

PRIMECLUSTER Enterprise Edition 4.3A20A

Installation Guide

Oracle Solaris

J2S2-1603-03ENZ0(03)
June 2014

Preface

Purpose

This manual explains how to install PRIMECLUSTER Enterprise Edition.

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 Messages	Explains the messages displayed by installer.
Appendix B Upgrading from old versions	Explains how to upgrade from old versions.

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.
- Windows(R) XP, Windows(R) Vista and Windows(R) 7 are abbreviated as Microsoft(R) Windows.
- Cluster Foundation is abbreviated as CF.
- Reliant Monitor Services is abbreviated as RMS.
- Global Link Services is abbreviated as GLS.
- Global Disk Services is abbreviated as GDS.
- Global File Services is abbreviated as GFS.

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A note in Uninstallation on cluster nodes has been modified	4.1.3	J2S2-1603-03ENZ0(03) J2S2-1603-03ENZ2(03)

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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.	Component	Package	Version	Function
1	Web-Based Admin View	FJSVwvcnf	4.3.2	GUI common framework, cluster management GUI
		FJSVwvbs	4.3.2	
		FJSVwvmpc	4.3.2	
		SMAWrcadm	4.3A20	
		SMAWcj2re	1.7.0	
2	Cluster Foundation (CF)	SMAWskel	2.0A03	Basic cluster services
		SMAWcf	4.3A20	
		SMAWsf	4.3A20	
		FSUNclnet	4.3.2	
		FJSVclapi	4.3.2	
		FJSVcldbm	4.3.2	
		FJSVcldev	4.3.2	
3	Cluster Configuration Backup/Restore	SMAWccbr	4.3A20	Configuration file backup and restoration
4	Netcompo BASE	FSUNnet	2.1.2	Online trace (for GLS)
5	Parallel Application Services (PAS)	SMAWpas	4.2A22	Parallel database framework
6	Reliant Monitor Services (RMS)	SMAWRrms	4.3A20	Application takeover for operational continuity
		SMAWRdfw	4.3A20	
7	Wizard Tools	SMAWRhvto	4.3A20	Tool for defining RMS configuration
		SMAWRhvba	4.3A20	
		SMAWRhvdo	4.3A20	
		SMAWRhvde	4.3A20	
		FJSVhvgl	4.3.1	
		FJSVhvgd	4.3.2	
8	System Information Output Tool	FJSVsnap	2.8	Tool for collecting troubleshooting information
9	Global Link Services (GLS)	FJSVhanet	2.8.1	Providing highly reliable transmission routes using a redundant network
		FJSVmpnet	2.4	Providing highly reliable transmission routes using multiple NICs
		FJSViomp	2.3	IOMP common framework package

No.	Component	Package	Version	Function
10	Global File Services (GFS)	FJSVgfs	4.3.2	High-availability file system
		FJSVgfsww	4.3.2	
		FJSVgfsma	4.3.2	
11	Global Disk Services (GDS)	FJSVsdx	4.3.2	High-availability volume manager
		FJSVsdxl	4.3.2	
		FJSVsdxww	4.3.20	
		FJSVsdxga	4.3.2	
12	CF Add-On (CAO)	FJSVclptl	1.3.0	CF add-on package
		FJSVclapm	4.3.2	
13	RMS Add-On (RAO)	FJSVclrms	4.3.2	RMS add-on package
		FJSVclmac	4.1.4	
		FJSVclswu	4.1.4	
		FJSVclrwz	4.3.2	
		FJSVclsfw	4.3.2	
14	GUIs	FJSVwvfrm	4.3.2	CRM view, GUI for defining RMS configuration
		FJSVwvucw	4.3.2	
		FJSVwvswf	4.3.2	

1.2 Oracle Solaris 11

No.	Component	Package	Version	Function
1	Web-Based Admin View	FJSVwvcnf	4.3.2	GUI common framework, cluster management GUI
		FJSVwvbs	4.3.2	
		FJSVwvmpc	4.3.2	
		SMAWrcadm	4.3A20	
		SMAWcj2re	1.7.0	
2	Cluster Foundation (CF)	SMAWskel	2.0A03	Basic cluster services
		SMAWcf	4.3A20	
		SMAWsf	4.3A20	
		FSUNclnet	4.3.2	
		FJSVclapi	4.3.2	
		FJSVcldbm	4.3.2	
		FJSVcldev	4.3.2	
3	Cluster Configuration Backup/Restore	SMAWccbr	4.3A20	Configuration file backup and restoration
4	Parallel Application Services (PAS)	SMAWpas	4.3A10	Parallel database framework
5	Reliant Monitor Services (RMS)	SMAWRrms	4.3A20	Application takeover for operational continuity
		SMAWRdfw	4.3A20	
6	Wizard Tools	SMAWRhvto	4.3A20	Tool for defining RMS configuration

No.	Component	Package	Version	Function
		SMAWRhvba	4.3A20	
		SMAWRhvdo	4.3A20	
		SMAWRhvde	4.3A20	
		FJSVhvgl	4.3.1	
		FJSVhvgd	4.3.2	
7	System Information Output Tool	FJSVsnap	2.8	Tool for collecting troubleshooting information
8	Global Link Services (GLS)	FJSVhanet	2.8.1	Providing highly reliable transmission routes using a redundant network
		FJSVrvnet	1.0	Providing highly reliable transmission routes using a virtualized NIC
		FJSViomp	2.3	IOMP common framework package
9	Global Disk Services (GDS)	FJSVsdx	4.3.2	High-availability volume manager
		FJSVsdxl	4.3.2	
		FJSVsdxwv	4.3.20	
		FJSVsdxga	4.3.2	
10	CF Add-On (CAO)	FJSVclptl	1.3.0	CF add-on package
		FJSVclapm	4.3.2	
11	RMS Add-On (RAO)	FJSVclrms	4.3.2	RMS add-on package
		FJSVclmac	4.1.4	
		FJSVclswu	4.1.4	
		FJSVclrwz	4.3.2	
		FJSVclsfw	4.3.2	
12	GUIs	FJSVwvfrm	4.3.2	CRM view, GUI for defining RMS configuration
		FJSVwvucw	4.3.2	
		FJSVwvswfw	4.3.2	

Chapter 2 Operation environment

This chapter explains the operation environment of this software.
Before you install this software, your system must meet the following prerequisites.

1. Cluster node

This software must be installed and a cluster system is configured on a cluster node.

2. Cluster management server

A cluster management server manages cluster operation and features web server functions.

A cluster management server is Web-Based Admin View server. Web-Based Admin View is a common base to utilize GUI (operation management view).

This enables the administrator to operate all monitored nodes only by accessing to the management server.

The management server is necessary to duplicate. The server can be as a cluster node.

When Web-Based Admin View is configured in the three-tier model, a cluster management server is required.

When Web-Based Admin View is configured in the two-tier model, a cluster node is used instead of a cluster management server.

For information about the Web-Based Admin View operating models, see Section "2.4 Determining the Web-Based Admin View Operation Mode" of the "PRIMECLUSTER Installation and Administration Guide".

2.1 Cluster node operating environment

This section explains operating environment of cluster node.

2.1.1 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)	When installing Oracle Solaris 10, select the software group that includes Developer System Support.
2	Oracle Solaris 11	Please confirm that the solaris-large-server package group is installed. FJSVrvnet requires Oracle Solaris 11.1.

Note

If you use GDS for system disk mirroring in a ZFS boot environment, refer to "System Disk Mirroring in a ZFS Boot Environment" of "A.2 Important Points" in "PRIMECLUSTER Global Disk Services Configuration and Administration Guide" for notes on OS installation.

2. Required software

To use this software, the following software products are required.

No.	Software	Package	Version and/or level	Remark
1	Windows(R) XP, Windows(R) Vista, Windows(R) 7			To use as a client of Web-Based Admin View, one of them is required.

No.	Software	Package	Version and/or level	Remark
2	J2SE(TM) Runtime Environment		7u9 or later	Required to use as a client of Web-Based Admin View. The use of the latest version is recommended. Version "7u9" is included in the DVD.
3	Microsoft Internet Explorer		7 8 9	To use Microsoft(R) Windows as a client of Web-Based Admin View, one of them is required.

3. Exclusive software

None.

4. Required patches

To use this software, the following patch is required.

No.	Software	ID/PTF	Remark
1	Enhanced Support Facility	915163-01 or later	For Oracle Solaris10, the necessary patch for the FJSVsnap package.
2	PRIMECLUSTER(TM) Enterprise Edition	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..

2.1.2 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

The following I/O device is required.

No.	Device	Type	Remark
1	Gigabit Ethernet card	SE0X7GD1F etc	For cluster interconnection.

3. Related hardware

It is hardware that relates to this software.

No.	Machine	Model	Remark
1	Personal Computer	FM-V, etc	Required to use as a client of Web-Based Admin View.

2.1.3 Static disk resources

The disk space requirements for this software are shown below.

2.1.3.1 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	/	41.0	
2	/usr	10.0	
3	/var	5.0	
4	/home	0	
5	/opt	231.0	

2.1.3.2 Required work area

None.

2.1.4 Dynamic disk resources

The dynamic disk space requirements for this software are shown below.

2.1.4.1 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 "[2.1.3 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	61.0	When cluster initial settings are done.
	/opt	1.0	
2	/var	63.0	When RMS is operating.
	/opt	1.0	
3	/var	50.0	When a system disk is mirrored on GDS.
4	/	0.1	When GFS shared file systems are activated regardless of the number of GFS shared file systems.
	/var	10.0	
5	/var	24.5	When one GFS shared file system is activated. If multiple file systems are activated, 24.5 MB is required for each file system.

2.1.5 Required memory

The following table shows the memory required when this software is operated in the following environment.

No.	Memory (in MB)	Operation
1	300.0	When cluster initial settings are done.
2	100.0	When RMS is operating.
3	190.0	When a system disk is mirrored on GDS.
4	15.1	When GFS settings are done.

No.	Memory (in MB)	Operation
5	40.0	When one GFS shared file system is activated. If multiple file systems are activated, 40.0 MB is required for each file system.

2.2 Cluster management server operating environment

This section explains operating environment of cluster management server.

2.2.1 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)	When installing Oracle Solaris 10, select the software group that includes Developer System Support.
2	Oracle Solaris 11	Please confirm that the solaris-large-server package group is installed.

2. Required software

To use this software, the following software products are required.

No.	Software	Package	Version and/or level	Remark
1	Windows(R) XP, Windows(R) Vista, Windows(R) 7			To use as a client of Web-Based Admin View, one of them is required.
2	J2SE(TM) Runtime Environment		7u9 or later	Required to use as a client of Web-Based Admin View. The use of the latest version is recommended. Version "7u9" is included in the DVD.
3	Microsoft Internet Explorer		7 8 9	To use Microsoft(R) Windows as a client of Web-Based Admin View, one of them is required.

3. Exclusive software

None.

4. Required patches

To use this software, the following patch is required.

No.	Software	ID/PTF	Remark
1	Enhanced Support Facility	915163-01 or later	For Oracle Solaris10, the necessary patch for the FJSVsnap 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.

2.2.2 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

The following I/O devices are required.

No.	Device	Type	Remark
1	Gigabit Ethernet card	SE0X7GD1F etc	Required for the three-tier model with separate networks.

3. Related hardware

It is hardware that relates to this software.

No.	Machine	Model	Remark
1	Personal Computer	FM-V, etc	Required to use as a client of Web-Based Admin View.

2.2.3 Static disk resources

The disk space requirements for this software are shown below.

2.2.3.1 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	/	20.0	
2	/usr	50.0	
3	/var	20.0	
4	/home	0	
5	/opt	300.0	

2.2.3.2 Required work area

None.

2.2.4 Dynamic disk resources

The dynamic disk space requirements for this software are shown below.

2.2.4.1 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 "[2.2.3 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	50.0	Required for operating Web-Based Admin View.

2.2.5 Required memory

The following table shows the memory required when this software is operated in the following environment.

No.	Memory (in MB)	Operation
1	300.0	When operating the management server in the three-tier architecture.

Chapter 3 Installation

This chapter explains the installation of this software.

3.1 Installation on cluster nodes

This section explains installation on cluster nodes.

3.1.1 Preparations

1. Time required

It takes approximately 15 minutes to install this software.

2. Installation of Oracle Solaris 11 packages

If you use Oracle Solaris 11, install the following packages from Oracle Solaris 11 Package Repository. For information about installing packages from Oracle Solaris 11 Package Repository, see OS manual.

- group/system/solaris-large-server
- shell/ksh88
- text/locale

3. System environment check

1. Check the available disk space for installing this software. For information on the disk space requirements, see "[2.1.3 Static disk resources](#)". If the disk space is not enough, reconfigure the disk partition.
2. If you use Oracle Solaris 11, to install this software, 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","::1".

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" and "::1" using vi(1) and allocate it to the IP address of the admin LAN.

Before change)

```
#
# Copyright 2009 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.
#
# Internet host table
#
::1 host-name localhost
127.0.0.1 host-name localhost loghost
```

After change)

```
#
# Copyright 2009 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.
#
# Internet host table
#
::1 localhost
127.0.0.1 localhost loghost
IP-Address host-name
```

3.1.2 Installation

3.1.2.1 Installation to physical environment / global zone / 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. The system is changed to the OpenBoot environment.

```
# /usr/sbin/shutdown -y -g0 -i0 <Return>
```

4. Start the system in single user mode.

```
{0} ok boot -s <Return>
```

5. Mount necessary file systems.

```
# /usr/sbin/zfs mount -a <Return>
```

When installing in the UFS file system directory, please execute the following command.

```
# /usr/sbin/mountall -l <Return>
```

6. Mount the DVD.

```
# mkdir -p /cdrom/cdrom0 <Return> (*1)
# /usr/sbin/mount -F hfsfs -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.

7. Check if the FJSVsnap package is installed.

Please check that a newer version than "1.1 Oracle Solaris 10" or "1.2 Oracle Solaris 11" is installed.

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

If the command indicates that the FJSVsnap version is old, uninstall all the FJSVsnap packages from the system.

```
# pkgrm FJSVsnap <Return>
```

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

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

8. 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>
```

9. Execute the installation script.

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

Installing package <SMAWcj2re> ...finished.
Installing package <FJSVwvcnf> ...finished.
:
:

The installation was finished successfully.
#
```

Check if "The installation was finished successfully" is displayed.

10. Unmount the DVD, and eject DVD.

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

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

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

3.1.2.2 Installation to 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. Login to the non-global zone.

```
# zlogin zone-a <RETURN>
```

5. Check if the FJSVsnap package is installed.

Please check that a newer version than "1.1 Oracle Solaris 10" or "1.2 Oracle Solaris 11" is installed.

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

If the command indicates that the FJSVsnap version is old, uninstall all the FJSVsnap packages from the system.

```
# pkgrm FJSVsnap <Return>
```

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

To access the media of this software from a non-global zone, mount the media on a non-global zone or copy the DVD data to the non-global zone. In the following example, the directory of the DVD in the non-global zone is /cdrom/cdrom0.

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


6. 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" exists and creates accordingly.

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

7. Execute the installation script from the global zone.

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

Checking <zone-a> for installing PRIMECLUSTER ...finished.
Preparing for installing PRIMECLUSTER into <zone-a> ...finished.
Installing PRIMECLUSTER into <zone-a> ...
Installing package <SMAWcj2re> ...finished.
    :
    :
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.

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

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

3.1.3 Environment configurations

1. Adjust the kernel parameters

Before working on the environment configuration, it is necessary to adjust the kernel parameters according to the PRIMECLUSTER system configuration. Estimate the required parameter values and enable them in the "/etc/system file" on all the nodes, referring to Section "A. 5 Kernel Parameter worksheet" of the "PRIMECLUSTER Installation and Administration Guide".

If you use Oracle Solaris 10, add the following description to "/etc/system" file. Please perform this procedure on all of the Oracle Solaris 10 environment (include the global zone, non-global zone, the control domain, the guest domain, the I/O root domain, and the I/O domain) in which this software was installed.

```
set ip:tcp_fusion_rcv_unread_min=0
```

The other kernel parameters needs the default values.

2. Reboot the system

Reboot the system to enable the settings for part 1.

3. Change the GLS configuration file

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 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
```

4. Editing .profile

In Oracle Solaris 11, add the following line in /root/.profile (.profile file for the root user). Please perform this procedure on all of the Oracle Solaris 11 environment (include the global zone, non-global zone, the control domain, the guest domain, the I/O root domain, and the I/O domain) in which this software was installed.

```
PATH=${PATH}:/opt/SMAW/bin:/opt/SMAW/sbin ; export PATH
```

For the subsequent environment settings, refer to Section "4.3, Preparations for Starting the Web-Based Admin View Screen", "Chapter 5 Building a Cluster", and "Chapter 6 Building Cluster Applications", in the "PRIMECLUSTER Installation and Administration Guide".

3.2 Installation on cluster management server

This section explains installation on cluster management server.

If you want to operate Web-Based Admin View in the three tier model, install a cluster management server.

For information about the Web-Based Admin View operating mode, refer to Section "2.4, Determining the Web-Based Admin View Operation Mode", in the "PRIMECLUSTER Installation and Administration Guide".

3.2.1 Preparations

1. Time required

It takes approximately 15 minutes to install this software.

2. Installation of Oracle Solaris 11 packages

If you use Oracle Solaris 11, install the following packages from Oracle Solaris 11 Package Repository. For information about installing packages from Oracle Solaris 11 Package Repository, see OS manual.

- group/system/solaris-large-server
- text/locale

3. System environment check

1. Check the available disk space for installing this software. For information on the disk space requirements, see "[2.2.3 Static disk resources](#)". If the disk space is not enough, reconfigure the disk partition.
2. If you use Oracle Solaris 11, to install this software, 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", ":::1".

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" and ":::1" using vi(1) and allocate it to the IP address of the admin LAN.

Before change)

```
#
# Copyright 2009 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.
#
# Internet host table
#
:::1 host-name localhost
127.0.0.1 host-name localhost loghost
```

After change)

```
#
# Copyright 2009 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.
#
# Internet host table
#
:::1 localhost
127.0.0.1 localhost loghost
IP-Address host-name
```

3.2.2 Installation

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. The system is changed to the OpenBoot environment.

```
# /usr/sbin/shutdown -y -g0 -i0 <Return>
```

4. Start the system in single user mode.

```
{0} ok boot -s <Return>
```

5. Mount necessary file systems.

```
# /usr/sbin/zfs mount -a <Return>
```

When installing in the UFS file system directory, please execute the following command.

```
# /usr/sbin/mountall -l <Return>
```

6. Mount the DVD.

```
# 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" exists and creates accordingly.

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

7. Check if the FJSVsnap package is installed.

Please check that a newer version than "1.1 Oracle Solaris 10" or "1.2 Oracle Solaris 11" is installed.

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

If the command indicates that the FJSVsnap version is old, uninstall all the FJSVsnap packages from the system.

```
# pkgrm FJSVsnap <Return>
```

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

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

8. Execute the installation script.

```
# cd /cdrom/cdrom0/Tool <Return>
# ./cluster_install -e EE-M <Return>

Installing package <SMAWcj2re> ...finished.
Installing package <FJSVwvcnf> ...finished.
:
:

The installation was finished successfully.
#
```

Check if "The installation was finished successfully" is displayed.

9. Unmount the DVD, and eject DVD.

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

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

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

3.2.3 Environment configurations

1. Adjust the kernel parameters

If you use Oracle Solaris 10, add the following description to "/etc/system" file.

```
set ip:tcp_fusion_rcv_unread_min=0
```

2. Reboot the system

Reboot the system to enable the settings for part 1.

For the Web-Based Admin View settings, refer to Section "4.3. Preparations for Starting the Web-Based Admin View Screen", in the "PRIMECLUSTER Installation and Administration Guide".

Chapter 4 Uninstallation

This chapter explains the uninstallation of this software.

4.1 Uninstallation on cluster nodes

This section explains uninstallation on cluster nodes.

Uninstall this software from non-global zones prior to uninstallation on the global zone if this software is installed on non-global zones.

4.1.1 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.

4.1.2 Uninstallation from 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 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".

4. 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.

5. Execute the uninstallation script cluster_uninstall.

```
# cd /cdrom/cdrom0/Tool <Return>
# ./cluster_uninstall -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> ...
Removal of <FJSVhanet> was successful.
Removal of <FJSVclsfw> was successful.
:
:
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.

Note

- Uninstallation script may fail in Oracle Solaris 10 due to a bug of iSCSI patch.
The bug is included in the following patches.

(1) 141878-09 to 141878-12, and

(2) 143645-11 to 143645-14

To solve the problem, please apply an iSCSI patch 143645-15 or later or enable the SMF service of iSCSI initiator.

Example: Enabling the SMF service of iSCSI initiator

```
# svcadm enable -r svc:/network/iscsi/initiator:default
```

6. Login to the non-global zone and delete the configuration files as followings.

```
# zlogin zone-a <Return>
# cd /opt/SMAW <Return>
# rm -r SMAWRrms <Return>
# rm -r SMAWcf <Return>

# cd /etc <Return>
# rm cip.cf <Return>

# cd /etc/default <Return>
# rm cluster <Return>
# rm cluster.config <Return>

# cd /var/adm <Return>
# rm cfreg.data <Return>
```

7. 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. Delete this directory after saving or deleting script files.

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

8. Uninstall FJSVsnap package. This package is also shared with the other product. If the following product is installed, you cannot uninstall this package.

- Enhanced Support Facility (ESF)

Login to non-global zone and the Execute the pkgrm(1M) command to remove it.

```
# zlogin zone-a <Return>
# pkgrm FJSVsnap <Return>
```

Note

If both a global zone and non-global zone are on the Oracle Solaris 10 environment, you cannot uninstall FJSVsnap package from the non-global zone with pkgrm(1M) command. FJSVsnap package on the non-global zone will automatically be uninstalled when you execute the pkgrm(1M) command on the global zone.

9. Unmount the DVD, and eject DVD.

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

4.1.3 Uninstallation from physical environment / global zone / domain

If GDS is used, it is necessary to delete the GDS configuration settings and then delete this software. For more information, refer to the "PRIMECLUSTER Global Disk Services Configuration and Administration Guide".

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. The system is changed to the OpenBoot environment.

```
# /usr/sbin/shutdown -y -g0 -i0 <Return>
```

4. Start the system in single user mode.

```
{0} ok boot -s <Return>
```

5. Mount necessary file systems.

```
# /usr/sbin/zfs mount -a <Return>
```

When uninstalling in the UFS file system directory, please execute the following command.

```
# /usr/sbin/mountall -l <Return>
```

6. Mount the DVD.

```
# 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" exists and creates accordingly.

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

7. Execute the uninstallation script.

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

Removal of <FJSVsdxga> was successful.
Removal of <FJSVsdxwv> was successful.
:
:

Uninstallation was successful.
#
```

Check if "Uninstallation was successful" is displayed.

8. Execute the uninstallation script.

```
# cd /cdrom/cdrom0/Tool <Return>
# ./clesf_uninstall <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.

Note

- The uninstallation script deletes FSUNnet and FJSViomp all together. Note that these packages are used for the other products. If the following products are installed, you must not use this script.
 - Netcompo series software products
 - ETURNUS multi path driver (MPD)
- Uninstallation script may fail in Oracle Solaris 10 due to a bug of iSCSI patch. The bug is included in the following patches.

(1) 141878-09 to 141878-12, and

(2) 143645-11 to 143645-14

To solve the problem, please apply an iSCSI patch 143645-15 or later or enable the SMF service of iSCSI initiator.

Example: Enabling the SMF service of iSCSI initiator

```
# svcadm enable -r svc:/network/iscsi/initiator:default
```

9. Delete the configuration files using the following steps.

```
# cd /opt/SMAW <Return>  
# rm -r SMAWRrms <Return>  
# rm -r SMAWcf <Return>  
# rm -r SMAWsf <Return>  
  
# cd /etc/opt/SMAW <Return>  
# rm -r SMAWsf <Return>  
  
# cd /etc <Return>  
# rm cip.cf <Return>  
  
# cd /etc/default <Return>  
# rm cluster <Return>  
# rm cluster.config <Return>  
  
# cd /var/adm <Return>  
# rm cfreg.data <Return>
```

10. 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. Delete this directory after saving or deleting script files.

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

11. Uninstall FJSVsnap package. This package is also shared with the other product. If the following product is installed, you cannot uninstall this package.

- Enhanced Support Facility (ESF)

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

```
# pkgrm FJSVsnap <Return>
```

12. Unmount the DVD, and eject DVD.

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

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

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

4.2 Uninstallation on cluster management server

This section explains uninstallation on cluster management server.

4.2.1 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.

4.2.2 Uninstallation

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. The system is changed to the OpenBoot environment.

```
# /usr/sbin/shutdown -y -g0 -i0 <Return>
```

4. Start the system in single user mode.

```
{0} ok boot -s <Return>
```

5. Mount necessary file systems.

```
# /usr/sbin/zfs mount -a <Return>
```

When uninstalling in the UFS file system directory, please execute the following command.

```
# /usr/sbin/mountall -l <Return>
```

6. 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" exists and creates accordingly.

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

7. Execute the uninstallation script.

```
# cd /cdrom/cdrom0/Tool <Return>
# ./cluster_uninstall <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.

8. Uninstall FJSVsnap package. This package is also shared with the other product. If the following product is installed, you cannot uninstall this package.

- Enhanced Support Facility (ESF)

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

```
# pkgrm FJSVsnap <Return>
```

9. Unmount the DVD, and eject DVD.

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

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

```
# /usr/sbin/shutdown -y -g0 -i6 <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.

Appendix B Upgrading from old versions

This chapter explains how to upgrade from old versions.
Back up the entire system on all the nodes that require upgrading.

B.1 Upgrading cluster nodes

This section explains upgrading cluster nodes.

When this software is installed in non-global zones, upgrade the non-global zones software first.

B.1.1 Upgrading a non-global zone from PRIMECLUSTER Enterprise Edition 4.3A10

After uninstalling the previous version of this software from the non-global zone, install the new version of the software.

After installation, it is necessary to construct the non-global zone cluster. As necessary, make a backup of the previous version and perform a restore after installing the new version. For details on backup or restoring, see "Chapter 11 Backing Up and Restoring a PRIMECLUSTER System" in the "PRIMECLUSTER Installation and Administration Guide".

B.1.2 Upgrading a physical environment / global zone / domain from PRIMECLUSTER Enterprise Edition 4.2A00 / 4.3A10

Explains Upgrading a physical environment from PRIMECLUSTER Enterprise Edition 4.2A00 and upgrading a physical environment / global zone / domain from PRIMECLUSTER Enterprise Edition 4.3A10.

1. Check the RMS Configuration name.

```
# hvdisp -a | grep Configuration <Return>
Configuration: /opt/SMAW/SMAWRrms/build/<confi gname>.us
```

2. Stop RMS if you are using it.

```
# hvshut -a <Return>
```

3. The system is changed to the OpenBoot environment.

```
# /usr/sbin/shutdown -y -g0 -i0 <Return>
```

4. Use the following steps on each node for upgrading.

1. Insert DVD of this software into the DVD drive.
2. Start the system in single user mode.

```
{0} ok boot -s <Return>
```

3. Mount necessary file systems.

```
# /usr/sbin/zfs mount -a <Return>
```

When installing in the UFS file system directory, please execute the following command.

```
# /usr/sbin/mountall -l <Return>
```

4. Mount the DVD.

```
# 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" exists and creates accordingly.

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

5. Create a directory to back up the configuration file using the following commands. In this example, the "/var/tmp/backup" directory is used.

```
# cd /var/tmp <Return>
# mkdir backup <Return>
```

6. Back up the PRIMECLUSTER operating environment.

```
# cp -p /usr/opt/reliant/etc/hvipalias /var/tmp/backup <Return>
# cp -p /var/opt/FJSVclapm/etc/Tuning_Param /var/tmp/backup <Return>
# cp -p /opt/FJSVcldbm/data/DB/ApiAdjustTbl.CLDB /var/tmp/backup <Return>
# cp -p /etc/opt/FJSVcluster/etc/rmcip.conf /var/tmp/backup <Return>
# /opt/FJSVwvbs/etc/bin/wvSetport fjwv_c > /var/tmp/backup/fjwv_c <Return>
```

Check whether the backup file is created.

```
# ls -l /var/tmp/backup <Return>
```

7. If you are using GLS Redundant Line Control Function, back up the configuration file using the following command. The backup file name is "hanet YYYYMMDD.bk". YYYYMMDD indicates when the command is executed.

```
# /opt/FJSVhanet/usr/sbin/hanetbackup -d /var/tmp/backup <Return>
```

If you are using GLS Multipath Function, back up the configuration file using the following command.

```
# cd /etc/opt/FJSVmpnet <Return>
# tar cvf - conf | compress > /var/tmp/backup/mpnetfile.tar.Z <Return>
```

Check whether the backup file is created.

```
# ls -l /var/tmp/backup <Return>
```

8. Remove the package by executing the following command.

```
# cd /cdrom/cdrom0/Tool <Return>
# ./upgrade_uninstall <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.

9. Delete the files by using the following steps when upgrading from PRIMECLUSTER Enterprise Edition 4.2A00.

```
# cd /etc/init.d <Return>
# rm fjsvgfs <Return>
# rm sfcfsrm <Return>
# rm sfcinit <Return>

# cd /etc/rc0.d <Return>
# rm K00FJSVwvbs <Return>
# rm K00FJSVwvcnf <Return>
# rm K41sfcfsrm <Return>
# rm K62clrmgr <Return>
# rm K63clctrl <Return>
# rm K68CL20dbm <Return>
# rm K68clprmd <Return>
```

```

# rm K71clapi <Return>
# rm K72clrms <Return>

# cd /etc/rc1.d <Return>
# rm K41sfcfsrm <Return>
# rm K62clrmgr <Return>
# rm K63clctrl <Return>
# rm K69CL20dbm <Return>
# rm K71clapi <Return>
# rm K72clrms <Return>

# cd /etc/rc2.d <Return>
# rm S07clapi <Return>
# rm S08clrms <Return>
# rm S65CL10dbm <Return>
# rm S66clrmgr <Return>
# rm S68clrwz <Return>
# rm S71clctrl <Return>
# rm S76clprmd <Return>
# rm S80FJSVwvbs <Return>
# rm S81sfcfsrm <Return>

# cd /etc/rc3.d <Return>
# rm S32clautoconfig <Return>
# rm S98clwaitprobe <Return>
# rm S99FJSVwvcnf <Return>
# rm S99FJSVgfs <Return>

# cd /etc/rcS.d <Return>
# rm K41sfcfsrm <Return>
# rm S76sfcinit <Return>

# cd /opt/SMAW/SMAWcf/dep/start.d <Return>
# rm S81sfcfs <Return>

# cd /opt/SMAW/SMAWcf/dep/stop.d <Return>
# rm K41sfcfs <Return>

```

10. Reboot the system.

```
# /usr/sbin/shutdown -y -g0 -i0 <Return>
```

Note: The following message appears during system shutdown. This will not disrupt the ongoing operation.

```
ld.so.1: sfclog: fatal: libcf.so: open failed: No such file or directory
ld.so.1: /etc/opt/FJSVcluster/FJSVcldbmsystem/CCMstop: fatal:
libcf.so: open failed: No such file or directory
```

11. Start the system in single user mode.

```
{0} ok boot -s <Return>
```

12. Mount necessary file systems.

```
# /usr/sbin/zfs mount -a <Return>
```

When installing in the UFS file system directory, please execute the following command.

```
# /usr/sbin/mountall -l <Return>
```

13. 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" exists and creates accordingly.

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

14. Check if the FJSVsnap package is installed.

For the version, please check that an older version than "1.1 Oracle Solaris 10" or "1.2 Oracle Solaris 11" is not installed.

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

If the command indicates that the FJSVsnap version is old, uninstall all the FJSVsnap packages from the system.

```
# pkgrm FJSVsnap <Return>
```

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

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

15. 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>
```

16. Execute the installation script.

```
# cd /cdrom/cdrom0/Tool <Return>
# ./cluster_install -e EE <Return>
:
:
The installation was finished successfully.
#
```

Check if "The installation was finished successfully" is displayed.

17. Unmount the DVD, and eject DVD.

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

18. Restore the GLS operating environment.

If you are using the GLS Multipath Function, restore the file using the following commands.

```
# cd /etc/opt/FJSVmpnet <Return>
# uncompress /var/tmp/backup/mpnetfile.tar.Z <Return>
# tar xvf /var/tmp/backup/mpnetfile.tar <Return>
```

If you are using GLS Redundant Line Control Function, restore the file using the following command.

```
# /opt/FJSVhanet/usr/sbin/hanetrestore -f /var/tmp/backup/<backup_file_name> <Return>
```

The backup file name is "hanetYYYYMMDD.bk".

19. Restore the PRIMECLUSTER operating environment.

```
# /opt/FJSVwvbs/etc/bin/wvSetport fjwv_c=`cat /var/tmp/backup/fjwv_c` <Return>
# cp -p /var/tmp/backup/Tuning_Param /var/opt/FJSVclapm/etc <Return>
# cp -p /var/tmp/backup/hvipalias /usr/opt/reliant/etc <Return>
# cp -p /var/tmp/backup/ApiAdjustTbl.CLDB /opt/FJSVcldbm/data/DB <Return>
# cp -p /var/tmp/backup/rmcip.conf /etc/opt/FJSVcluster/etc/rmcip.conf <Return>
```

20. Add the following setting in the "/opt/SMAW/SMAWRrms/bin/hvenv.local" file to make RMS auto-startup OFF.

```
export HV_RCSTART=0
```

5. If the upgrading process above is complete on all the nodes, reboot the system by executing the shutdown(1M) command. Check that the system has been started on each node.

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

6. Set the GLS configuration.

Check SMF service of GLS if it was started by using the following steps after OS has been started on all the nodes.

```
# 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 by 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
```

7. "InitFailed" may be displayed as the initial state of the shutdown facility, or "Unknown" or "TestFailed" may be displayed as the test status. Perform the following steps.

1. Check the status for the shutdown facility on all the nodes.

```
# /opt/SMAW/bin/sdtool -s <Return>
```

Cluster	Host	Agent	SA State	Shut State	Test State	Init State
node1		SA_pprcip.so	Idle	Unknown	Unknown	InitFailed
node1		SA_xscfp.so	Idle	Unknown	Unknown	InitFailed
node1		SA_rccu.so	Idle	Unknown	Unknown	InitFailed
node1		SA_pprcir.so	Idle	Unknown	Unknown	InitFailed
node1		SA_xscfr.so	Idle	Unknown	Unknown	InitFailed
node2		SA_pprcip.so	Idle	Unknown	Unknown	InitFailed
node2		SA_xscfp.so	Idle	Unknown	Unknown	InitFailed
node2		SA_rccu.so	Idle	Unknown	Unknown	InitFailed
node2		SA_pprcir.so	Idle	Unknown	Unknown	InitFailed
node2		SA_xscfr.so	Idle	Unknown	Unknown	InitFailed

2. Change the login password on the console by referring to Section "8.3 Changing the User Name and Password for Controlling the console (Operation Procedure 2)" in the "PRIMECLUSTER Installation and Administration Guide".

If the value is entered in the password field on the console, please delete the contents of the password field and enter the password again.

8. If you are using RMS, execute the following command on one of the cluster nodes.

```
# hvw -xj -n <configname> -F Configuration-Activate <Return>
```

9. If you are using RMS, return the file setting to its original state on all the nodes according to the following steps.

1. Add the following setting in the "/opt/SMAW/SMAWRrms/bin/hvenc.local" file to make RMS auto-startup ON.

```
export HV_RCSTART=1
```

2. Start RMS.

```
# hvcm <Return>
```

B.2 Cluster management server upgrading

This section explains upgrading cluster management server.

B.2.1 Upgrading from PRIMECLUSTER Enterprise Edition 4.2A00 / 4.3A10

1. All the cluster management servers are changed to the OpenBoot environment.

```
# /usr/sbin/shutdown -y -g0 -i0 <Return>
```

2. Use the following steps on cluster management server for upgrading.

1. Insert DVD of this software into the DVD drive.

2. Start the system in single user mode.

```
{0} ok boot -s <Return>
```

3. Mount necessary file systems.

```
# /usr/sbin/zfs mount -a <Return>
```

When installing in the UFS file system directory, please execute the following command.

```
# /usr/sbin/mountall -l <Return>
```

4. Mount the DVD.

```
# 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" exists and creates accordingly.

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

5. Create a directory to back up the configuration file using the following commands. In this example, the "/var/tmp/backup" directory is used.

```
# cd /var/tmp <Return>  
# mkdir backup <Return>
```

6. Back up the PRIMECLUSTER operating environment.

```
# /opt/FJSVwvbs/etc/bin/wvSetport fjwv_c > /var/tmp/backup/fjwv_c <Return>
```

Check whether the backup file is created.

```
# ls -l /var/tmp/backup <Return>
```

7. Remove the package by executing the following command.

```
# cd /cdrom/cdrom0/Tool <Return>  
# ./upgrade_uninstall <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.

8. Execute the installation script.

```
# cd /cdrom/cdrom0/Tool <Return>
# ./cluster_install -e EE-M <Return>

:
:

The installation was finished successfully.
#
```

Check if "The installation was finished successfully" is displayed.

9. Delete the files by using the following steps when upgrading from PRIMECLUSTER Enterprise Edition 4.2A00.

```
# cd /etc/rc0.d <Return>
# rm K00FJSVwvbs <Return>
# rm K00FJSVwvcnf <Return>

# cd /etc/rc2.d <Return>
# rm S80FJSVwvbs <Return>

# cd /etc/rc3.d <Return>
# rm S99FJSVwvcnf <Return>
```

10. Unmount the DVD, and eject DVD.

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

11. Restore the PRIMECLUSTER operating environment.

```
# /opt/FJSVwvbs/etc/bin/wvSetport fjwv_c=`cat /var/tmp/backup/fjwv_c` <Return>
```

3. If the upgrading process above is complete on all the cluster management servers, reboot the system by executing the shutdown(1M) command.

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