FUJITSU

**FUJITSU Software
PRIMECLUSTER**

Easy Design and Configuration Guide 4.5

Linux

Preface

This manual describes the procedures from installing PRIMECLUSTER Easy Design and Configuration Feature to constructing PRIMECLUSTER configurations with it.

Target Readers

This manual is intended for all users who use PRIMECLUSTER Easy Design and Configuration Feature and presumes some knowledge about PRIMECLUSTER.

Configuration of This Documentation

This manual is organized as follows.

Chapter title	Description
Chapter 1 Role of PRIMECLUSTER Easy Design and Configuration Feature	This chapter provides an overview of PRIMECLUSTER Easy Design and Configuration Feature.
Chapter 2 Installation	This chapter explains the procedures for installing PRIMECLUSTER Easy Design and Configuration Feature.
Chapter 3 Workflows for Design and Construction	This chapter describes workflows for designing and constructing with PRIMECLUSTER Easy Design and Configuration Feature.
Chapter 4 Design View	This chapter explains the operations for using PRIMECLUSTER Easy Design and Configuration Feature to design cluster systems.
Chapter 5 Build View	This chapter explains the operations for using PRIMECLUSTER Easy Design and Configuration Feature to configure cluster systems and applications.
Chapter 6 Modification of Settings	This chapter explains how to modify settings in PRIMECLUSTER Easy Design and Configuration Feature.
Appendix A Troubleshooting	This section describes corrective actions for problems that may occur when using PRIMECLUSTER Easy Design and Configuration Feature.
Appendix B Release Information	This section lists the main changes in this manual.

Related Documentation

Refer to the following manuals as necessary when setting up the cluster:

- PRIMECLUSTER Concepts Guide

- PRIMECLUSTER Installation and Administration Guide

- PRIMECLUSTER Web-Based Admin View Operation Guide

- PRIMECLUSTER Cluster Foundation (CF) Configuration and Administration Guide

- PRIMECLUSTER Reliant Monitor Services (RMS) with Wizard Tools Configuration and Administration Guide

- PRIMECLUSTER Global Disk Services Configuration and Administration Guide

- PRIMECLUSTER Global File Services Configuration and Administration Guide

- PRIMECLUSTER Global Link Services Configuration and Administration Guide: Redundant Line Control Function

- PRIMECLUSTER Messages

- FJQSS (Information Collection Tool) User's Guide

Note

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The PRIMECLUSTER documentation includes the following documentation in addition to those listed above:

- PRIMECLUSTER Software Release Guide and Installation Guide

This Software Release Guide and Installation Guide are provided with each PRIMECLUSTER product package.

The data is stored on "DVD" of each package. For details on the file names, see the documentation.

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Manual Printing

If you want to print a manual, use the PDF file found on the DVD for the PRIMECLUSTER product. The correspondences between the PDF file names and manuals are described in the Software Release Guide for PRIMECLUSTER that comes with the product.

Adobe Reader is required to read and print this PDF file. To get Adobe Reader, see Adobe Systems Incorporated's website.

Conventions

Notation

Prompts

Command line examples that require system administrator (or root) rights to execute are preceded by the system administrator prompt, the hash sign (#). Entries that do not require system administrator rights are preceded by a dollar sign ($).

Manual page section numbers

References to the Linux(R) operating system commands are followed by their manual page section numbers in parentheses - for example, cp(1)

The keyboard

Keystrokes that represent nonprintable characters are displayed as key icons such as [Enter] or [F1]. For example, [Enter] means press the key labeled Enter; [Ctrl-b] means hold down the key labeled Ctrl or Control and then press the [B] key.

Typefaces

The following typefaces highlight specific elements in this manual.

Typeface	Usage
Constant Width	Computer output and program listings; commands, file names, manual page names and other literal programming elements in the main body of text.
Italic	Variables that you must replace with an actual value.
Bold	Items in a command line that you must type exactly as shown.

Example 1

Several entries from an /etc/passwd file are shown below:

```
root:x:0:1:0000-Admin(0000):/:/sbin/ksh
sysadm:x:0:0:System Admin.:/usr/admin:/usr/sbin/sysadm
setup:x:0:0:System Setup:/usr/admin:/usr/sbin/setup
daemon:x:1:1:0000-Admin(0000):/:
```

Example 2

To use the cat(1) command to display the contents of a file, enter the following command line:

$ **cat** *file*

Command syntax

The command syntax observes the following conventions.

Symbol	Name	Meaning
[ ]	Brackets	Enclose an optional item.
{ }	Braces	Enclose two or more items of which only one is used. The items are separated from each other by a vertical bar (|).
|	Vertical bar	When enclosed in braces, it separates items of which only one is used. When not enclosed in braces, it is a literal element indicating that the output of one program is piped to the input of another.
( )	Parentheses	Enclose items that must be grouped together when repeated.
...	Ellipsis	Signifies an item that may be repeated. If a group of items can be repeated, the group is enclosed in parentheses.

Notation symbols

Material of particular interest is preceded by the following symbols in this manual:

P Point
. . . .

Contains important information about the subject at hand.
. . . .

Note
. . . .

Describes an item to be noted.
. . . .

Example
. . . .

Describes operation using an example.
. . . .

Information
. . . .

Describes reference information.
. . . .

See
. . . .

Provides the names of manuals to be referenced.
. . . .

Abbreviations

Red Hat Enterprise Linux is abbreviated as RHEL.

Red Hat OpenStack Platform is abbreviated as RHOSP.

PRIMEQUEST 3000/2000 Series are abbreviated as PRIMEQUEST.

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Contents

Chapter 1 Role of PRIMECLUSTER Easy Design and Configuration Feature

PRIMECLUSTER Easy Design and Configuration Feature is a tool kit for simplifying the design and construction tasks in PRIMECLUSTER.

Taking fewer steps than other existing procedures, use of this feature allows you to build cluster systems within a short time.

Use this feature for building the following:

- Cluster systems with the switching policy (1:1 standby operation) that is provided by PRIMECLUSTER Easy Design and Configuration Feature

- Multiple new cluster systems with the same configuration

🐗 Note
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If you are going to reconfigure a cluster system that was constructed earlier, you should use a conventional configuration method.
. . . .

1.1 Features

PRIMECLUSTER Easy Design and Configuration Feature has the following features.

Simplified design

- Automatic setting of parameters with the major switching policy

  Designing PRIMECLUSTER systems is now simpler than ever, since the major switching policy (1:1 standby operation) is templated. You just have to select the operation configuration to have parameters such as the number of nodes or the number of applications set automatically.

Simplified construction

- Automatic construction

  You can build a cluster system by simply clicking the Build button on the GUI.

Improved usability than conventional configuration method

- Design and management from GUI

  A single integrated GUI allows you to design cluster systems.

  Moreover, you can manage the configuration data of multiple cluster systems from one and the same GUI.

  Making all controls available on the GUI has greatly improved the usability for designing and building cluster systems.

- Off-site design

  As the design feature runs on your workstation, there is no need to be connected to the nodes on which you are setting up PRIMECLUSTER.

1.2 Range of Support

PRIMECLUSTER Easy Design and Configuration Feature can be used for designing and setting up the following PRIMECLUSTER features.

Available switching policy

- 1:1 standby operation

Global Disk Services (GDS)

- Shared classes

- Single and mirror volumes

- SCSI devices, Device Mapper Multipath devices, virtio block devices, ETERNUS multipath driver

Global Link Services (GLS)

- NIC switching mode

Resources that can be registered in cluster applications

- Cmdline resources

- Fsystem resources

- Gds resources

- Gls resources

- Takeover network resources

🛈 Note
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- Custom operations are not available.

- The following items are currently not supported:

  - Server types

    - PRIMERGY BX series

    - PRIMEQUEST 3800 B model

  - Multipath drivers

    - EMC Powerpath

    - Hitachi Dynamic Link Manager Software

  - Hypervisors

    - VMware

  - PRIMECLUSTER features

    - Host OS failover function

    - Web-Based Admin View

    - CF over IP

  - GLS

    - NIC sharing function

  - Others

    - Tagged VLAN interface

    - IPv6

  The cluster interconnect and the administrative LAN can be set up in only one segment.
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Chapter 2 Installation

This chapter explains the procedures for installing PRIMECLUSTER Easy Design and Configuration Feature.

For using PRIMECLUSTER Easy Design and Configuration Feature, install PRIMECLUSTER Easy Design and Configuration Feature Management Console on the workstation after installing PRIMECLUSTER on the cluster nodes.

For details on the installation of PRIMECLUSTER, refer to "PRIMECLUSTER Installation and Administration Guide" and perform the operation up to "Chapter 4 Preparation Prior to Building a Cluster."

2.1 Installation of Management Console

The Management Console is an integrated interface for designing, constructing, and managing clusters. It runs as a desktop application on workstations.

Install the Management Console on your workstation according to the following procedure:

1. Insert the installation CD into the CD-ROM drive.

2. Start the installation wizard.

   For installing the 32-bit version of PRIMECLUSTER Easy Design Management Console:

   You can start the installation wizard by double-clicking on Tool\PRIMECLUSTER Easy Design and Configuration Installer_x86.exe.

   For installing the 64-bit version of PRIMECLUSTER Easy Design Management Console:

   You can start the installation wizard by double-clicking on Tool\PRIMECLUSTER Easy Design and Configuration Installer_x64.exe.

3. Install the "Easy Design and Configuration Feature Management Console" according to the instructions by the installation wizard.

   If you want to modify the destination folder for the installation, specify another folder on the [Installation Destination Folder] view

4. When the installation is complete, click the [Finish] button to terminate the installation wizard.

2.2 Uninstallation of Management Console

To uninstall the Management Console from your workstation, implement the following procedure:

1. On the Control Panel, click [Programs and Features].

2. In the list of applications, select the Management Console to uninstall it.

   If you have the 32-bit version of PRIMECLUSTER Easy Design and Configuration Feature Management Console installed:

   In the list of applications, select [PRIMECLUSTER Easy Design and Configuration Feature Management Console (x86)] and click the [Uninstall] button.

   If you have the 64-bit version of PRIMECLUSTER Easy Design and Configuration Feature Management Console installed:

   In the list of applications, select [PRIMECLUSTER Easy Design and Configuration Feature Management Console (x64)] and click the [Uninstall] button.

3. As uninstallation starts, follow the instructions on the screen.

Note

Any files you created manually will remain in the installation folder and its subfolders. After the uninstallation, check the installation folder and delete the files you do not need any longer.

Chapter 3 Workflows for Design and Construction

This chapter explains the overall workflows for designing and setting up configurations with PRIMECLUSTER Easy Design and Configuration Feature for some typical scenarios of use.

3.1 Designing and Building New Cluster Systems

1. Design of cluster outline

   Design of the cluster outline is a task you carry out on the [Design] view. For details, refer to "Chapter 4 Design View."

2. Design of resources

   Design of the resources is a task you carry out on the [Resource Design] view. For details, refer to "4.2 Resource Design View."

   - 4.2.1 Network Design

   - 4.2.2 Design of Volumes (Classes)

   - 4.2.3 Design of Nodes

   - 4.2.4 Design of Cluster Applications

3. Construction of clusters

   Construction of each cluster is a task you carry out on the [Build] view. For details, refer to "Chapter 5 Build View."

3.2 Building Clusters that Were Designed on and Imported from Other Workstations

1. Import of designed clusters

   Import of designed clusters is a task you carry out on the [Import] view. For details, refer to "4.3 Import View."

2. Design of cluster outline

   Design of the cluster outline is a task you carry out on the [Design] view. For details, refer to "Chapter 4 Design View."

3. Design of resources

   Design of the resources is a task you carry out on the [Resource Design] view. For details, refer to "4.2 Resource Design View."

   - 4.2.1 Network Design

   - 4.2.2 Design of Volumes (Classes)

   - 4.2.3 Design of Nodes

   - 4.2.4 Design of Cluster Applications

4. Construction of clusters

   Construction of each cluster is a task you carry out on the [Build] view. For details, refer to "Chapter 5 Build View."

3.3 Building Clusters with Ansible

1. Design of cluster system

   Design a cluster system by one of the methods described above.

2. Export of configuration data

   Export of cluster system information is a task you carry out on the [Export] view. For details, refer to "4.4 Export View."

3. Use FTP client software or a similar tool to deploy the exported configuration files, the credential information update script (credential_update.py), and playbook (pcl-easyconf.yml) on the Ansible nodes.

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- The credential information update script and playbook are stored in documents/easydesign/devops-option of PRIMECLUSTER DVD.

- The credential information update script is an interactive script that adds the credential information to the configuration file. The information includes the user ID and password of each cluster node, and the authentication information necessary to set up the forced stop mechanism.
  As an example of PRIMEQUEST, enter the information including the user name and the password of MMB necessary for the forced stop.

- Playbook is a definition file that shows how Ansible executes the procedure. For details, refer to Ansible manuals.

....

4. Execute the following command on each Ansible node and enter the credential information according to the contents of the output that is issued for the command.

```
$ cd [Deployment location of credential information update script]
$ python credential_update.py --add
```

5. Building clusters

   Execute playbook on each Ansible node.

6. After building the clusters, execute the following command to delete the credential information.

```
$ cd [Deployment location of credential information update script]
$ python credential_update.py --remove
```

7. Check the status of the shutdown facility.

   Execute the following command to make sure that the status of the shutdown facility is InitWorked or TestWorked on all the nodes. If TestFailed or InitFailed is displayed, make sure that the setup information of the administrative LAN and the information entered in step 4 are correct. Then perform step 1 to step 6 again.

```
# sdtool -s
```

8. In RHOSP environment, refer to "3.4 Notes When Building Clusters in RHOSP Environment" and modify the settings of the shutdown agent.
   Perform this procedure only in RHOSP environment.

3.4 Notes When Building Clusters in RHOSP Environment

In RHOSP environment, perform the following procedure after building the clusters.

Perform this procedure only in RHOSP environment.

1. Stop the shutdown facility.

   On all the nodes, execute the following command to stop the shutdown facility.

```
# sdtool -e
```

2. Set up the shutdown daemon.

   On all the nodes, modify the shutdown agent that is defined to /etc/opt/SMAW/SMAWsf/rcsd.cfg from SA_vmk5r to SA_vmosr.

```
# vi /etc/opt/SMAW/SMAWsf/rcsd.cfg
<CFNameX>,weight=<weight>,admIP=<myadmIP>:agent=SA_vmosr,timeout=<timeout>
<CFNameX>,weight=<weight>,admIP=<myadmIP>:agent=SA_vmosr,timeout=<timeout>
```

3. Change the configuration file name of the shutdown agent.

   On all the nodes, change the name of /etc/opt/SMAW/SMAWsf/SA_vmk5r.cfg as follows.

```
# mv /etc/opt/SMAW/SMAWsf/SA_vmk5r.cfg /etc/opt/SMAW/SMAWsf/SA_vmosr.cfg
```

4. Set up the shutdown agent.

On all the nodes, delete the last definition (cycle or leave-off) in the /etc/opt/SMAW/SMAWsf/SA_vmosr.cfg.

Before change:

```
# vi /etc/opt/SMAW/SMAWsf/SA_vmosr.cfg
node1 instance1 pcl O/gm+AYuWwE7ow3dgVG/Nw== cycle
node2 instance1 pcl O/gm+AYuWwE7ow3dgVG/Nw== leave-off
```

After change:

```
# vi /etc/opt/SMAW/SMAWsf/SA_vmosr.cfg
node1 instance1 pcl O/gm+AYuWwE7ow3dgVG/Nw==
node2 instance1 pcl O/gm+AYuWwE7ow3dgVG/Nw==
```

5. Start the shutdown facility.

On all the nodes, execute the following command to start the shutdown facility.

```
# sdtool -b
```

6. Check the status of the shutdown facility.

On all the nodes, execute the following command to make sure that the status of the shutdown facility is InitWorked and TestWorked.

```
# sdtool -s
```

See
. . . .

For the displayed results of the sdtool -s command, refer to "Display results of the sdtool -s command" of "I.2.8.1 Initial Setup of Cluster" in "PRIMECLUSTER Installation and Administration Guide."
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Chapter 4 Design View

This chapter explains the design view of PRIMECLUSTER Easy Design and Configuration Feature.

For designing cluster systems, use the design view, which is displayed first after starting the Management Console.

The design view contains a list of cluster systems.

Above the list of cluster systems, six buttons are displayed.

Figure 4.1 Design view
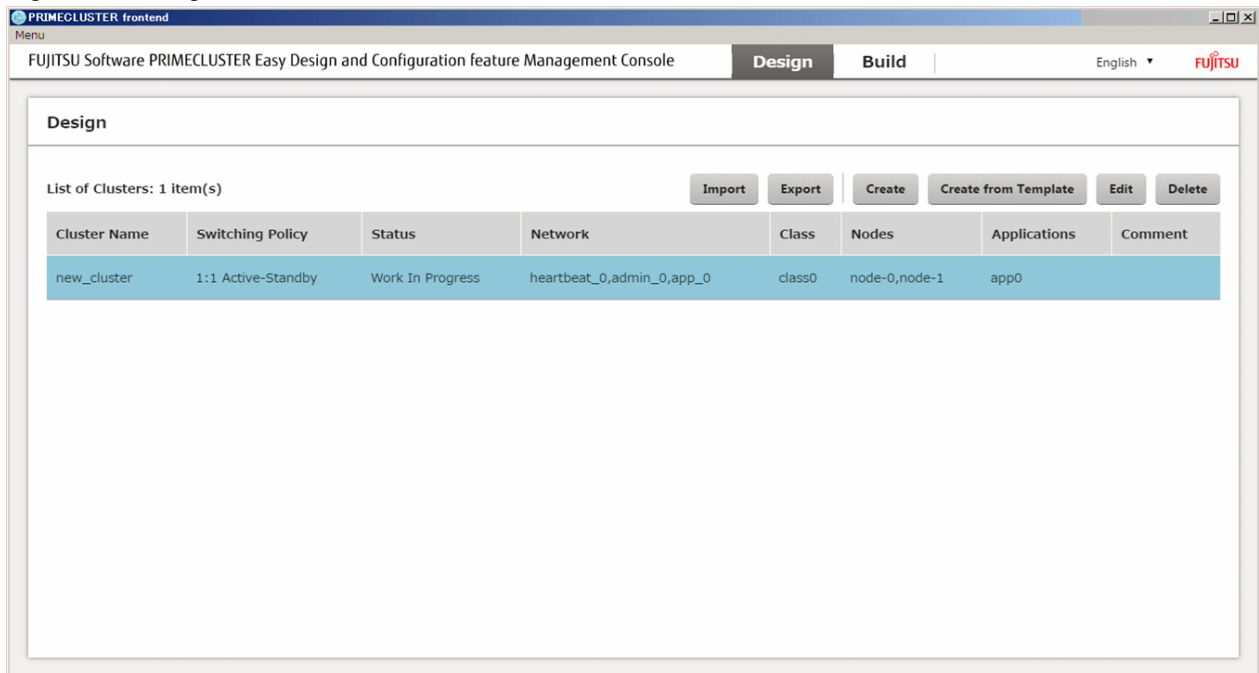
Create

    Select this when you are going to create a new cluster system.

    Clicking the [Create] button opens the Design dialog, and the display changes to the [Cluster Outline Design] view.

    For details on the Cluster Outline Design view, refer to "4.1 Cluster Outline Design View."

Create from Template

    Select this when you are going to create a new cluster system by reusing the information from an already designed cluster.

    Selecting the cluster system you are going to use as a template and then clicking the [Create from Template] button opens the Design dialog, and the display changes to the [Cluster Outline Design] view.

    For details on the Cluster Outline Design view, refer to "4.1 Cluster Outline Design View."

Edit

    Select this when you are going to edit a cluster system whose design is still in progress or already completed.

    Selecting the cluster system you are going to edit and then clicking the [Edit] button opens the Design dialog, and the display changes to the [Cluster System Outline Design] view.

    For details on the Cluster Outline Design view, refer to "4.1 Cluster Outline Design View."

Delete

    Select this when you are going to remove a cluster system.

    Selecting the cluster system you are going to remove and then clicking the [Delete] button opens a view for confirming the removal. On clicking the [OK] button, the cluster system is removed.

    This, however, only deletes the configuration data on the Management Console, while no constructed cluster system is removed.

Import

Select this when you are going to import a designed cluster system in order to manage it on the Management Console.

Clicking the [Import] button opens the Import dialog.

For details, refer to "4.3 Import View."

Export

Select this when you are going to export a designed cluster system in order to deploy it on another workstation or on Ansible nodes.

Clicking the [Export] button opens a view for selecting the export destination. Select an appropriate export destination and save it.

4.1 Cluster Outline Design View

Design of cluster systems is carried out on the design view.

On this view, you design the basic configurations for cluster systems, such as cluster names, the switching policy, numbers of nodes, etc.

When you have finished a design, click the [Next] button at the bottom of the window. Clicking the [Cancel] button discards the currently edited contents and takes you back to the design view.

Whenever you are unsure about what value to set for each input item, click the [Help] icon next to that input item.

Figure 4.2 Outline design view

4.1.1 Switching Policy

PRIMECLUSTER Easy Design and Configuration Feature provides the template of switching policy for basic cluster systems.

The following switching policy is described. For more detailed information on the switching policy, refer to "PRIMECLUSTER Installation and Administration Guide."

- 1:1 Standby operation

  This is the most basic switching policy where one application is operated on two nodes. Set which node is to be operating and which in standby at the start of business operation.

4.1.2 Input of Number of Resources

On the Cluster Outline Design view, you can enter the number of resources, such as the number of nodes or the number of network segments.

Entering the number of resources here lets you automatically create resources in the specified number. If you skip this input, you can still add it on a later view.

![Note]Note

. . . .

- Except when creating new clusters modifying the number of resources may sometimes cause already designed resources to be deleted. More specifically, the operating behavior is as follows.

  - After increasing the number of resources:

    Initialized resources are added.

    For example, if you edit a cluster system designed with two applications, setting the number of applications to five will add three initialized applications.

  - After decreasing the number of resources:

    The resource(s) at the end of the list is/are removed.

    For example, if you edit a cluster system designed with two applications, setting the number of applications to one will remove the second application.

  However, in case you change any number of resources by mistake, changes in the configuration data will become effective only when you click the [Save] button on a subsequent view. If you made any changes by mistake, press the [Cancel] button on a subsequent view to discard the changes.

- When creating the cluster with [Create From Template], do not change the number of resources.
  When deleting/adding the resources, use each resource design view described in "4.2 Resource Design View."

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4.2 Resource Design View

When you have completed the design of the cluster system outline, design the resources. You can start to design resources from any of the areas below. You can use the tabs at the top of the window to toggle between the resources to be designed.

- 4.2.1 Network Design

- 4.2.2 Design of Volumes (Classes)

- 4.2.3 Design of Nodes

- 4.2.4 Design of Cluster Applications

Selection of editing mode

Resource Design consists of a list view and an editor view.

The list view displays the resources whose design is already completed. In the same way as with the cluster systems, you have four options to select from: "Create," "Create from Template," "Edit," and "Delete."

Select any option as needed and open the editor view.

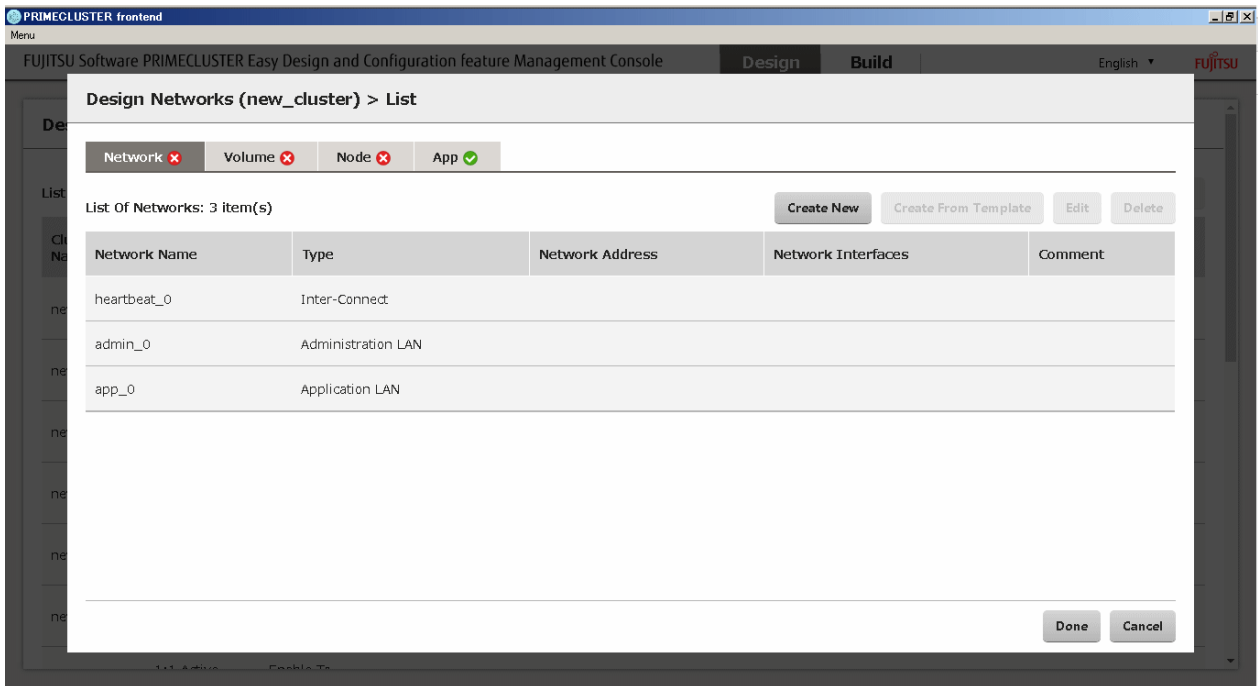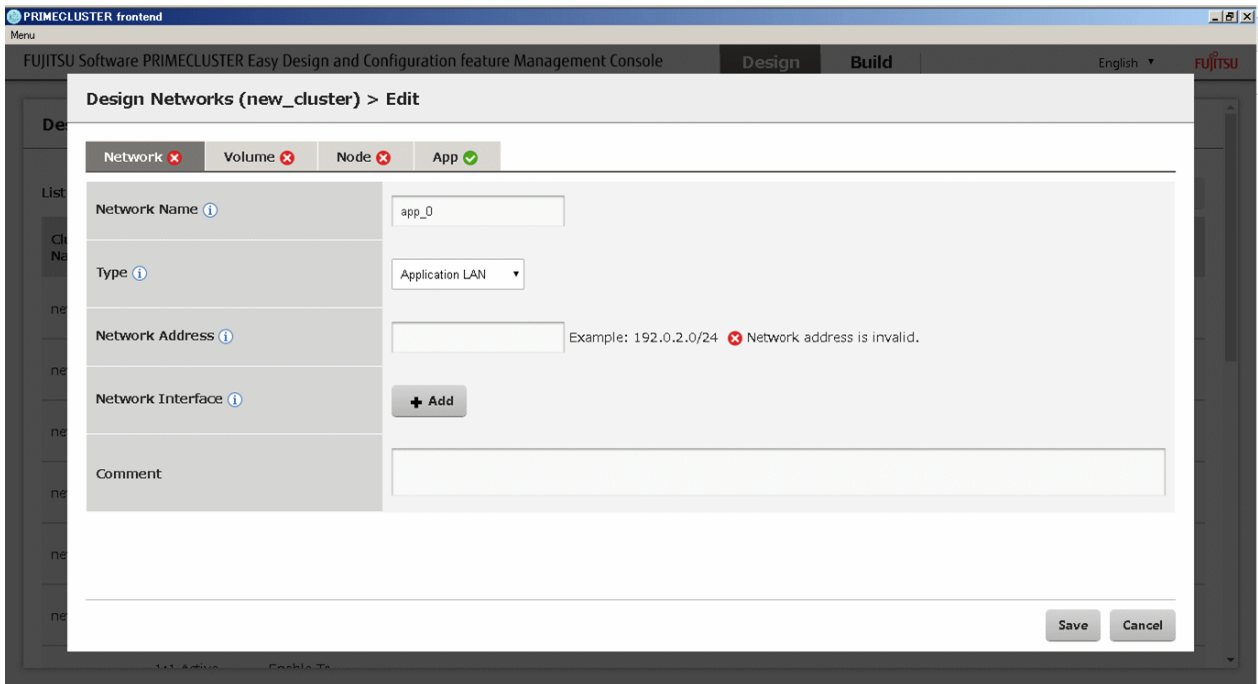Figure 4.3 Resource design view (list)

Figure 4.4 Resource design view (edit)

Design concept of PRIMECLUSTER Easy Design and Configuration Feature

Out of the four resources to be designed in the resource design phase, all resources other than nodes are shared between all nodes in the cluster.

For example, block devices that make up volumes for use as storage areas must exist on all nodes in the cluster in the same number and size. The same applies to devices such as network interfaces.

In designing networks or volumes (classes) with PRIMECLUSTER Easy Design and Configuration Feature, the configurations of devices are defined by defining abstract devices.

Specific device names are defined by setting correlations to physical device names when designing the nodes.

4.2.1 Network Design

This section explains how to design networks.

Figure 4.5 Network design
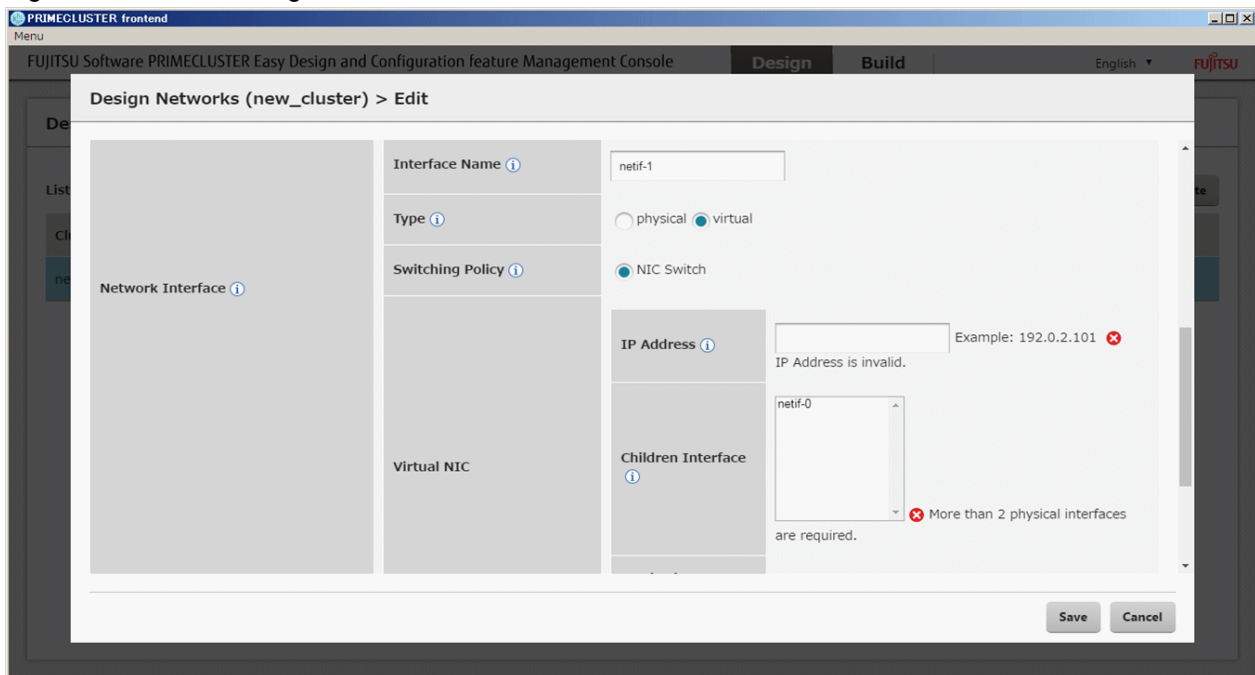
Design concept

Networks are designed in separate segments.

For example, for the following network configuration, four networks are created.

Description	Network address
Network for applications of user departments	192.168.10.0/24
Network for applications of administrative departments	192.168.20.0/24
Network for cluster interconnect	192.168.1.0/24
Administrative LAN	192.168.254.0/24

Set up the configurations of network addresses and network interfaces separately for each network.

For explanations of the various input items, see the Help next to each input item.

In the following, some representative setting items are described.

Network types

There are the following three network types:

- Cluster interconnect

  This type of network connects the nodes in a cluster with each other. It can be set up only as a single segment.

  If you are going to use it in combination with other network types, set the segment to be shared.

- Administrative LAN

  This type of network serves to manage cluster nodes. It can be set up only as a single.

- Public LAN

  This type of network serves to operate cluster applications.

Network interfaces

Add exactly the number of network interfaces that belong to each network.

For example, if you are going to configure a public LAN with two paths, create two network interfaces.

Set up the correlations between abstract and concrete interface names in the node design.

Abstract interface name	Active node	Standby node
Interface 1 (netif-1)	eth0	eth2
Interface 2 (netif-2)	eth1	eth3

Network interface types

There are the following two types of network interface: "Physical" and "Virtual."

"Physical" literally refers to physical network interfaces. "Virtual" refers to virtual interfaces in redundant configurations created with PRIMECLUSTER GL.

On selecting the "Virtual" type, "Duplication Method" and other setting items are displayed.

Takeover IP

Here, you can specify IP addresses for taking over operations among cluster nodes in public LANs. These addresses are called "takeover IPs."

If you set a virtual interface as the network interface for a public LAN, you have to set the takeover IPs within the input items for the virtual interface.
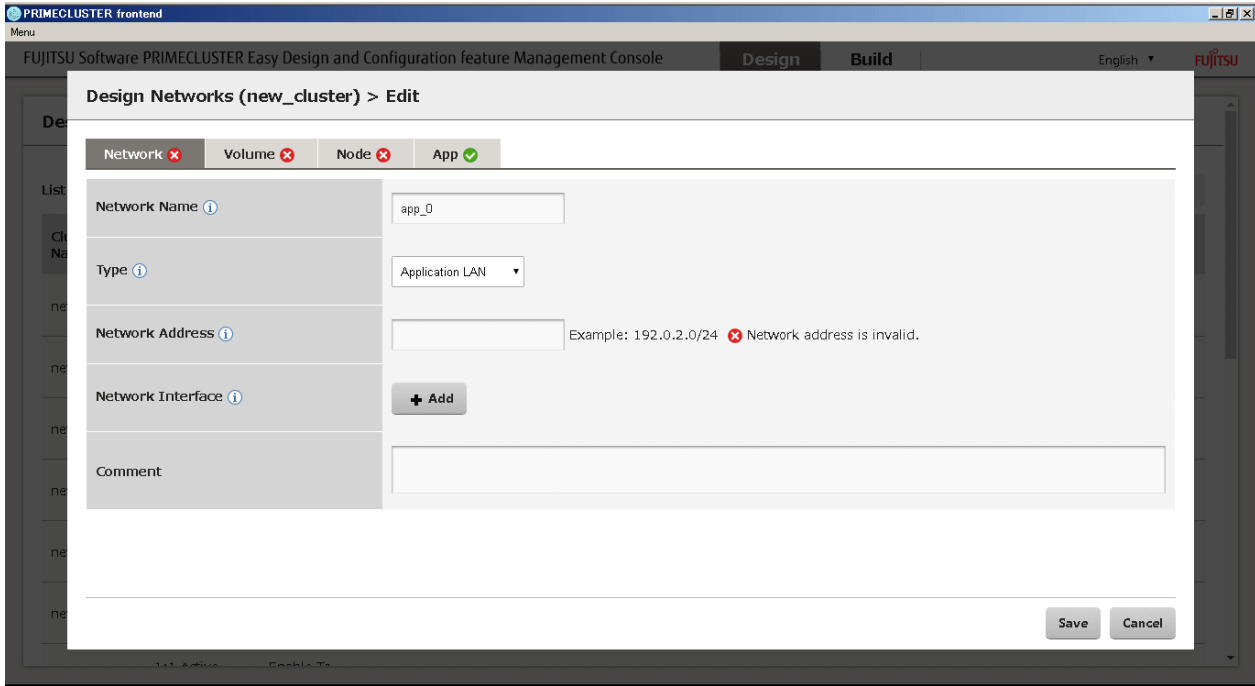
Note

Save the network name or the network interface name when a warning message is not displayed beside the input field.

When these input items were saved while the warning message was output, delete the configuration information of a node or an application that refers to the network or the network interface and then edit the configuration information of the network.

4.2.2 Design of Volumes (Classes)

This section explains how to design volumes (classes).

Figure 4.6 Design of volumes (classes)

Design concept

Using PRIMECLUSTER Easy Design and Configuration Feature to register disks in classes allows you to carry out data mirroring in the entire storage area of all registered disks.

Registering only one disk in a class creates single volumes, whereas registering two or more disks creates mirror volumes.

Disks

Add disks on the editor view and set the abstract disk names (example: disk1, disk2). Set up the correlations between abstract disk names and physical device names (example: /dev/sdb, /dev/sdc) in the node design.

🖝 Note

. . . .

Save the class name or the disk name when a warning message is not displayed beside the input field.

When these input items were saved while the warning message was output, delete the configuration information of a node or an application that refers to the class or the disk and then edit the configuration information of the network.

. . . .

4.2.3 Design of Nodes

This section explains how to design nodes.

Figure 4.7 Design of nodes
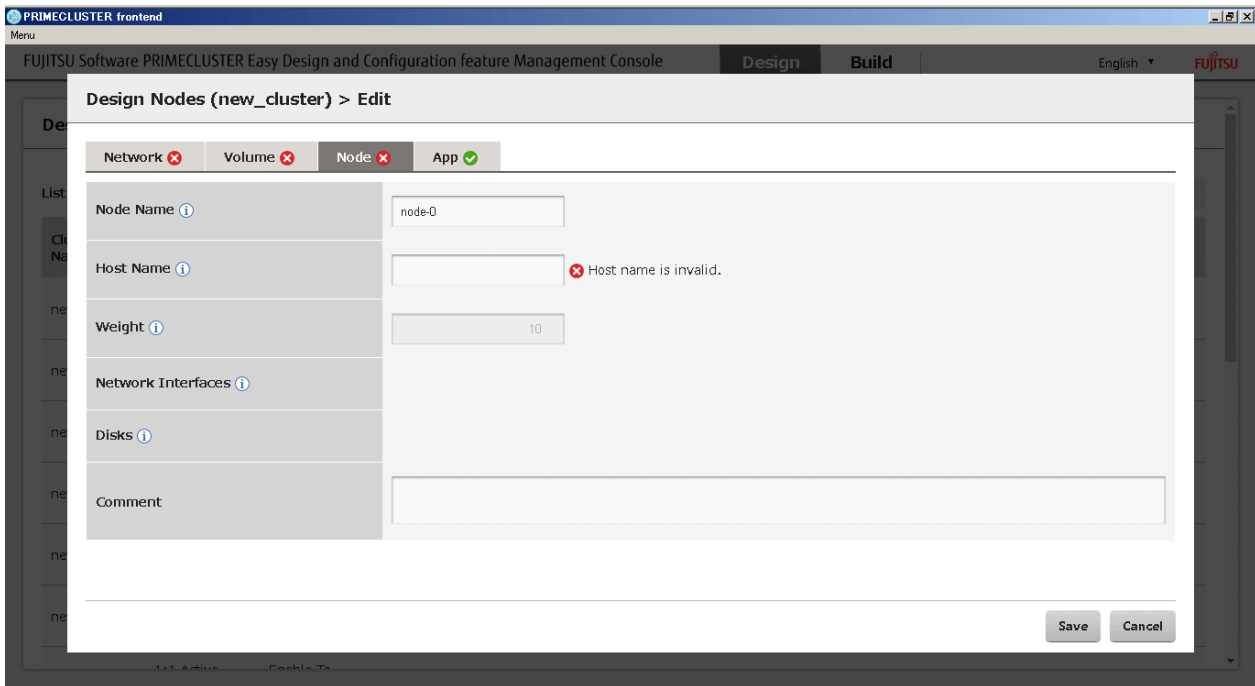
Setting of unique node information

> Use the editor view to set node names, host names, and other information that is unique for each node. Also use this view to set up the correlations between abstract and physical device names you created when you designed networks and volumes (classes).

4.2.4 Design of Cluster Applications

This section explains how to design cluster applications.

Setting of commands and scripts for use in switching and Disconnection Monitoring

> This item is called "Cmdline resource" in "PRIMECLUSTER Installation/Administration Guide." Set the commands and scripts to be used for controlling the cluster applications in the event of switching and in Disconnection Monitoring.

Setting of volumes (classes) that are used as storage areas

> Specify the volume(s) to be used as storage areas for cluster applications. You have to either set the number of classes when you design the cluster outline, or create the volume(s) in advance when you design the volumes.

Setting of node startup sequence

> In the cluster application you are designing, set the order in which the nodes start up. You have to either set the number of nodes when you design the cluster outline, or create the node(s) in advance when you design the nodes. When the switching policy is "1:1 Active," no input can be made (because this setting is made on the Cluster Outline Design view).

Setting of job priority

> If you design multiple cluster applications, set the job priority. When the switching policy is "1:1 Active," no input can be made (because there is only one cluster application).

Setting exclusions among cluster applications

> If you design multiple cluster applications, set the exclusion relationships among them. When the switching policy is "1:1 Active," no input can be made (because there is only one cluster application).

Setting takeover network

> Set up the network that is taken over among cluster nodes. Among the public LANs, select the respective network to take over its IP address among cluster nodes, and select the network interface that is used for taking over the IP address.

4.3 Import View

On this view, you can import configuration data for cluster systems you designed earlier.

Figure 4.8 Import view
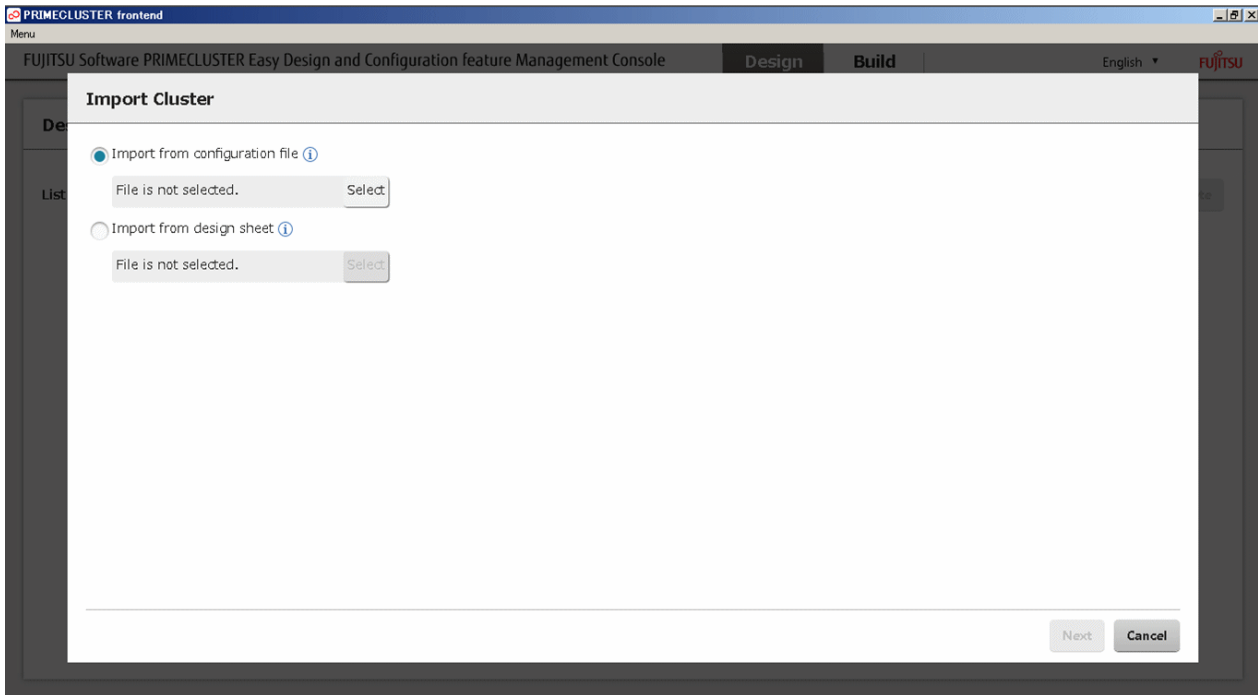
The following are import methods:

- Import of Configuration Files

- Import of Easy Design Sheets

Note
....

Do not change import methods after selecting a file.

When changing import methods, select [Cancel] to close the import view and then import the file again.
....

4.3.1 Import of Configuration Files

You can import exported configuration files for cluster systems you designed earlier.

This allows you to exchange configuration data for cluster systems between different workstations.

Import procedure

1. Selecting [Import] on the design view opens the corresponding window.

2. Select the [Import Configuration File] radio button and select the file(s) to be imported.

3. When the information on the cluster system to be imported is displayed and you want to continue the import, follow the corresponding instructions that are displayed in the window.

Note
....

A file from which [Work In Progress] cluster is exported cannot be imported.
....

4.3.2 Import of Easy Design Sheets

You can import Easy Design Sheets.

Easy Design Sheets is an Excel sheet with an easy design where manageable configuration information of the cluster can be input. It is stored in documents/easydesign/easydesign/en of PRIMECLUSTER DVD.

Import procedure

1. Selecting [Import] on the main design view opens the corresponding window.

2. Select the [Import Easy Design Sheet] radio button and select the file(s) to be imported.

3. When the information on the cluster system to be imported is displayed and you want to continue the import, follow the corresponding instructions that are displayed in the window.

![Note icon] Note
. . . .
A sheet including invalid input values cannot be imported. Correct the input values according to a message displayed when importing the sheet.
. . . .
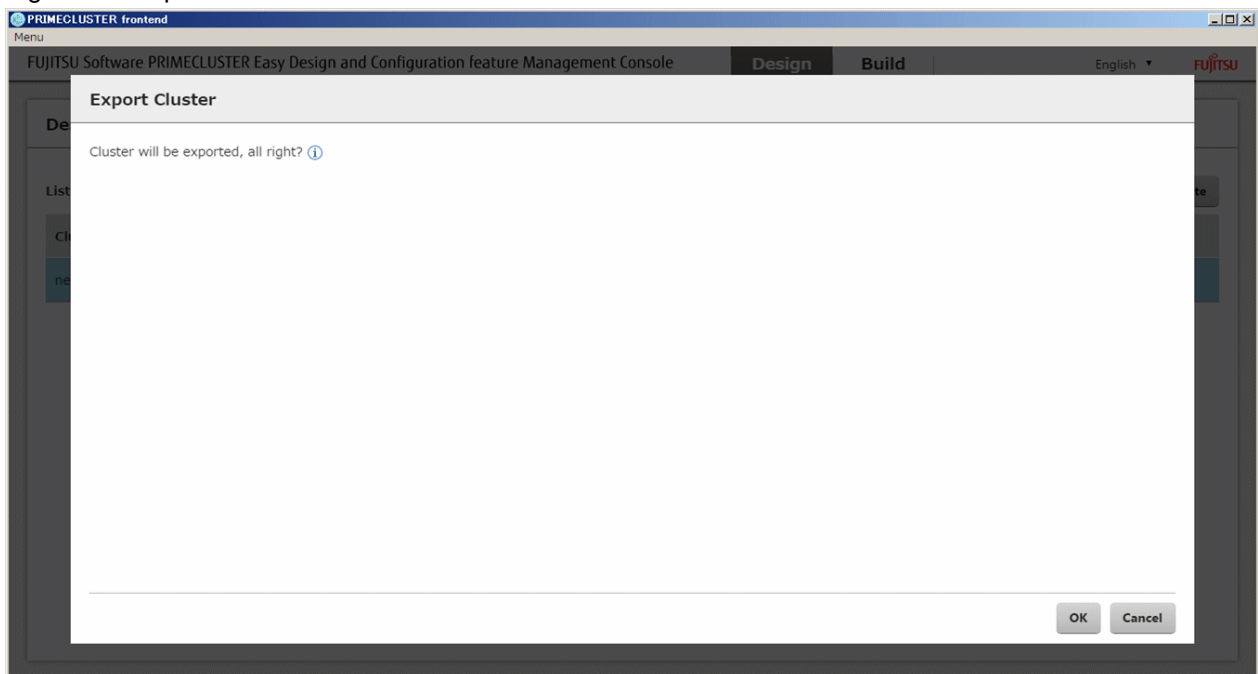
4.4 Export View

Clicking the [Export] button on the design view opens the Export view.

On this view, you can export configuration data for cluster systems you designed or constructed earlier.

![Note icon] Note
. . . .
A file from which [Work In Progress] cluster is exported cannot be imported.
. . . .

Figure 4.9 Export view

Export procedure

1. Open the design view.

2. Select the cluster system you are going to export, and then click the [Export] button.

3. Select and save an output destination for the configuration file.

Chapter 5 Build View

This chapter explains the build view of PRIMECLUSTER Easy Design and Configuration Feature.

For constructing cluster systems, use this build view, which is displayed on the Management Console.

Selecting [Build] in the navigation bar at the top of the Management Console opens the build view.

As soon as the build view opens, it displays a list of already designed clusters and a list of construction jobs.

The Management Console must be accessible with the cluster nodes during construction.
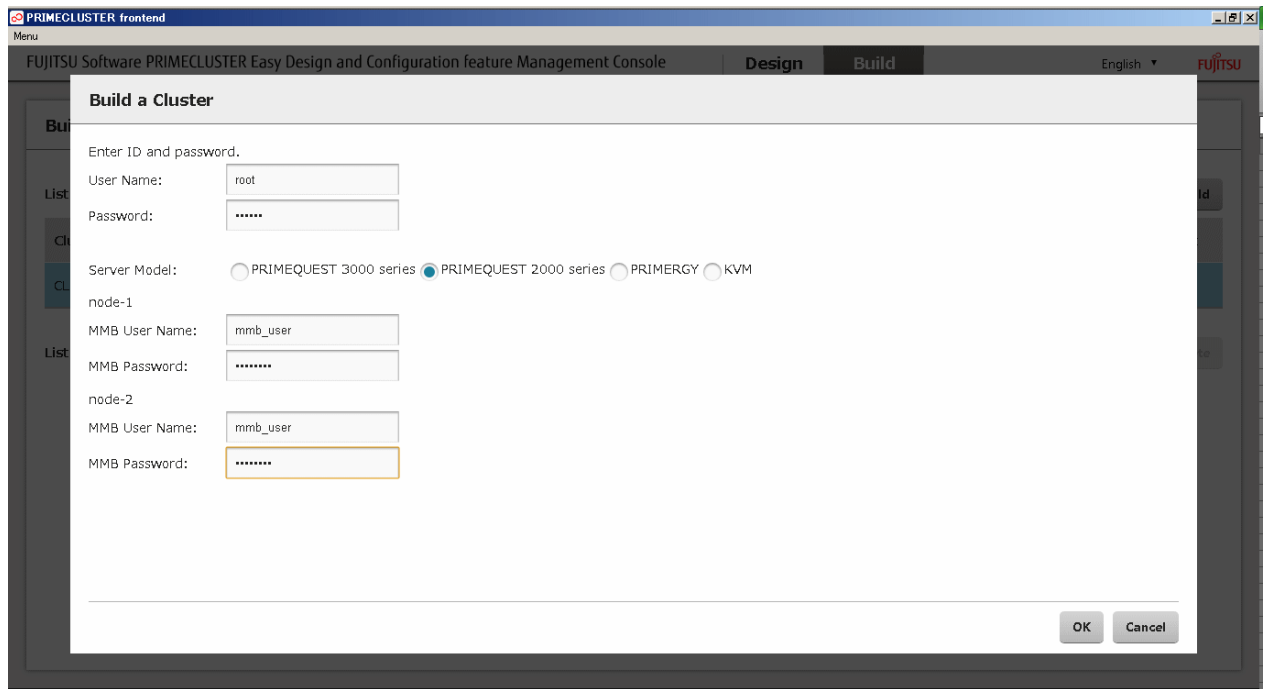
Figure 5.1 Build view
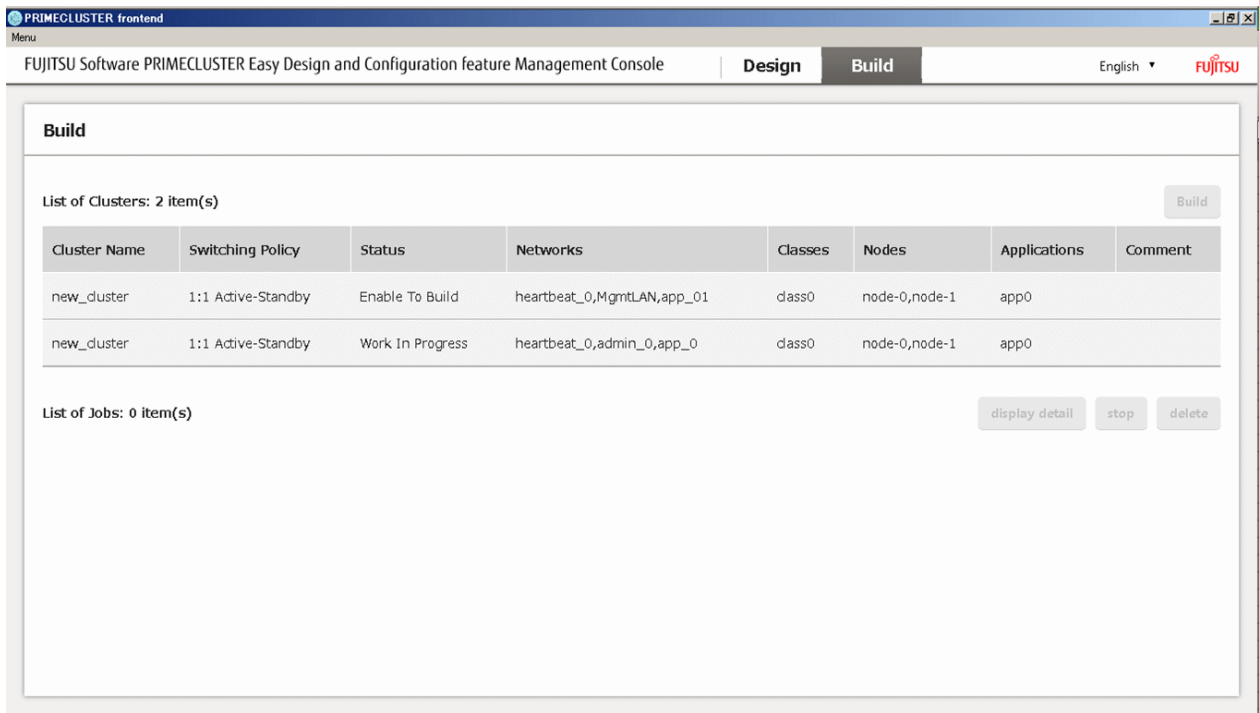
Construction procedure

The procedure for construction is as follows:

1. Select the cluster system to be constructed.

2. Click the [Build] button.

3. Enter necessary user IDs and passwords including OS password of cluster node into the dialog and click the [OK] button.

Figure 5.2 Dialog

As soon as construction is started, the job is added to the job list, allowing you to check the progress. If you want to view more detailed information regarding a construction, select the respective job and click the [display detail] button. To cancel the construction, select the respective job and click the [stop] button.
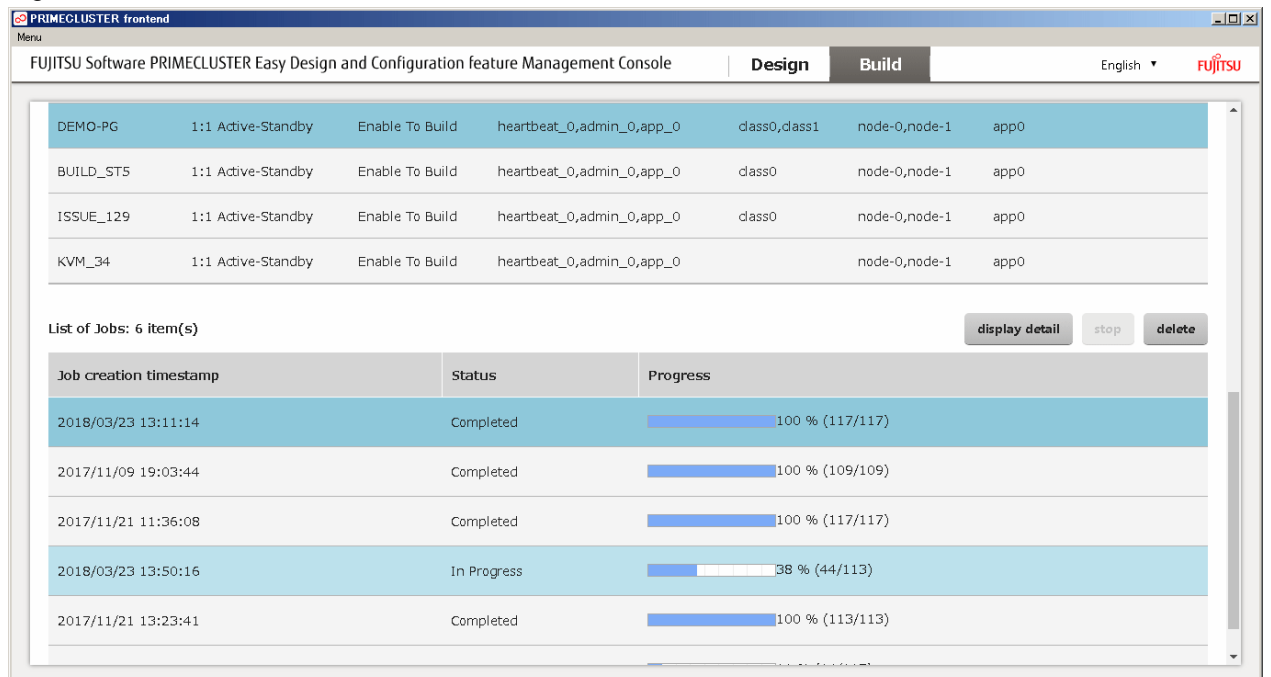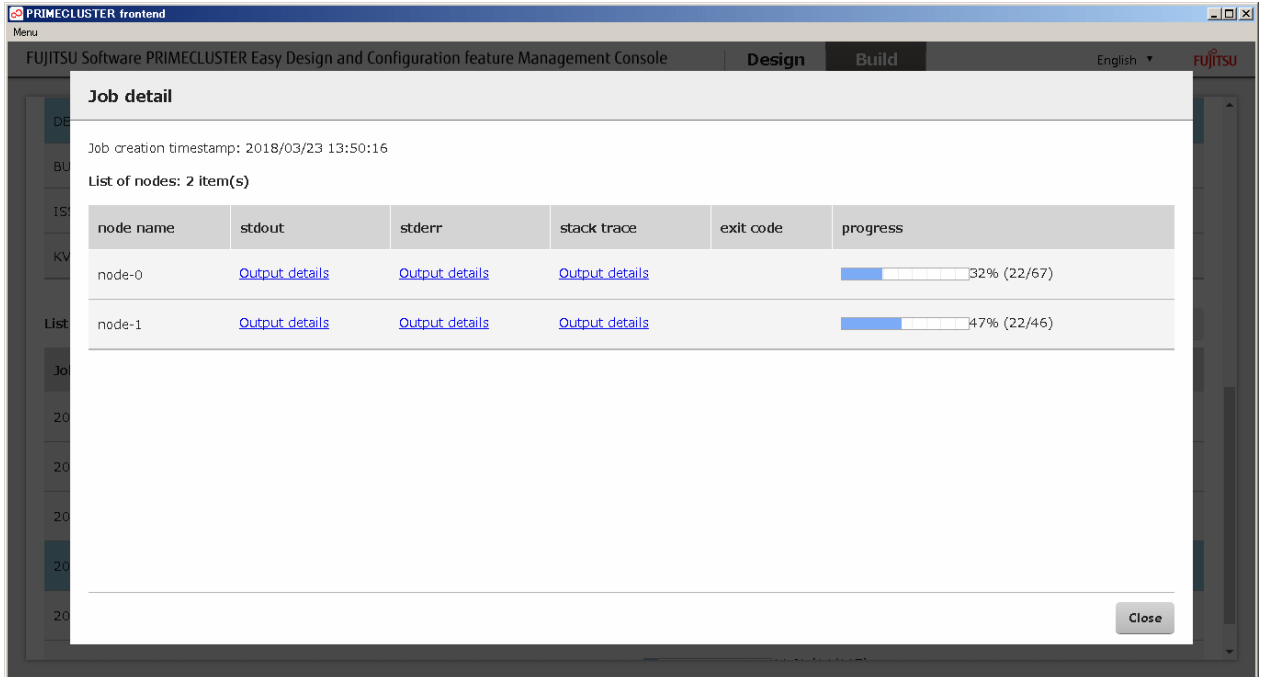
Figure 5.3 Job list

Figure 5.4 Detailed view (job)

4. Check the status of the shutdown facility.

   Execute the following command to make sure that the status of the shutdown facility is InitWorked or TestWorked on all the nodes. If TestFailed or InitFailed is displayed, make sure that the setup information of the administrative LAN and the information entered in step 3 are correct. Then perform step 1 to step 3 again.

```
# sdtool -s
```

5. In RHOSP environment, refer to "3.4 Notes When Building Clusters in RHOSP Environment" and modify the settings of the shutdown agent.

   Perform this procedure only in RHOSP environment.

Chapter 6 Modification of Settings

This chapter explains how to modify the settings of PRIMECLUSTER Easy Design and Configuration Feature.

6.1 Setting of Display Language

To change the display language of the Management Console, simply select it from the pulldown menu on the Management Console.

Figure 6.1 Setting of display language
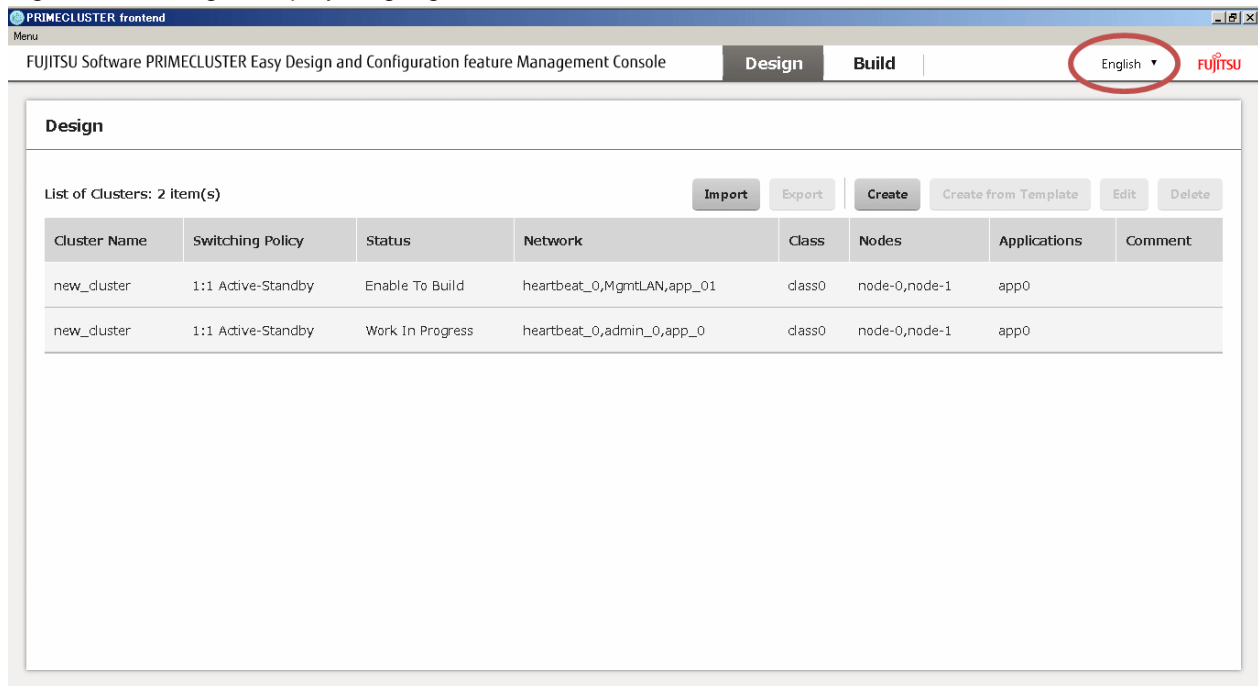
6.2 Modification of Port Number

On PRIMECLUSTER Easy Design and Configuration Feature, the default port number used by the Management Console is No.3000.

You can modify the port number according to the following procedure:

1. Exit the Management Console if it is running.

2. Refer to the manual suitable for your Windows version and set the environment variable as follows:

   Variable name: PCL_EASYCONF_PORT

   Value range: Any integer from 1024 to 65535

3. Start the Management Console.

![Note icon] Note
....
The Management Console fails to start if the occupied port or invalid value is specified.
....

Appendix A Troubleshooting

This section describes corrective actions for problems that may occur when using PRIMECLUSTER Easy Design and Configuration Feature.

A.1 Management Console Fails to Start

If the Management Console fails to start, correct the following invalid settings:

- Trying to start multiple Management Consoles in the same system at the same time.

  Only one Management Console can run in the same system at one time. If multiple Management Consoles are started at the same time, terminate all the consoles once and restart only one of them, and then start the operation again.

- The Management Console runs on the occupied port.

  The Management Console runs on the default port No.3000. If the port No.3000 is occupied with another operation, refer to "Chapter 6 Modification of Settings" and change the port number.

A.2 Job Construction Fails

If the job construction fails, specify the cause of an error according to the following procedure:

1. Select the failed job from the job list and click the [display detail] button.

2. On the detailed view, collect a standard error output of each cluster node.

3. Search around at the end of a file and find the PRIMECLUSTER component related to a message of the operation that is the cause of the error.
   For example, if the following message is output, see the first line that contains the component name failed to be constructed (GDS in the example below). The third line contains the cause of the error (CommandExecutionError) and additional information. In the example below, clautoconfig command of GDS failed to run.

   ### 📝 Example
   . . . .
   clautoconfig command failed to run when constructing GDS

   ...

   [ERROR] - ----------------- failed GDS build procedures -----------------

   [ERROR] - E03 Failed to build.

   [ERROR] - CommandExecutionError('FJSVcluster: ERROR: clautoconfig: 6900: Automatic resource registration processing terminated abnormally. (detail: /dev/mpathv)\n',)

   ...
   . . . .

4. Refer to the manual of the component found in step 3 and take the corrective action for the output message.

   - For the messages output to the standard output or standard error output, refer to "PRIMECLUSTER Messages."

   - If the cause of an error cannot be identified, verify again that the actual configuration of the node to be constructed is consistent with the design information on the Management Console. Especially, make sure the following points:

     - The host name (including domain name), disk name, and interface name of the node to be constructed are consistent with the host name, disk name, and interface name entered in the node editor view.

     - The IP address and login information of the node to be constructed are consistent with the IP address and login information entered in the construction dialogue.

5. If the cause of an error cannot be specified even after taking step 1 to 4, collect the following information and contact field engineers.

   - Collect fjsnap of all the nodes.

- Collect the standard output, standard error output, and stack trace of all the nodes on the detailed view.

- Export the configuration data of the node with a construction failure.

Appendix B Release Information

This section lists the main changes in this manual.

No.	Edition	Location	Description
1	Second edition	1.2 Range of Support 4.1.1 Switching Policy	Deleted the custom switching policy.
2	Second edition	3.3 Building Clusters with Ansible 3.4 Notes When Building Clusters in RHOSP Environment Chapter 5 Build View	Added the descriptions when using Easy Design and Configuration Feature in RHOSP environment.
3	Second edition	4.1.2 Input of Number of Resources	Added the notes when creating the cluster with [Create From Template] and deleting/adding the resources.
4	Second edition	4.2.1 Network Design 4.2.2 Design of Volumes (Classes)	Added the note when the input items were saved while a warning message was output.
5	Second edition	4.3 Import View	Added the note when changing import methods.
6	Second edition	4.3.1 Import of Configuration Files 4.3.2 Import of Easy Design Sheets 4.4 Export View	Added the note about files or sheets that cannot be imported.