr	i386
autoconf	noarch
bc	i386
bind	i386
bind-utils	i386
compat-gcc-34-g77	i386
compat-libstdc++-33	i386
срр	i386
crash	i386
cups	i386
cvs	i386
device-mapper	i386
device-mapper-multipath	i386
dhcp	i386
docbook-utils	noarch
dump	i386
eject	i386
gcc	i386
gcc-c++	i386
gdb	i386
ghostscript	i386
groff	i386
httpd	i386
indent	i386
kernel-PAE	i686
kernel-PAE-devel	i686
kernel-devel	i686
kernel-headers	i386

kernel-xen-devel i686 kexec-tools i386 krb5-workstation i386 libCE i386 libSM i386 libX11 i386 libX11 i386 libXau i386 libXdep i386 libXext i386 libXi i386 libXt i386 libXts i386 lsof i386 lv i386 m4 i386 m4 i386 malx i386<	Package	Architecture
krb5-workstation i386 libICE i386 libSM i386 libX11 i386 libXau i386 libXau i386 libXext i386 libXext i386 libXi i386 libXt i386 libXt i386 libXtst i386 lsof i386 m4 i386 mailx i386 make i386 man i386 mgetty i386 mc-st i386 mtr i386 mtr i386 mtr i386 mtr i386 nc-snmp i386 ntp i386 opensp i386 opensp i386 opensp i386 opensph-clients i386 parted i386 perl i386 perl-libww-perl <td>kernel-xen-devel</td> <td>i686</td>	kernel-xen-devel	i686
libICE i386 libSM i386 libX11 i386 libXau i386 libXamcp i386 libXext i386 libXx i386 libXx i386 libXt i386 libXts i386 libXts i386 lsof i386 m4 i386 mallx i386 make i386 man i386 mgetty i386 mlocate i386 mt-st i386 mtr i386 mtr i386 net-snmp i386 net-snmp-utils i386 net-snmp-utils i386 opensp i386 opensp i386 opensp i386 opensp i386 opensch-clients i386 parted i386 parted i386	kexec-tools	i386
libSM i386 libXau i386 libXau i386 libXdmcp i386 libXext i386 libXi i386 libXi i386 libXt i386 libXts i386 lsof i386 lv i386 m4 i386 malx i386 make i386 man i386 met-st i386 mt-st i386 mtr i386 nc i386 net-snmp i386 net-snmp-utils i386 net-snmp-utils i386 ntp i386 opensp i386 opensp i386 opensp i386 opensh-clients i386 parted i386 perl i386 perl-libww-perl noarch pinfo i386	krb5-workstation	i386
libX11 i386 libXau i386 libXdmcp i386 libXext i386 libXi i386 libXi i386 libXt i386 libXtst i386 lsof i386 lv i386 ma4 i386 make i386 man i386 man i386 mlocate i386 mt-st i386 mtools i386 mtr i386 nc i386 net-snmp i386 net-snmp-utils i386 ntp i386 opensp i386 opensp i386 opensp i386 opensh-clients i386 pan-devel i386 parted i386 perl i386 perl-libww-perl noarch pinfo i386	libICE	i386
libXau i386 libXext i386 libXi i386 libXi i386 libXt i386 libXt i386 libXtst i386 lsof i386 lv i386 m4 i386 malx i386 make i386 man i386 mgetty i386 mt-st i386 mtools i386 mtr i386 nc i386 net-snmp i386 net-snmp, tils i386 nfs-utils i386 npensp i386 opensp i386 opensp i386 opensch i386 pam-devel i386 parted i386 perl i386 perl-libww-perl noarch pinfo i386	libSM	i386
libXdmcp i386 libXi i386 libXi i386 libXt i386 libXt i386 libXtst i386 lsof i386 lv i386 m4 i386 mailx i386 make i386 man i386 mgetty i386 mt-st i386 mtr i386 mtr i386 nc i386 net-snmp i386 net-snmp-utils i386 nsp-utils i386 opensp i386 opensp i386 opensp i386 opensh-clients i386 parted i386 parted i386 perl i386 perl-libww-perl noarch pinfo i386	libX11	i386
libXext i386 libXi i386 libXt i386 libXt i386 libXtst i386 lsof i386 lv i386 m4 i386 mailx i386 make i386 man i386 mgetty i386 mt-st i386 mtr i386 nc i386 nc i386 net-snmp i386 net-snmp-utils i386 nfs-utils i386 ntp i386 opensp i386 opensp i386 opensh-clients i386 par-devel i386 parted i386 perl i386 perl-libwww-perl noarch pinfo i386	libXau	i386
libXi i386 libXt i386 libXtst i386 lsof i386 lv i386 m4 i386 mailx i386 make i386 man i386 mgetty i386 mlocate i386 mt-st i386 mtr i386 nc i386 net-snmp i386 net-snmp-utils i386 nfs-utils i386 opensp i386 opensp i386 opensp i386 opensch-clients i386 pam-devel i386 parted i386 parted i386 perl-libwww-perl noarch pinfo i386	libXdmcp	i386
libXrender i386 libXt i386 libXtst i386 lsof i386 lv i386 m4 i386 mailx i386 make i386 man i386 mgetty i386 mlocate i386 mt-st i386 mtr i386 nc i386 net-snmp i386 net-snmp-utils i386 nfs-utils i386 opensp i386 opensp i386 opensp i386 opensch-clients i386 pam-devel i386 parted i386 perl i386 perl-libwww-perl noarch pinfo i386	libXext	i386
libXt i386 lsof i386 lv i386 m4 i386 mailx i386 make i386 man i386 mgetty i386 mlocate i386 mt-st i386 mtr i386 mtr i386 nc i386 net-snmp i386 net-snmp-utils i386 nfs-utils i386 opensp i386 opensp i386 opensp i386 opensh-clients i386 parted i386 parted i386 perl i386 perl-libwww-perl noarch pinfo i386	libXi	i386
libXtst i386 lsof i386 lv i386 m4 i386 mailx i386 make i386 man i386 mgetty i386 mlocate i386 mt-st i386 mtr i386 nc i386 net-snmp i386 net-snmp-utils i386 nfs-utils i386 opensp i386 opensp i386 opensp i386 openssh-clients i386 pam-devel i386 parted i386 parted i386 perl i386 perl-libwww-perl noarch pinfo i386	libXrender	i386
lsof i386 lv i386 m4 i386 mailx i386 make i386 man i386 mgetty i386 mlocate i386 mt-st i386 mtr i386 nc i386 net-snmp i386 net-snmp-utils i386 nst-sutils i386 ntp i386 opensp i386 opensp i386 opensph i386 openssh-clients i386 parted i386 parted i386 perl i386 perl-libww-perl noarch pinfo i386	libXt	i386
Iv i386 m4 i386 mailx i386 make i386 man i386 mgetty i386 mlocate i386 mt-st i386 mtr i386 nc i386 net-snmp i386 net-snmp-utils i386 ntp i386 opensp i386 opensp i386 opensph i386 opensh-clients i386 pam-devel i386 parted i386 patch i386 perl i386 perl-libwww-perl noarch pinfo i386	libXtst	i386
m4 i386 mailx i386 make i386 man i386 mgetty i386 mlocate i386 mt-st i386 mtr i386 nc i386 net-snmp i386 net-snmp-utils i386 nfs-utils i386 opensp i386 opensp i386 opensh i386 opensh-clients i386 parted i386 patch i386 perl i386 perl-libww-perl noarch pinfo i386	lsof	i386
mailx i386 make i386 man i386 mgetty i386 mlocate i386 mt-st i386 mtr i386 mtr i386 ne i386 net-snmp i386 net-snmp-utils i386 nfs-utils i386 opensp i386 opensp i386 opensh i386 opensh-clients i386 parted i386 parted i386 perl i386 perl-libww-perl noarch pinfo i386	lv	i386
make i386 man i386 mgetty i386 mlocate i386 mt-st i386 mtrools i386 nc i386 net-snmp i386 net-snmp-utils i386 nfs-utils i386 opensp i386 opensp i386 openssh-clients i386 pam-devel i386 patch i386 perl i386 perl-libwww-perl noarch pinfo i386	m4	i386
man i386 mgetty i386 mlocate i386 mt-st i386 mtools i386 nc i386 net-snmp i386 net-snmp-utils i386 nfs-utils i386 ntp i386 opensp i386 openssh i386 openssh-clients i386 parted i386 patch i386 perl i386 perl-libwww-perl noarch pinfo i386	mailx	i386
mgetty i386 mlocate i386 mt-st i386 mtools i386 mtr i386 nc i386 net-snmp i386 net-snmp-utils i386 nfs-utils i386 ntp i386 opensp i386 opensph i386 openssh-clients i386 parted i386 patch i386 perl i386 perl-libwww-perl noarch pinfo i386	make	i386
mlocate i386 mt-st i386 mtools i386 mtr i386 nc i386 net-snmp i386 net-snmp-utils i386 nfs-utils i386 opensp i386 opensp i386 openssh i386 openssh-clients i386 parted i386 patch i386 perl i386 perl-libwww-perl noarch pinfo i386	man	i386
mt-st i386 mtr i386 nc i386 net-snmp i386 net-snmp-utils i386 nfs-utils i386 ntp i386 opensp i386 openssh i386 openssh-clients i386 pam-devel i386 parted i386 perl i386 perl-libwww-perl noarch pinfo i386	mgetty	i386
mtools i386 mtr i386 nc i386 net-snmp i386 net-snmp-utils i386 nfs-utils i386 ntp i386 opensp i386 openssh i386 openssh-clients i386 pam-devel i386 parted i386 patch i386 perl i386 perl-libwww-perl noarch pinfo i386	mlocate	i386
mtr i386 nc i386 net-snmp i386 net-snmp-utils i386 nfs-utils i386 ntp i386 opensp i386 openssh i386 openssh-clients i386 pam-devel i386 parted i386 patch i386 perl i386 perl-libwww-perl noarch pinfo i386	mt-st	i386
nc i386 net-snmp i386 net-snmp-utils i386 nfs-utils i386 ntp i386 opensp i386 openssh i386 openssh-clients i386 pam-devel i386 parted i386 patch i386 perl i386 perl-libwww-perl noarch pinfo i386	mtools	i386
net-snmp i386 net-snmp-utils i386 nfs-utils i386 ntp i386 opensp i386 openssh i386 openssh-clients i386 pam-devel i386 parted i386 patch i386 perl i386 perl-libwww-perl noarch pinfo i386	mtr	i386
net-snmp-utils i386 nfs-utils i386 ntp i386 opensp i386 openssh i386 openssh-clients i386 pam-devel i386 parted i386 patch i386 perl i386 perl-libwww-perl noarch pinfo i386	nc	i386
nfs-utils i386 ntp i386 opensp i386 openssh i386 openssh-clients i386 pam-devel i386 parted i386 patch i386 perl i386 perl-libwww-perl noarch pinfo i386	net-snmp	i386
ntp i386 opensp i386 openssh i386 openssh-clients i386 pam-devel i386 parted i386 patch i386 perl i386 perl-libwww-perl noarch pinfo i386	net-snmp-utils	i386
opensp i386 openssh i386 openssh-clients i386 pam-devel i386 parted i386 patch i386 perl i386 perl-libwww-perl noarch pinfo i386	nfs-utils	i386
openssh i386 openssh-clients i386 pam-devel i386 parted i386 patch i386 perl i386 perl-libwww-perl noarch pinfo i386	ntp	i386
openssh-clients i386 pam-devel i386 parted i386 patch i386 perl i386 perl-libwww-perl noarch pinfo i386	opensp	i386
pam-devel i386 parted i386 patch i386 perl i386 perl-libwww-perl noarch pinfo i386	openssh	i386
parted i386 patch i386 perl i386 perl-libwww-perl noarch pinfo i386	openssh-clients	i386
patch i386 perl i386 perl-libwww-perl noarch pinfo i386	pam-devel	i386
perl i386 perl-libwww-perl noarch pinfo i386	parted	i386
perl-libwww-perl noarch pinfo i386	patch	i386
pinfo i386	perl	i386
	perl-libwww-perl	noarch
postfix i386	pinfo	i386
	postfix	i386

Package	Architecture
procmail	i386
psacct	i386
pstack	i386
quota	i386
res	i386
rdist	i386
rsh	i386
samba-common	i386
screen	i386
setarch	i386
setuptool	i386
sox	i386
strace	i386
subversion	i386
symlinks	i386
time	i386
tree	i386
tux	i386
vconfig	i386
xinetd	i386
xorg-x11-apps	i386
xorg-x11-server-utils	i386
xterm	i386

B.2 For Red Hat Enterprise Linux 5 (for Intel64)

Package	Architecture
OpenIPMI	x86_64
OpenIPMI-libs	x86_64
OpenIPMI-tools	x86_64
alsa-lib	i386
alsa-lib	x86_64
at	x86_64
attr	x86_64
audit-libs	i386
autoconf	noarch
bc	x86_64
bind	x86_64
bind-utils	x86_64
compat-gcc-34-g77	x86_64

compat-libstdc++-33 i386 compat-libstdc++-33 noarch cpp x86_64 crash x86_64 cups x86_64 cvs x86_64 device-mapper x86_64 device-mapper-multipath x86_64 dbcp x86_64 docbook-utils noarch dump x86_64 eject x86_64 gcc x86_64 gcc x86_64 gdb x86_64 gbostscript x86_64 groff x86_64 indent x86_64 iptables x86_64 kernel-devel x86_64 kernel-devel x86_64 kernel-wen x86_64 kernel-ven x86_64 kernel-vendvel x86_64 kernel-vendvel x86_64 kernel-vendvel x86_64 kernel-vendvel x86_64 libX11 i386 libXau i386	Package	Architecture
cpp x86_64 crash x86_64 cups x86_64 cvs x86_64 device-mapper x86_64 device-mapper-multipath x86_64 dhcp x86_64 docbook-utils noarch dump x86_64 eject x86_64 gcc x86_64 gcc-c++ x86_64 gbb x86_64 groff x86_64 groff x86_64 indent x86_64 indent x86_64 kernel-devel x86_64 kernel-devel x86_64 kernel-ven-devel x86_64 kernel-ven-devel x86_64 kexec-tools x86_64 libCE x86_64 libX11 i386 libX2u i386 libXau i386 libXau i386 libXau i386 libXext i386 libXi i386	compat-libstdc++-33	i386
crash x86_64 cups x86_64 cvs x86_64 device-mapper x86_64 device-mapper-multipath x86_64 dhcp x86_64 docbook-utils noarch dump x86_64 eject x86_64 gcc x86_64 gcc x86_64 gdb x86_64 gbb x86_64 groff x86_64 httpd x86_64 indent x86_64 kernel-devel x86_64 kernel-devel x86_64 kernel-wen x86_64 kernel-ven-devel x86_64 kexec-tools x86_64 kexec-tools x86_64 libCE x86_64 libX11 i386 libXau i386 libXau i386 libXau i386 libXau x86_64 libXamcp i386 libXii i386	compat-libstdc++-33	noarch
cvs x86_64 device-mapper x86_64 device-mapper-multipath x86_64 dhcp x86_64 docbook-utils noarch dump x86_64 eject x86_64 gcc x86_64 gcc x86_64 gdb x86_64 gbb x86_64 groff x86_64 groff x86_64 indent x86_64 indent x86_64 iptables x86_64 kernel-devel x86_64 kernel-headers x86_64 kernel-van x86_64 kexec-tools x86_64 kexec-tools x86_64 kexec-tools x86_64 libX11 i386 libX21 i386 libXau i386 libXau i386 libXau i386 libXau i386 libXxt i386 libXxt i386 <td>срр</td> <td>x86_64</td>	срр	x86_64
cvs x86_64 device-mapper x86_64 device-mapper-multipath x86_64 dhcp x86_64 docbook-utils noarch dump x86_64 eject x86_64 gcc x86_64 gcc x86_64 gdb x86_64 gbb x86_64 groff x86_64 groff x86_64 indent x86_64 indent x86_64 iptables x86_64 kernel-devel x86_64 kernel-headers x86_64 kernel-van x86_64 kernel-xen x86_64 kexec-tools x86_64 krb5-workstation x86_64 libX11 i386 libX11 i386 libXau i386 libXau x86_64 libXau x86_64 libXau x86_64 libXau x86_64 libXau x86_64	crash	x86_64
device-mapper x86_64 device-mapper-multipath x86_64 dhcp x86_64 docbook-utils noarch dump x86_64 eject x86_64 gcc x86_64 gcc-c++ x86_64 gdb x86_64 groff x86_64 httpd x86_64 indent x86_64 iptables x86_64 kernel-devel x86_64 kernel-headers x86_64 kernel-ven x86_64 kernel-xen x86_64 kexec-tools x86_64 krb5-workstation x86_64 libX11 i386 libX11 i386 libX11 x86_64 libXau x86_64 libXau x86_64 libXau x86_64 libXau x86_64 libXau x86_64 libXau x86_64 libXxt i386 libXxt i386	cups	x86_64
device-mapper-multipath x86_64 dhcp x86_64 docbook-utils noarch dump x86_64 eject x86_64 gcc x86_64 gcc-c++ x86_64 gdb x86_64 goff x86_64 groff x86_64 indent x86_64 indent x86_64 iptables x86_64 kernel-devel x86_64 kernel-devel x86_64 kernel-xen x86_64 kexec-tools x86_64 kexec-tools x86_64 libCE x86_64 libX11 i386 libX11 i386 libXau i386 libXau x86_64 libXau i386 libXxt i386 libXxt i386 libXxi i386	cvs	x86_64
dhcp x86_64 docbook-utils noarch dump x86_64 eject x86_64 gcc x86_64 gcc-c++ x86_64 gdb x86_64 ghostscript x86_64 groff x86_64 indent x86_64 indent x86_64 iptables x86_64 kernel-devel x86_64 kernel-headers x86_64 kernel-xen x86_64 kexec-tools x86_64 krb5-workstation x86_64 libICE x86_64 libX11 i386 libX11 i386 libXau i386 libXau x86_64 libXau i386 libXdmcp i386 libXext i386 libXext i386 libXi i386	device-mapper	x86_64
docbook-utils	device-mapper-multipath	x86_64
dump x86_64 eject x86_64 gcc x86_64 gcc-c++ x86_64 gdb x86_64 ghostscript x86_64 groff x86_64 httpd x86_64 indent x86_64 iptables x86_64 kernel-devel x86_64 kernel-meaders x86_64 kernel-xen x86_64 kernel-xen-devel x86_64 kexec-tools x86_64 libICE x86_64 libXII i386 libX1I x86_64 libXau i386 libXau x86_64 libXau x86_64 libXdmcp i386 libXxt i386 libXxt x86_64 libXi i386	dhcp	x86_64
eject x86_64 gcc x86_64 gcc-c++ x86_64 gdb x86_64 ghostscript x86_64 groff x86_64 indent x86_64 indent x86_64 iptables x86_64 kernel-devel x86_64 kernel-senders x86_64 kernel-xen x86_64 kernel-xen x86_64 kernel-xen-devel x86_64 libICE x86_64 libSM x86_64 libX11 i386 libX11 x86_64 libXau i386 libXau x86_64	docbook-utils	noarch
gcc x86_64 gcb x86_64 gdb x86_64 ghostscript x86_64 groff x86_64 httpd x86_64 indent x86_64 iptables x86_64 kernel-devel x86_64 kernel-headers x86_64 kernel-xen x86_64 kernel-xen-devel x86_64 kexec-tools x86_64 krb5-workstation x86_64 libICE x86_64 libX11 i386 libX21 i386 libXau x86_64 libXau x86_64 libXau x86_64 libXau x86_64 libXau x86_64 libXau x86_64 libXext i386 libXext i386 libXi i386 libXi i386	dump	x86_64
gcc-c++ x86_64 gdb x86_64 ghostscript x86_64 groff x86_64 httpd x86_64 indent x86_64 iptables x86_64 kernel-devel x86_64 kernel-wenders x86_64 kernel-xen x86_64 kernel-xen x86_64 kernel-xen x86_64 libICE x86_64 libSM x86_64 libX11 i386 libX11 x86_64 libXau x86_64	eject	x86_64
gdb	gcc	x86_64
ghostscript x86_64 groff x86_64 httpd x86_64 indent x86_64 iptables x86_64 kernel-devel x86_64 kernel-headers x86_64 kernel-xen x86_64 kernel-xen x86_64 kernel-xen-devel x86_64 kerb-workstation x86_64 libICE x86_64 libX11 i386 libX11 x86_64 libXau i386 libXau i386 libXdmcp i386 libXdmcp x86_64 libXext i386 libXext x86_64 libXi i386 libXext x86_64 libXi i386	gcc-c++	x86_64
groff x86_64 httpd x86_64 indent x86_64 iptables x86_64 kernel-devel x86_64 kernel-headers x86_64 kernel-xen x86_64 kernel-xen-devel x86_64 kexec-tools x86_64 krb5-workstation x86_64 libICE x86_64 libX11 i386 libX11 i386 libXau i386 libXau x86_64 libXau i386 libXdmcp x86_64 libXext i386 libXext x86_64 libXi i386 libXi i386	gdb	x86_64
httpd x86_64 indent x86_64 iptables x86_64 kernel-devel x86_64 kernel-headers x86_64 kernel-xen x86_64 kernel-xen-devel x86_64 kernel-xen-devel x86_64 kerbs-workstation x86_64 libICE x86_64 libX11 i386 libX11 x86_64 libXau i386 libXau x86_64 libXdmcp i386 libXdmcp x86_64 libXext i386 libXext x86_64 libXi i386	ghostscript	x86_64
indent x86_64 iptables x86_64 kernel-devel x86_64 kernel-headers x86_64 kernel-xen x86_64 kernel-xen-devel x86_64 kexec-tools x86_64 krb5-workstation x86_64 libICE x86_64 libSM x86_64 libX11 i386 libX211 x86_64 libXau i386 libXau x86_64 libXdmcp i386 libXext i386 libXext i386 libXi i386 libXi i386	groff	x86_64
iptables x86_64	httpd	x86_64
kernel-devel x86_64 kernel-headers x86_64 kernel-xen x86_64 kernel-xen-devel x86_64 kexec-tools x86_64 krb5-workstation x86_64 libICE x86_64 libSM x86_64 libX11 i386 libX21 x86_64 libXau i386 libXdmcp i386 libXdmcp x86_64 libXext i386 libXext i386 libXi i386 libXi i386	indent	x86_64
kernel-headers x86_64 kernel-xen x86_64 kernel-xen-devel x86_64 kexec-tools x86_64 krb5-workstation x86_64 libICE x86_64 libSM x86_64 libX11 i386 libX11 x86_64 libXau i386 libXau x86_64 libXdmcp x86_64 libXext i386 libXext x86_64 libXi i386 libXi x86_64	iptables	x86_64
kernel-xen x86_64 kernel-xen-devel x86_64 kexec-tools x86_64 krb5-workstation x86_64 libICE x86_64 libSM x86_64 libX11 i386 libX11 x86_64 libXau i386 libXau x86_64 libXdmcp i386 libXext i386 libXext i386 libXi i386 libXi i386	kernel-devel	x86_64
kernel-xen-devel x86_64 kexec-tools x86_64 krb5-workstation x86_64 libICE x86_64 libSM x86_64 libX11 i386 libX11 x86_64 libXau i386 libXau x86_64 libXdmcp i386 libXdmcp i386 libXdmcp x86_64 libXext i386 libXext x86_64 libXext i386 libXi x86_64 libXi x86_64	kernel-headers	x86_64
kexec-tools x86_64 krb5-workstation x86_64 libICE x86_64 libSM x86_64 libX11 i386 libX11 x86_64 libXau i386 libXau x86_64 libXdmcp i386 libXext i386 libXext x86_64 libXi i386 libXi i386	kernel-xen	x86_64
krb5-workstation x86_64 libICE x86_64 libSM x86_64 libX11 i386 libX11 x86_64 libXau i386 libXau x86_64 libXdmcp i386 libXext i386 libXext i386 libXi i386 libXi i386 libXi i386	kernel-xen-devel	x86_64
libICE x86_64 libSM x86_64 libX11 i386 libX11 x86_64 libXau i386 libXau x86_64 libXdmcp i386 libXext i386 libXext i386 libXi i386 libXi i386 libXi i386	kexec-tools	x86_64
libSM x86_64 libX11 i386 libX11 x86_64 libXau i386 libXau x86_64 libXdmcp i386 libXdmcp x86_64 libXext i386 libXext x86_64 libXi i386 libXi x86_64	krb5-workstation	x86_64
libX11 i386 libX11 x86_64 libXau i386 libXau x86_64 libXdmcp i386 libXdmcp x86_64 libXext i386 libXext x86_64 libXi i386 libXi x86_64	libICE	x86_64
libX11 x86_64 libXau i386 libXdmcp i386 libXdmcp x86_64 libXext i386 libXext i386 libXi i386 libXi i386 libXi x86_64	libSM	x86_64
libXau i386 libXau x86_64 libXdmcp i386 libXdmcp x86_64 libXext i386 libXext x86_64 libXi i386 libXi x86_64	libX11	i386
libXau x86_64 libXdmcp i386 libXdmcp x86_64 libXext i386 libXext x86_64 libXi i386 libXi x86_64	libX11	x86_64
libXdmcp i386 libXdmcp x86_64 libXext i386 libXext x86_64 libXi i386 libXi x86_64	libXau	i386
libXdmcp x86_64 libXext i386 libXext x86_64 libXi i386 libXi x86_64	libXau	x86_64
libXext i386 libXext x86_64 libXi i386 libXi x86_64	libXdmcp	i386
libXext x86_64 libXi i386 libXi x86_64	libXdmcp	x86_64
libXi i386 libXi x86_64	libXext	i386
libXi x86_64	libXext	x86_64
	libXi	i386
libXrender i386	libXi	x86_64
	libXrender	i386

Package	Architecture
libXrender	x86_64
libXt	x86_64
libXtst	i386
libXtst	x86_64
libstdc++	i386
lsof	x86_64
lv	x86_64
m4	x86_64
mailx	x86_64
make	x86_64
man	x86_64
mgetty	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
opensp	x86_64
openssh	x86_64
openssh-clients	x86_64
pam-devel	x86_64
parted	x86_64
patch	x86_64
perl	x86_64
perl-libwww-perl	noarch
pinfo	x86_64
postfix	x86_64
procmail	x86_64
psacct	x86_64
pstack	x86_64
quota	x86_64
rcs	x86_64
rdist	x86_64
rsh	x86_64
samba-common	x86_64

Package	Architecture
screen	x86_64
setarch	x86_64
setuptool	x86_64
sox	x86_64
strace	x86_64
subversion	x86_64
symlinks	x86_64
time	x86_64
tree	x86_64
tux	x86_64
vconfig	x86_64
xinetd	x86_64
xorg-x11-apps	x86_64
xorg-x11-server-utils	x86_64
xterm	x86_64

B.3 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
срр	i686
crash	i686
cvs	i686
device-mapper	i686
device-mapper-multipath	i686
dhcp	i686
docbook-utils	noarch
dump	i686
ebtables	i686
ed	i686
eject	i686
fontconfig	i686

C .	
freetype	i686
ftp	i686
gcc	i686
gdb	i686
ghostscript	i686
graphviz	i686
hdparm	i686
httpd	i686
httpd-tools	i686
indent	i686
ipmitool	i686
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-uils i686 nfs-utils i686 ntp i686 openmotif i686 openmotif22 i686 opensp i686 opensh-clients i686 parted i686 parted i686 patch i686 perl i686 perl i686 perllibww-perl noarch pinfo i686 prelink i686 procmail i686 procmail i686 procmail i686 procmail i686 samba-common i686 setuptool i686 setuptool i686 strace i686 subversion i686 telnet <	Package	Architecture
mtr i686 mysql-server i686 nc i686 net-snmp i686 net-snmp-utils i686 nfs-utils i686 nfs-utils i686 openmotif i686 openmotif i686 opensp i6	mt-st	i686
mysql-server i686 nc i686 net-snmp i686 net-snmp-utils i686 nfs-utils i686 ntp i686 openmotif i686 openmotif22 i686 opensp i686 opensp i686 opensp-lients i686 parted i686 patch i686 pciutils i686 perl i686 perl i686 prelink i686 procmail i686 procmail i686 psacct i686 quota i686 rpcbind i686 samba-common i686 setuptool i686 subversion i686 sysstat i686 tcpdump i686 tcpdump i686 tcpdump i686 tree i686 voonfig i686	mtools	i686
net-snmp i686 net-snmp-utils i686 nfs-utils i686 ntp i686 openmotif i686 openmotif i686 opensp i686 opensp i686 opensh-clients i686 parted i686 parted i686 patch i686 perl i686 perl i686 prellibww-perl noarch pinfo i686 prelink i686 procmail i686 psacet i686 quota i686 rpcbind i686 rsh i686 samba-common i686 strace i686 sysstat i686 tepdump i686 telnet i686 tree i686 tree i686 vonnig i686 tree i686 vim-common i686 vim-common i686 tree i686 vim-common i686 vim-common i686 vim-common i686	mtr	i686
net-snmp i686 net-snmp-utils i686 nfs-utils i686 ntp i686 openmotif i686 openmotif22 i686 opensp i686 opensp i686 opensh-clients i686 pam-devel i686 parted i686 patch i686 perl i686 perl i686 perl-libwww-perl noarch pinfo i686 prelink i686 procmail i686 psacct i686 quota i686 rsh i686 samba-common i686 setuptool i686 subversion i686 sysstat i686 tcpdump i686 tclnet i686 time i686 tree i686 vconfig vim-common i686	mysql-server	i686
net-smp-utils i686 nfs-utils i686 ntp i686 openmotif i686 openmotif22 i686 opensp i686 openssh-clients 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 rsh i686 samba-common i686 setuptool i686 strace i686 subversion i686 tcpdump i686 tclnet i686 time i686 tree i686 vim-common i686	nc	i686
nfs-utils i686 ntp i686 openmotif i686 openmotif22 i686 opensp i686 openssh-clients i686 pam-devel i686 parted i686 patch i686 perl i686 perl i686 perl-libww-perl noarch pinfo i686 preclink i686 procmail i686 psacct i686 quota i686 rpcbind i686 samba-common i686 setuptool i686 strace i686 subversion i686 sysstat i686 tcpdump i686 telnet i686 tree i686 vconfig i686 vim-common i686	net-snmp	i686
ntp i686 openmotif 22 i686 opensp i686 openssh-clients 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 setuptool i686 strace i686 subversion i686 sysstat i686 tcpdump i686 telnet i686 time i686 tree i686 vconfig i686 vim-common i686	net-snmp-utils	i686
openmotif i686 opensp i686 openssh-clients i686 pam-devel i686 parted i686 patch i686 peciutils i686 perl i686 perl-libwww-perl noarch pinfo i686 procmail i686 psacct i686 quota i686 rsh i686 samba-common i686 setuptool i686 subversion i686 sysstat i686 tcpdump i686 tchnet i686 tree i686 vconfig i686 vim-common i686 vim-common i686	nfs-utils	i686
openmotif22 i686 opensp i686 openssh-clients 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 rsh i686 samba-common i686 setuptool i686 strace i686 subversion i686 sysstat i686 tcpdump i686 tchnet i686 tree i686 vim-common i686 vim-common i686	ntp	i686
openssp i686 openssh-clients i686 pam-devel i686 parted i686 patch i686 pciutils i686 perl i686 perl-libww-perl noarch pinfo i686 prelink i686 procmail i686 psacct i686 quota i686 rpcbind i686 samba-common i686 setuptool i686 strace i686 subversion i686 tcpdump i686 telnet i686 time i686 tree i686 vim-common i686 vim-common i686	openmotif	i686
openssh-clients 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 setuptool i686 strace i686 subversion i686 tcpdump i686 telnet i686 time i686 tree i686 vim-common i686 vim-common i686	openmotif22	i686
pam-devel i686 patch i686 pciutils i686 perl i686 perl-libwww-perl noarch pinfo i686 prelink i686 procmail i686 psacct i686 quota i686 rpcbind i686 samba-common i686 setuptool i686 strace i686 subversion i686 sysstat i686 tcpdump i686 time i686 tree i686 vim-common i686 vim-common i686	opensp	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 samba-common i686 setuptool i686 strace i686 subversion i686 sysstat i686 tcpdump i686 time i686 tree i686 vim-common i686 vim-common i686	openssh-clients	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 strace i686 subversion i686 sysstat i686 tcpdump i686 time i686 tree i686 vim-common i686 vim-common i686	pam-devel	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 strace i686 subversion i686 sysstat i686 tcpdump i686 telnet i686 time i686 vconfig i686 vim-common i686 xinetd i686	parted	i686
perl i686 perl-libwww-perl noarch pinfo i686 prelink i686 procmail i686 psacct i686 quota i686 rpcbind i686 rsh i686 samba-common i686 setuptool i686 strace i686 subversion i686 tcpdump i686 telnet i686 time i686 tree i686 vconfig i686 vim-common i686 xinetd i686	patch	i686
perl-libwww-perl noarch pinfo i686 prelink i686 procmail i686 psacct i686 quota i686 rpcbind i686 rsh i686 samba-common i686 setuptool i686 strace i686 subversion i686 sysstat i686 tcpdump i686 telnet i686 time i686 tree i686 vconfig i686 vim-common i686 xinetd i686	pciutils	i686
pinfo i686 prelink i686 procmail i686 psacct i686 quota i686 rpcbind i686 rsh i686 samba-common i686 setuptool i686 strace i686 subversion i686 tcpdump i686 tcpdump i686 time i686 tree i686 vconfig i686 vim-common i686 xinetd i686	perl	i686
prelink i686 procmail i686 psacct i686 quota i686 rpcbind i686 rsh i686 samba-common i686 setuptool i686 strace i686 subversion i686 sysstat i686 tcpdump i686 time i686 tree i686 vconfig i686 vim-common i686 xinetd i686	perl-libwww-perl	noarch
procmail i686 psacct i686 quota i686 rpcbind i686 rsh i686 samba-common i686 setuptool i686 strace i686 subversion i686 sysstat i686 tcpdump i686 telnet i686 time i686 vconfig i686 vim-common i686 xinetd i686	pinfo	i686
psacct i686 quota i686 rpcbind i686 rsh i686 samba-common i686 setuptool i686 strace i686 subversion i686 sysstat i686 tcpdump i686 telnet i686 time i686 vconfig i686 vim-common i686 xinetd i686	prelink	i686
quota i686 rpcbind i686 rsh i686 samba-common i686 setuptool i686 strace i686 subversion i686 sysstat i686 tcpdump i686 telnet i686 time i686 tree i686 vconfig i686 vim-common i686 xinetd i686	procmail	i686
rpcbind i686 rsh i686 samba-common i686 setuptool i686 strace i686 subversion i686 tcpdump i686 telnet i686 time i686 tree i686 vconfig i686 vim-common i686 xinetd i686	psacct	i686
rsh i686 samba-common i686 setuptool i686 strace i686 subversion i686 sysstat i686 tcpdump i686 telnet i686 time i686 tree i686 vconfig i686 vim-common i686 xinetd i686	quota	i686
samba-common i686 setuptool i686 strace i686 subversion i686 sysstat i686 tcpdump i686 telnet i686 time i686 tree i686 vconfig i686 vim-common i686 xinetd i686	rpcbind	i686
setuptool i686 strace i686 subversion i686 sysstat i686 tcpdump i686 telnet i686 time i686 tree i686 vconfig i686 vim-common i686 xinetd i686	rsh	i686
strace i686 subversion i686 sysstat i686 tcpdump i686 telnet i686 time i686 tree i686 vconfig i686 vim-common i686 xinetd i686	samba-common	i686
subversion i686 sysstat i686 tcpdump i686 telnet i686 time i686 tree i686 vconfig i686 vim-common i686 xinetd i686	setuptool	i686
sysstat i686 tcpdump i686 telnet i686 time i686 tree i686 vconfig i686 vim-common i686 xinetd i686	strace	i686
tcpdump i686 telnet i686 time i686 tree i686 vconfig i686 vim-common i686 xinetd i686	subversion	i686
telnet i686 time i686 tree i686 vconfig i686 vim-common i686 xinetd i686	sysstat	i686
time i686 tree i686 vconfig i686 vim-common i686 xinetd i686	tcpdump	i686
tree i686 vconfig i686 vim-common i686 xinetd i686	telnet	i686
vconfig i686 vim-common i686 xinetd i686	time	i686
vim-common i686 xinetd i686	tree	i686
xinetd i686	vconfig	i686
	vim-common	i686
xorg-x11-apps i686	xinetd	i686
	xorg-x11-apps	i686

Package	Architecture
xorg-x11-server-Xorg	i686
xorg-x11-server-utils	i686
xterm	i686
xz	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.

B.4 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
срр	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
freetype	x86_64
gcc	x86_64
gdb	x86_64

Package	Architecture
ghostscript	x86_64
glibc	i686
hdparm	x86_64
httpd	x86_64
indent	x86_64
ipmitool	x86_64
kernel-devel	x86_64
kernel-headers	x86_64
kexec-tools	x86_64
libICE	x86_64
libSM	x86_64
libX11	i686
libX11	x86_64
libXau	i686
libXau	x86_64
libXext	i686
libXext	x86_64
libXft	x86_64
libXi	i686
libXi	x86_64
libXmu	x86_64
libXp	x86_64
libXrender	x86_64
libXt	x86_64
libXtst	i686
libXtst	x86_64
libgcc	i686
libjpeg/libjpeg-turbo(*1)	x86_64
libpng	x86_64
libstdc++	i686
libxcb	x86_64
lsof	x86_64
lvm2	x86_64
make	x86_64
man	x86_64
mlocate	x86_64
mt-st	x86_64
mtools	x86_64
mtr	x86_64

Package	Architecture
nc	x86_64
net-snmp	x86_64
net-snmp-utils	x86_64
nfs-utils	x86_64
ntp	x86_64
openmotif	x86_64
openmotif22	x86_64
opensp	i686
openssh-clients	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
rsh	x86_64
ruby	x86_64
samba-common	x86_64
setuptool	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

^(*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.