FUJITSU Software PRIMECLUSTER GL 4.6A10

Installation Guide

Linux

Preface

Information in this manual is subject to change without notice.

Note

The latest manuals are available at

http://www.fujitsu.com/global/support/software/manual/

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Contents

Chapter 1 Program components

The unit of the program that composes the system is called a package.

This chapter explains about the packages of which this software is composed.

- Red Hat Enterprise Linux 7 (for Intel64)

- Red Hat Enterprise Linux 8 (for Intel64)

1.1 Red Hat Enterprise Linux 7 (for Intel64)

No.	Component	Package	Version	Function
1	Global Link Services	kmod-FJSVhanet-drv	2.21	High Available Network Support
		FJSVhanet	2.21	

1.2 Red Hat Enterprise Linux 8 (for Intel64)

No.	Component	Package	Version	Function
1	Global Link Services	kmod-FJSVhanet-drv	2.21	High Available Network Support
		FJSVhanet	2.21	

Chapter 2 Operation Environment

This chapter explains the operation environment of this software.

2.1 Software environment

1. Basic software prerequisites

   Install the following software product:

No.	Basic Software	Kernel	Remarks
1	Red Hat Enterprise Linux 7.2 (for Intel64)	Supports kernel-3.10.0-327.el7 or later	
2	Red Hat Enterprise Linux 7.3 (for Intel64)	Supports kernel-3.10.0-514.el7 or later	
3	Red Hat Enterprise Linux 7.4 (for Intel64)	Supports kernel-3.10.0-693.el7 or later	
4	Red Hat Enterprise Linux 7.5 (for Intel64)	Supports kernel-3.10.0-862.el7 or later	
5	Red Hat Enterprise Linux 7.6 (for Intel64)	Supports kernel-3.10.0-957.el7 or later	
6	Red Hat Enterprise Linux 7.7 (for Intel64)	Supports kernel-3.10.0-1062.el7 or later	
7	Red Hat Enterprise Linux 7.8 (for Intel64)	Supports kernel-3.10.0-1127.el7 or later	
8	Red Hat Enterprise Linux 7.9 (for Intel64)	Supports kernel-3.10.0-1160.el7 or later	
9	Red Hat Enterprise Linux 8.0 (for Intel64)	Supports kernel-4.18.0-80.el8 or later	
10	Red Hat Enterprise Linux 8.1 (for Intel64)	Supports kernel-4.18.0-147.el8 or later	
11	Red Hat Enterprise Linux 8.2 (for Intel64)	Supports kernel-4.18.0-193.el8 or later	

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

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

2. Required software

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

   [VMware environment]

No.	Software	Package	Version and/or level	Remarks
1	VMware vSphere		6.0 6.5	

No.	Software	Package	Version and/ or level	Remarks
			6.7 7.0	

[Red Hat OpenStack Platform environment]

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

3. Exclusive software

   None.

4. Required patches

   None.

2.2 Hardware environment

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

1. Memory

   512MB or more of memory is required.

2. Required hardware

   None.

3. Related hardware

   None.

2.3 Static disk resources

This section explains static disk space requirements for this software.

2.3.1 Required disk space

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

No.	Directory	Disk space (in MB)
1	/	0.1
2	/var	2.3
3	/var/opt	0.1
4	/etc/opt	0.3
5	/opt	29.2

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	13.0	When you are running GLS. (The execution log is preserved.)
2	/tmp	50.0	When FJQSS (Information Collection Tool) of GLS is executed for collecting information.

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	8.6	When it is a dual network using the Redundant Line Control Function (NIC switching mode).
2	9.4	When it is a dual network using the Redundant Line Control Function (Fast switching mode).
3	9.8	When it is a dual network using the Redundant Line Control Function (Virtual NIC mode).
4	30.6	When it is a dual network using the Redundant Line Control Function (GS linkage mode).

Chapter 3 Installation

This chapter explains the installation of this software.

![Note] **Note**

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To use PRIMECLUSTER GL in combination with PRIMECLUSTER Clustering Base in FUJITSU Hybrid IT Service FJcloud-O environment, refer to the installation guide of PRIMECLUSTER Clustering Base and install both products at the same time.

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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 10 minutes to install this software.

2. System environment check

   1. OS version check

      Execute the following command, and confirm whether it is the one corresponding to the version of software from which the version of OS has been described to "2.1 Software environment".

      ```
      # uname -r <Return>
      ```

   2. Check the NetworkManager service.

      [Red Hat Enterprise Linux 7]

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

      Check to disable the auto startup of the NetworkManager service.

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

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

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

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

      [Red Hat Enterprise Linux 8]

      Check to enable the auto startup of the NetworkManager service.

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

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

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

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

   3. To enable Secure Boot in a virtual environment, public key of PRIMECLUSTER must be registered in the system. Refer to the OS manual and the virtual environment manual to register the following public key in the system.

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

3. Package check

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

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

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

   2. Check if a previous version of this software is installed.

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

   3. If the name of the installed package is displayed by the above operation, the package is already installed. After saving the configuration files, remove the displayed package from the system. See "3. Saving the Configuration files" for how to save a configuration files, and see "Chapter 4 Uninstallation" for how to remove a package.

   4. Before installing this software, check that enough disk space is available, For the disk size used by this software, see "2.3 Static disk resources" If there is insufficient space available, reconfigure the disk partition.

4. Saving the configuration files

   This software contains several configuration files. Before upgrading this software, save the configuration files by executing the command listed below. For detailed information about the command, refer to "4.6.1 Backing up Configuration Files" in PRIMECLUSTER Global Link Services Configuration and Administration Guide: Redundant Line Control Function.

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

Note

. . . .

The configuration file backed up in Red Hat Enterprise Linux 7 or earlier environments cannot be used to restore the configuration file in the Red Hat Enterprise Linux 8 environment.

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3.2 Installation

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

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

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

   Check the default target.

Note

. . . .

   - The default target before upgrading ([multi-user.target] in the following example) varies depending on the system.

   - Put down the default target before upgrading as you can restore the system to the state prior to upgrading later.

. . . .

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

   The default target changes in single-user mode.

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

   Start the system again in single-user mode.

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

3. Insert the DVD in the DVD-ROM drive.

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

<DVDROM_DIR> will be used as the mount point.

4. Execute the CLI installer.

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


Installation of PRIMECLUSTER started.

PRODUCT : GLS


        .
        .


The installation finished successfully.
```

5. Eject the DVD.

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

6. Download patch(es)

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

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

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

3.3 Environment configuration

1. If the configuration files have been saved, execute the following command to restore them:

Refer to "4.6.2 Restoring Configuration Files" and "7.19 hanetrestore Command" in PRIMECLUSTER Global Link Services Configuration and Administration Guide: Redundant Line Control Function.

```
# cd /save_destination_directory <Return>
# /opt/FJSVhanet/usr/sbin/hanetrestore -f name_of_saved_file <Return>
```

2. Reboot the system.

The default target changes in multi-user mode.

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

Start the system again.

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

Chapter 4 Uninstallation

This chapter explains the uninstallation of this software.

Note

If you are using PRIMECLUSTER GL in combination with PRIMECLUSTER Clustering Base, refer to the installation guide of PRIMECLUSTER Clustering Base and uninstall both products at the same time.

4.1 Preparation

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

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

4.2 Uninstallation

1. Login to the system as the root user.

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

2. Boot the system in single user mode.

   Check the default target.

   ## Note

   - The default target before upgrading ([multi-user.target] in the following example) varies depending on the system.

   - Put down the default target before upgrading as you can restore the system to the state prior to upgrading later.

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

   The default target changes in single-user mode.

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

   Start the system again in single-user mode.

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

3. Insert the DVD and mount the DVD-ROM device.

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

   `<DVDROM_DIR>` will be used as the mount point.

4. Execute the CLI uninstaller.

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


  .
  .
```

```
The uninstallation finished successfully.
```

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

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

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

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

The default target changes in multi-user mode.

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

Start the system again.

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

Appendix A Troubleshooting

This chapter explains how to address problems that occur.

A.1 Error messages

The following section describes the messages display during the installation of this software and the recommended procedure of handling these messages.

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.

RMS is running.

Description

 You can not uninstall or upgrade a package while RMS is running.

Workaround

 You must switch to a single user mode before running any package operations.

A.2 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.

Appendix B Upgrading from old versions

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

📝 **Note**

. . . .

The configuration file backed up in Red Hat Enterprise Linux 7 or earlier environments cannot be used to restore the configuration file in the Red Hat Enterprise Linux 8 environment.

. . . .

1. Boot the system in single user mode.

   Check the default target.

   📝 **Note**

   . . . .

   - The default target before upgrading ([multi-user.target] in the following example) varies depending on the system.

   - Put down the default target before upgrading as you can restore the system to the state prior to upgrading later.

   . . . .

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

   The default target changes in single-user mode.

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

   Start the system again in single-user mode.

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

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

3. Proceed the following steps.

   1. Create a backup directory.

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

   2. Back up the GLS operating environment.

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

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

   3. 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.
      ```

   4. 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.
```

5. 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.
```

6. Eject DVD.

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

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

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

4. Reboot the system.

The default target changes in multi-user mode.

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

Start the system again.

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

5. Download patch(es)

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

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

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

Appendix C Necessary OS packages to be installed

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

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

None.

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

Package	Architecture
tar	x86_64