

PRIMECLUSTER GLS 4.3A20A

Installation Guide

Oracle Solaris

J2S2-1606-03ENZ0(02)
February 2014

Preface

Purpose

This manual explains how to install PRIMECLUSTER GLS.

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 appendix. 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 Messages	Explains the messages displayed by installer.

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:

- Global Link Services is abbreviated as GLS.
- Global Disk Services is abbreviated as GDS.

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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.

1.1 Oracle Solaris 10

No.	Package	Version	Function
1	FJSVhanet	2.8.1	Providing highly reliable transmission routes using a redundant network
2	FJSVmpnet	2.4	Providing highly reliable transmission routes using multiple NICs
3	FSUNnet	2.1.2	Online trace

1.2 Oracle Solaris 11

No.	Package	Version	Function
1	FJSVhanet	2.8.1	Providing highly reliable transmission routes using a redundant network
2	FJSVrvnet	1.0	Providing highly reliable transmission routes using a virtualized NIC

Chapter 2 Operation environment

This chapter explains the operation environment of this software.

2.1 Software environment

1. Required basic software

To use this software, install either of the following basic softwares.

No.	Basic Software	Remark
1	Oracle Solaris 10 (8/11 or later)	
2	Oracle Solaris 11	FJSVrvnet requires Oracle Solaris 11.1.

2. Required software

To use this software, the following software product is required.

No.	Software	Package	Version and/or level	Remark
1	-	FJSViomp	2.3	For Oracle Solaris 10. (*)

(*) Proper operation of this software requires the FJSViomp package, which comes bundled with this software on the same DVD.

3. Exclusive software

None.

4. Required patches

To use this software, the following patch is required.

No.	Software	ID/PTF	Remark
1	-	T009351SP-01 or later	For Oracle Solaris11, the necessary patch for the FJSVhanet package.

Note

We recommend that the basic software patch "Program Temporary Fixes (PTFs)" , "FUJITSU Recommended & Security Patch Clusters (FJ RSPC)" and "Support Repository Update (SRU)" be applied.

2.2 Hardware environment

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

1. Memory

128MB 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)	Remark
1	/	1.0	
2	/usr	0.8	
3	/var	4.0	
4	/home	0	
5	/opt	20.0	

2.3.2 Required work area

None.

2.4 Dynamic disk resources

None.

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	10.0	When it is a dual network using the Redundant Line Control Function (Fast switching mode).
2	10.0	When it is a dual network using the Redundant Line Control Function (NIC switching mode).
3	20.0	When it is a dual network using the Redundant Line Control Function (GS linkage mode).
4	30.0	When it is a dual network using the Redundant Line Control Function (Virtual NIC mode)

Chapter 3 Installation

This chapter explains the installation of this software.

3.1 Preparations

1. Time required

It takes approximately 2 minute to install this software.

2. Checking the system environment

1. Check if a previous version of this software is installed. For the package name, see "[1.1 Oracle Solaris 10](#)" or "[1.2 Oracle Solaris 11](#)".

```
# pkginfo -l package_name <RETURN>
```

2. 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 "2. Saving the Configuration files" for how to save a configuration files, and refer to "[Chapter 4 Uninstallation](#)" for how to remove a package.
3. 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. To install the FJSVmpnet package, it is necessary to install the FJSViomp packages first. If not installed, install the FJSViomp packages first, then install this software.

3. Saving the Configuration files

- If the Redundant Line Control Function is used

1. This software contains several configuration files. Before uninstalling this software, save the configuration files by executing the command listed below. For detailed information about the command, refer to the "PRIMECLUSTER Global Link Services Configuration and Administration Guide (Redundant Line Control Function)".

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

- If the Multipath Function is used

1. This software contains the following configuration files.

```
/etc/opt/FJSVmpnet/conf/config  
/etc/opt/FJSVmpnet/conf/parameters  
/etc/opt/FJSVmpnet/conf/hosts  
/etc/opt/FJSVmpnet/conf/hosts6  
/etc/opt/FJSVmpnet/conf/hostname  
/etc/opt/FJSVmpnet/conf/hostname6
```

2. The above configuration files are automatically saved when the package is uninstalled, and they are automatically restored when the original software or an updated version is installed. To save configuration files for system replacement or other reasons, use the following procedure.

```
# cd /etc/opt/FJSVmpnet <RETURN>  
# tar cvf - conf | compress > mpnetfile.tar.Z <RETURN>
```


3.2 Installation

3.2.1 Installation to physical environment / global zone / control domain / guest domain

1. Insert DVD of this software into the DVD drive.
2. Login to the system and become a root user.

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

3. Mount the DVD.

```
# mkdir -p /cdrom/cdrom0 <Return> (*1)
# /usr/sbin/mount -F hfs -o ro /dev/dsk/c0t4d0s2 /cdrom/cdrom0 <Return> (*2)
```

(*1) Checks if "/cdrom/cdrom0" directory exists and creates accordingly.

(*2) Since the underlined device name is different according to the machine environment, please confirm it.

4. If you use Oracle Solaris 10, Check if the FJSViomp 2.3 version or later is installed.

```
# pkginfo -l FJSViomp.* <Return>
```

If the command indicates the FJSViomp version 2.2 or earlier, uninstall all the FJSViomp packages from the system.

```
# pkgrm FJSViomp <Return>
```

If the older FJSViomp versions are removed, or no FJSViomp versions are installed, install the FJSViomp package by executing the pkgadd(1M) command.

```
# pkgadd -d /cdrom/cdrom0/Tool/Pkgs FJSViomp <Return>
```

5. Execute the installation script.

```
# cd /cdrom/cdrom0/Tool <Return>
# ./cluster_install -e PCL-GLS <Return>

:
:

The installation was finished successfully.
#
```

6. Execute the shutdown(1M) command to reboot the system.

```
# /usr/sbin/shutdown -y -g0 -i6 <Return>
```

3.2.2 Installing non-global zone

1. Insert DVD of this software into the DVD drive.
2. Login to the global zone and become a root user.

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

3. Boot the non-global zone in single user mode from the global zone.

```
# zoneadm -z zone-a boot -s <Return>
```

"zone-a" is the name of the non-global zone into which this software is going to be installed. This name will change depending on the system configuration. In the following examples, the name of the non-global zone will be "zone-a".

4. Mount the DVD on the global zone.

```
# mkdir -p /cdrom/cdrom0 <Return> (*1)
# /usr/sbin/mount -F hsfs -o ro /dev/dsk/c0t4d0s2 /cdrom/cdrom0 <Return> (*2)
```

(*1) Checks if "/cdrom/cdrom0" directory exists and creates accordingly.

(*2) Since the underlined device name is different according to the machine environment, please confirm it.

5. Execute the installation script from the global zone.

```
# cd /cdrom/cdrom0/Tool <Return>
# ./cluster_install -e PCL-GLS -z zone-a <Return>

Checking <zone-a> for installing PRIMECLUSTER ...finished.
Preparing for installing PRIMECLUSTER into <zone-a> ...finished.
Installing PRIMECLUSTER into <zone-a> ...
:
:
The installation was finished successfully.
Executing post-install process on <zone-a> ...finished.
-----Installation result-----
zone-a:succeeded

Please restart zone-a.
The installation was finished successfully.
#
```

Check if "zonename:succeeded" is displayed in the "Installation result" field.

6. Reboot the non-global zone from the global zone.

```
# zlogin zone-a /usr/sbin/shutdown -y -g0 -i6 <Return>
```

3.3 Environment configurations

- If the Redundant Line Control Function is used

1. Check SMF service of GLS has been started using the following steps.

```
# svcs -a | grep fjsvhanet <Return>
disabled HH:MM:SS svc:/network/fjsvhanet:default
disabled HH:MM:SS svc:/network/fjsvhanet-poll:default
```

1. If SMF service of GLS is "disbale", start SMF service using the following steps.

```
# svcadm enable /network/fjsvhanet <Return>
# svcadm enable /network/fjsvhanet-poll <Return>
```

2. If start an SMF service in the above, Check SMF service of GLS is "online".

```
# svcs -a | grep fjsvhanet <Return>
online HH:MM:SS svc:/network/fjsvhanet:default
online HH:MM:SS svc:/network/fjsvhanet-poll:default
```

2. If the configuration files included with FJSVhanet package have been saved, execute the following command to restore them.

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

3. If you use the DR (Dynamic Reconfiguration) cooperation function, please do the verification and modification of the configuration file using the method below. Please perform this procedure on the physical environment, and the global zone.

[Configuration file name]

/opt/FJSVhanet/etc/dr.d/hanet_dr_dev

[Content of change]

Please confirm that the driver name of the NIC used with GLS has been described in the configuration file. For the driver name which is not written in the configuration file (/opt/FJSVhanet/etc/dr.d/hanet_dr_dev), please add it to the end of the configuration file.

```
hme
qfe
eri
vge
ge
fjge
fjgx
fjqe
fjgi
ce
ibdl
bge
e1000g
nxge
fjxge
newdev
```

- If the Multipath Function is used

1. If the configuration files included with an earlier version has been saved, execute the following procedure to restore them.

```
# cd /etc/opt/FJSVmpnet <RETURN>
# uncompress mpnetfile.tar.Z <RETURN>
# tar xvf mpnetfile.tar <RETURN>
```

2. Setup the configuration files by following the procedure given in the "PRIMECLUSTER Global Link Services Configuration and Administration Guide (Multipath Function)".

Chapter 4 Uninstallation

This chapter explains the uninstallation of this software.

4.1 Preparations

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 from physical environment / global zone / control domain / guest domain

If the virtual NIC mode of GLS is used, it is necessary to delete the GLS configuration settings and then delete this software. For more information, refer to the "Chapter 3.2" on "PRIMECLUSTER Global Link Services Configuration and Administration Guide 4.3 Redundant Line Control Function for Virtual NIC Mode".

1. Insert DVD of this software into the DVD drive.
2. Login to the system and become a root user.

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

3. Mount the DVD.

```
# mkdir -p /cdrom/cdrom0 <Return> (*1)
# /usr/sbin/mount -F hfs -o ro /dev/dsk/c0t4d0s2 /cdrom/cdrom0 <Return> (*2)
```

(*1) Checks if "/cdrom/cdrom0" directory exists and creates accordingly.

(*2) Since the underlined device name is different according to the machine environment, please confirm it.

4. Execute the uninstallation script.

```
# cd /cdrom/cdrom0/Tool <Return>
# ./cluster_uninstall -e PCL-GLS <Return>
Are you sure to remove PRIMECLUSTER software packages from the global zone?(y,n) y <Return>

:
:

Uninstallation was successful.
#
```

Check if "Uninstallation was successful" is displayed.

5. Uninstall the FSUNnet package. Note that the FSUNnet package is used for the other products. If any of the following products has been installed, skip this step.
 - PRIMECLUSTER Clustering Base
 - Netcompo series software products

Execute the pkgrm(1M) command to remove it.

```
# pkgrm FSUNnet <Return>
```

- 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 is not deleted. Delete this directory after saving or deleting script files.

```
# /usr/bin/rm -r /etc/opt/FJSVhanet <Return>
```

Note

FJSViomp is a common package included in ETURNUS multi path driver. Please check whether it is being used by other products and then uninstall it.

4.3 Uninstallation from non-global zone

- Insert DVD of this software into the DVD drive.
- Login to the global zone and become a root user.

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

- Boot the non-global zone in single user mode from the global zone.

```
# zoneadm -z zone-a boot -s <Return>
```

"zone-a" is the name of the non-global zone which this software is going to be uninstalled. This name will change depending on the system configuration. In the following examples, the name of the non-global zone will be "zone-a".

- Mount the DVD on the global zone.

```
# mkdir -p /cdrom/cdrom0 <Return> (*1)
# /usr/sbin/mount -F hfs -o ro /dev/dsk/c0t4d0s2 /cdrom/cdrom0 <Return> (*2)
```

(*1) Checks if "/cdrom/cdrom0" exists and creates accordingly.

(*2) Since the underlined device name is different according to the machine environment, please confirm it.

- Execute the uninstallation script cluster_uninstall.

```
# cd /cdrom/cdrom0/Tool <Return>
# ./cluster_uninstall -e PCL-GLS -z zone-a <Return>
Are you sure to remove PRIMECLUSTER software packages from <zone-a>?(y,n) y <Return>
Checking <zone-a> for uninstalling PRIMECLUSTER ...finished.
Preparing for uninstalling PRIMECLUSTER from <zone-a> ...finished.
Uninstalling PRIMECLUSTER from <zone-a> ...
:
:
Uninstallation was successful.
Executing post-uninstall process on <zone-a> ...finished.

-----Uninstallation result-----
zone-a:succeeded
#
```

Check if "zonename:succeeded" is displayed in "Uninstallation result" field.

- In GLS (Redundant Line Control Function), when using the user command execution function and script files remains, the directory under /etc/opt/FJSVhanet is not deleted. Login to the non-global zone and delete this directory after saving or deleting script files.

```
# zlogin zone-a <Return>
# /usr/bin/rm -r /etc/opt/FJSVhanet <Return>
```

7. Unmount the DVD, and eject DVD.

```
# cd / <Return>
# /usr/sbin/umount /cdrom/cdrom0 <Return>
```

Appendix A Messages

This chapter explains the messages displayed by installer.

A.1 Error Messages

ERROR: This installation is running now.

Description

The "cluster_install" command is running for another process.

Workaround

Wait until the command is done, and execute it again.

ERROR: This software needs <sparc> architecture.

Description

The CPU type of the machine is not sparc.

Workaround

The "cluster_install" command can only be used on sparc machines.

ERROR: This software needs Oracle Solaris 10 or later.

Description

The OS version of the machine is earlier than Oracle Solaris 10.

Workaround

The "cluster_install" command can only be used on machines with Oracle Solaris 10 or higher.

ERROR: To use this installer you must be the root user.

Description

The user authority is not root.

Workaround

Execute the "cluster_install" command using a root user access privilege.

ERROR: Installation was failed.

Description

The product installation failed.

Workaround

Refer to the following log files to investigate the cause of the installation failure:

`/var/sadm/install/logs/cluster_install`

After that, remove all the packages referring to "[Chapter 4 Uninstallation](#)", and execute the "cluster_install" command again.

Warning: The package <FJSVsnap> has not been installed.

Description

The FJSVsnap package has not been installed.

Workaround

After the installation with the "cluster_install" command is complete, install the FJSVsnap package using the `pkgadd(1M)` command.

Warning: The package <FJSViomp> has not been installed.**Description**

The FJSViomp package has not been installed.

Workaround

After the installation with the "cluster_install" command is complete, install the FJSViomp package using the pkgadd(1M) command.

**Please see the following log file.
/var/sadm/install/logs/cluster_install****Description**

See the /var/sadm/install/logs/cluster_install log file.

Workaround

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

ERROR: Failed to create file /etc/PCL-release/XX.**Description**

Creation of a file in /etc/PCL-release/XX failed. XX shows the abbreviation of the product name.

Workaround

Remove the cause of the problem then execute cluster_install again.

ERROR: network service is disabled.**Description**

Network service is disabled.
This message is output only in Oracle Solaris 11 operating environment.

Workaround

Enable network service then execute cluster_install again.

ERROR: NWAM(Network Auto-Magic) is enabled.**Description**

NWAM is enabled.
This message is output only in Oracle Solaris 11 operating environment.

Workaround

Disable NWAM then execute cluster_install again.

Uninstallation was failed.**Description**

Uninstallation was failed.

Workaround

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

PRIMECLUSTER software packages were not installed in this system.**Description**

PRIMECLUSTER software packages were not installed in this system.

Workaround

None.

ERROR: Run-level must be the single-user-state.

Description

Run-level is not the single-user-state.

Workaround

Change the run level to the single-user state then execute `cluster_uninstall` again.

ERROR: The PRIMECLUSTER software packages cannot be removed because GDS class(es) exist. Please remove the GDS class(es) and execute cluster_uninstall again.

Description

GDS class(es) exist.

Workaround

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

ERROR: Failed to remove file /etc/PCL-release/XX

Description

Removal of a file `/etc/PCL-release/XX` failed. *XX* shows the abbreviation of the product name.

Workaround

Remove the cause of the problem then execute `cluster_uninstall` again.

ERROR: Failed to remove directory /etc/PCL-release

Description

Removal of a directory `/etc/PCL-release` failed.

Workaround

Remove the cause of the problem then execute `cluster_uninstall` again.

Please see the following log file. [/var/sadm/install/logs/cluster_uninstall](#)

Description

See the `/var/sadm/install/logs/cluster_uninstall` log file.

Workaround

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

ERROR: *option* is not supported on non-global zone.

Description

option is not supported on non-global zone.

Workaround

Correct the option then execute cluster_install again.

ERROR: zonename is not running.

Description

zonename is not running.

Workaround

Start *zonename* then execute cluster_install again.

ERROR: Failed to execute "command".

Description

Failed to execute "*command*".

Workaround

Remove the cause of the problem then execute cluster_install again.

ERROR: Zonepath zonepath is not available.

Description

Zonepath *zonepath* is not available.

Workaround

Setup the zonepath correctly then execute cluster_install again.

ERROR: Failed to create XX.

Description

Creation of *XX* failed. *XX* shows file name or directory name.

Workaround

Remove the cause of the problem then execute cluster_install again.

ERROR: Failed to remove XX.

Description

Removal of *XX* failed. *XX* shows file name or directory name.

Workaround

Remove the cause of the problem then execute cluster_install again.

ERROR: Failed to copy XX to YY.

Description

Failed to copy *XX* to *YY*.

Workaround

Remove the cause of the problem then execute cluster_install again.

ERROR: Failed to confirm the return value of cluster_install on <zonename>.

Description

Failed to confirm the return value of cluster_install on <*zonename*>.

Workaround

Put down the message then contact your field engineers.

ERROR: Failed to add device *device* to <zonename>.

Description

The addition of the *device* to *zonename* failed.

Workaround

Remove the cause of the failure of the addition of the *device* to *zonename*, then execute `cluster_install` again

ERROR: Failed to setup Cluster Foundation on <zonename>.

Description

Failed to setup Cluster Foundation on <*zonename*>.

Workaround

Put down the message then contact your field engineers.

ERROR: Failed to entry 127.0.0.X to /etc/inet/hosts on <zonename>.

Description

Failed to entry 127.0.0.X to /etc/inet/hosts on <*zonename*>.

Workaround

Put down the message then contact your field engineers.

ERROR: *sysnode* already entried with following IP(s) to /etc/inet/hosts on <zonename>.

Description

sysnode already entried with following IP(s) to /etc/inet/hosts on <*zonename*>.

Workaround

Remove the entry of *sysnode* then execute `cluster_install` again.

ERROR: Entry of *sysnode* already exists in /etc/hostname.XX.

Description

Entry of *sysnode* already exists in /etc/hostname.XX. XX shows interface name.

Workaround

Remove the file /etc/hostname.XX then execute `cluster_install` again.

ERROR: `cluster_install` can only be run from global zone.

Description

`cluster_install` can only be run from global zone.

Workaround

Execute `cluster_install` on global zone.

ERROR: Result of `"/usr/bin/svcs -l svc:/network/physical:XX"` does not include "enabled" field.

Description

Result of `"/usr/bin/svcs -l svc:/network/physical:XX"` does not include "enabled" field. XX shows "default" or "nwam".

Workaround

Put down the message then contact your field engineers.

ERROR: shell/ksh88 is not installed.

Description

shell/ksh88 is not installed.

This message is output only in Oracle Solaris 11 operating environment.

Workaround

Install shell/ksh88 then execute cluster_install again.

Refer to OS manual.

WARNING: Failed to remove device *device name* from <zonename>. It should be removed later.

Description

Failed to remove *device name* from <zonename>.

Workaround

By using zonecfg(1M) command remove *device name* from <zonename> after uninstallation process.

ERROR: <pathname>: no such file

Description

The file <pathname> doesn't exist in the current working directory.

Workaround

Set the correct working directory then execute cluster_install again.

ERROR: This software does not support the current Oracle Solaris OS version.

Description

The Oracle Solaris OS version of the machine isn't supported.

Workaround

The "cluster_install" command can only be used on machines with Oracle Solaris 10 or 11.

ERROR: system/xopen/xcu4 is not installed.

Description

system/xopen/xcu4 is not installed.

This message is output only in Oracle Solaris 11 operating environment.

Workaround

Install system/xopen/xcu4 then execute cluster_install again.

Refer to OS manual.