



**EXPRESSCLUSTER X SingleServerSafe for Linux
Legacy Feature Guide**

Release 2

NEC Corporation

Apr 09, 2021

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PREFACE

1.1 Who Should Use This Guide

The *EXPRESSCLUSTER X SingleServerSafe Legacy Feature Guide* describes EXPRESSCLUSTER X SingleServer-Safe 4.0 WebManager and Builder.

1.2 How This Guide Is Organized

- *2. Functions of the WebManager*: Provides information on function of the EXPRESSCLUSTER WebManager.
- *3. Function of the Builder*: Provides information on function of the EXPRESSCLUSTER Builder.

1.3 Terms Used in This Guide

EXPRESSCLUSTER X SingleServerSafe, which is described in this guide, uses windows and commands common to those of the clustering software EXPRESSCLUSTER X to ensure high compatibility with EXPRESSCLUSTER X in terms of operation and other aspects. Therefore, cluster-related terms are used in parts of the guide.

The terms used in this guide are defined below.

Cluster, cluster system A single server system using EXPRESSCLUSTER X SingleServerSafe

Cluster shutdown, reboot Shutdown or reboot of a system using EXPRESSCLUSTER X SingleServerSafe

Cluster resource A resource used in EXPRESSCLUSTER X SingleServerSafe

Cluster object A resource object used in EXPRESSCLUSTER X SingleServerSafe

Failover group A group of group resources (such as applications and services) used in EXPRESSCLUSTER X SingleServerSafe

1.4 EXPRESSCLUSTER X SingleServerSafe Documentation Set

The EXPRESSCLUSTER X SingleServerSafe documentation consists of the four guides below. The title and purpose of each guide is described below:

EXPRESSCLUSTER X SingleServerSafe Installation Guide

This guide is intended for system engineers who intend to introduce a system using EXPRESSCLUSTER X SingleServerSafe and describes how to install EXPRESSCLUSTER X SingleServerSafe.

EXPRESSCLUSTER X SingleServerSafe Configuration Guide

This guide is intended for system engineers who intend to introduce a system using EXPRESSCLUSTER X SingleServerSafe and system administrators who will operate and maintain the introduced system. It describes how to set up EXPRESSCLUSTER X SingleServerSafe.

EXPRESSCLUSTER X SingleServerSafe Operation Guide

This guide is intended for system administrators who will operate and maintain an introduced system that uses EXPRESSCLUSTER X SingleServerSafe. It describes how to operate EXPRESSCLUSTER X SingleServerSafe.

EXPRESSCLUSTER X SingleServerSafe Legacy Feature Guide

This guide is intended for system engineers who want to introduce systems using EXPRESSCLUSTER X SingleServerSafe and describes *EXPRESSCLUSTER X SingleServerSafe 4.0 WebManager and Builder*.

1.5 Conventions

In this guide, **Note**, **Important**, and **See also** are used as follows:

Note: Used when the information given is important, but not related to the data loss and damage to the system and machine.

Important: Used when the information given is necessary to avoid the data loss and damage to the system and machine.

See also:

Used to describe the location of the information given at the reference destination.

The following conventions are used in this guide.

Convention	Usage	Example
Bold	Indicates graphical objects, such as fields, list boxes, menu selections, buttons, labels, icons, etc.	In User Name, type your name. On the File menu, click Open Database.
Angled bracket within the command line	Indicates that the value specified inside of the angled bracket can be omitted.	<code>clpstat -s [-h host_name]</code>
#	Prompt to indicate that a Linux user has logged in as root user.	<code># clpcl -s -a</code>
Monospace (courier)	Indicates path names, commands, system output (message, prompt, etc), directory, file names, functions and parameters.	<code>/Linux/4.1/en/server/</code>
Monospace bold (courier)	Indicates the value that a user actually enters from a command line.	Enter the following: <code>clpcl -s -a</code>
<i>Monospace italic</i> (courier)	Indicates that users should replace italicized part with values that they are actually working with.	<code>rpm -i expressclsss- {<version_number>}- {<release_number>}.x86_64.rpm</code>

1.6 Contacting NEC

For the latest product information, visit our website below:

<https://www.nec.com/global/prod/expresscluster/>

FUNCTIONS OF THE WEBMANAGER

This chapter describes the functions of the WebManager.

EXPRESSCLUSTER X SingleServerSafe uses windows common to those of the clustering software EXPRESSCLUSTER X to ensure high compatibility with EXPRESSCLUSTER X in terms of operation and other aspects.

This chapter covers:

- *2.1. Starting up the WebManager*
- *2.2. Window of the WebManager*
- *2.3. Checking the status of each object in the tree view of WebManager*
- *2.4. Checking the cluster status by using the WebManager list view*
- *2.5. Checking alerts by using the WebManager*
- *2.6. Manually stopping and starting the WebManager*
- *2.7. If you do not want to use the WebManager*
- *2.8. Setting up connection limitations and operation limitations of the WebManager*

2.1 Starting up the WebManager

Some of the windows and terms used to describe the WebManager in this chapter are the same as those for EXPRESSCLUSTER X WebManager. Therefore, cluster-related terms are used in parts of the chapter. Read the guide, assuming that EXPRESSCLUSTER X SingleServerSafe is in a one-node cluster.

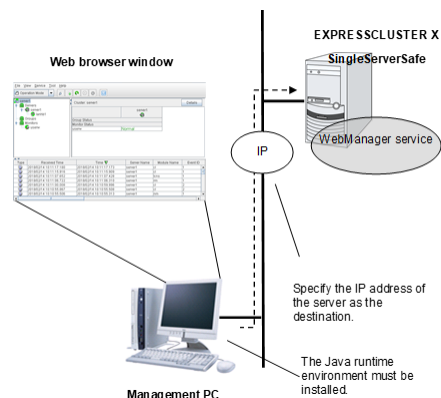
Note: You cannot configure or display functions that have been added to or changed in versions later than **EXPRESSCLUSTER X SingleServerSafe 4.0**.

See also:

For the system requirements of the WebManager, see the corresponding web page.

2.1.1 What is the WebManager?

The WebManager is a function for setting up EXPRESSCLUSTER, monitoring its status, starting and stopping servers and groups, and collecting operation logs through a Web browser. The overview of the WebManager is shown in the following figures.



The WebManager service on the EXPRESSCLUSTER X SingleServerSafe Server is set up to start up when the operating system starts up.

2.1.2 Setting up Java runtime environment to a management PC

To access the Java applet version of WebManager, a Java Plug-in (Java™ Runtime Environment Version 8.0 Update 162 (1.8.0_162) or later) must be installed in a browser on a management PC.

When the version of Java Plug-in is older than the version written above, the browser might prompt you to install Java. In this case, install the Java Plug-in of the version of which the operation is verified on EXPRESSCLUSTER WebManager.

To install Java Plug-in on a browser, refer to the browser's help and the JavaVM installation guide.

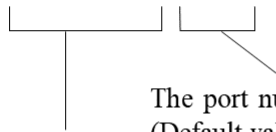
You have to add the Exception Site for Java on the machine connected to the WebManager. From **Control Panel**, open **Java** and add "URLs used to connect to the WebManager."

2.1.3 Starting the WebManager

The procedure for starting the WebManager is described below.

1. Start your Web browser.
2. Enter the IP address and port number of the server where EXPRESSCLUSTER X SingleServerSafe is installed in the browser address bar.

`http://192.168.0.3:29003/main.htm`



The port number for the WebManager specified at installation.
(Default value: 29003)

The IP address of the server where EXPRESSCLUSTER X SingleServerSafe is installed.

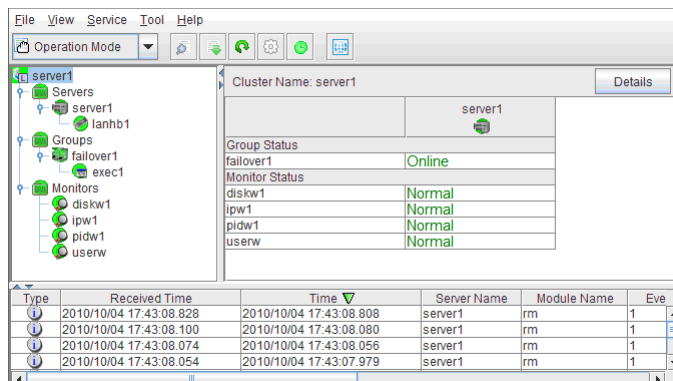
If the local server is used, the local host can be specified.

Note:

In Java Runtime Environment Version 9.0 or later, WebManager can be launched by using Java Web Start. When starting the Java WebManager, change "main.htm" of the URL above to "main.jnlp" and then enter the modified URL in the Address bar.

Example: `http://10.0.0.1:29003/main.jnlp`

3. The WebManager starts.



See also:

The Cluster WebManager supports encrypted communication (by using HTTPS). For details of encrypted communication, see "3.2.11. WebManager tab" in "3.2. Cluster properties" in "3. Function of the Builder" in this guide. Enter the following to perform encrypted communication.

`https://192.168.0.3:29003/main.htm`

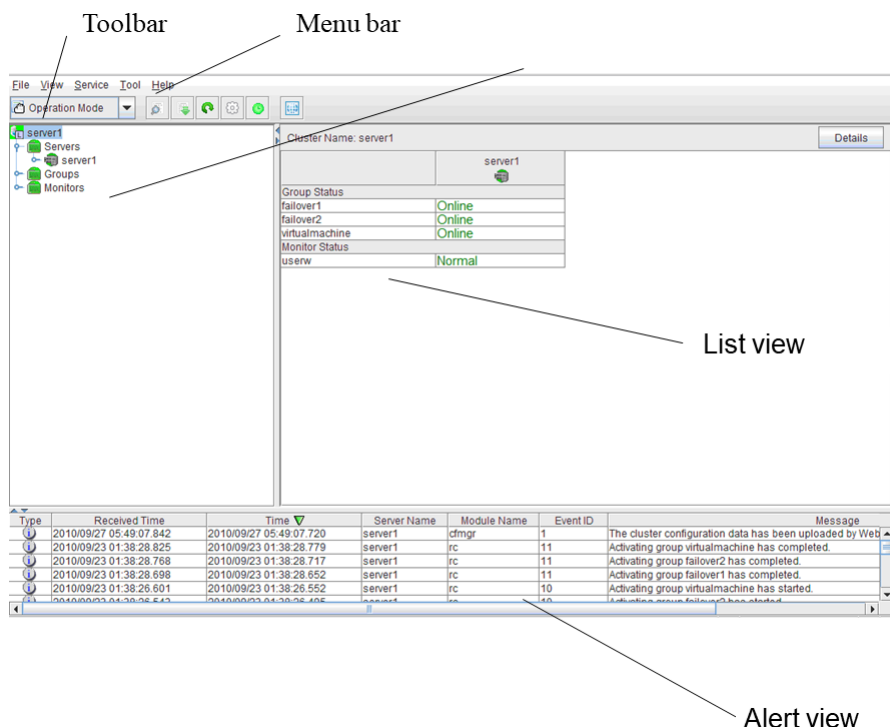
2.2 Window of the WebManager

This chapter provides information about the WebManager window.

Note: For the language used on the screen, see "Cluster properties - info tab" in "3. *Function of the Builder*" in this Guide.

2.2.1 Main WebManager window

The WebManager window consists of two bars and three views.



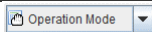
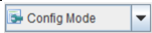
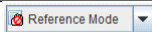







Menu bar

The menu bar has the five menus described below. The contents of these menus differ depending on the config mode and operation/reference mode. The menu items displayed in the operation/reference mode are described later in this chapter. For information about the menus displayed in the config mode, see the next chapter.

- **File** menu
- **View** menu
- **Service** menu
- **Tool** menu
- **Help** menu


Toolbar

If you click the combo box and icons on the toolbar, you can perform the same operation as when selecting the corresponding item on the menu bar.

Button	Function	Refer to
	Changes the WebManager to the operation mode. This is the same as clicking View on the menu bar and then selecting Operate Mode.	"2.2.2. Changing the WebManager operation mode"
	Changes the WebManager to the config mode (online version of the Builder). This is the same as clicking View on the menu bar and then selecting Config Mode.	"2.2.2. Changing the WebManager operation mode"
	Changes the WebManager to the reference mode. This is the same as clicking View on the menu bar and then selecting Reference Mode.	"2.2.2. Changing the WebManager operation mode"
	Switches to WebManager verification mode. This is the same as clicking View on the menu bar and then selecting Verification Mode.	"2.2.2. Changing the WebManager operation mode"
	Searches for an alert. This is the same as clicking Tool on the menu bar and then selecting Filter Alert.	"2.2.3. Searching for an alert by using the WebManager"
	Collects logs. This is the same as clicking Tool on the menu bar and then selecting Collecting Logs.	"2.2.4. Collecting logs by using the WebManager"
	Performs reloading. This is the same as clicking Tool on the menu bar and then selecting Reload.	"2.2.5. Updating the WebManager information"
	Displays options. This is the same as clicking Tool on the menu bar and then selecting Option.	"2.2.6. Changing the screen layout on the WebManager"
 	Displays the time information. This is the same as clicking Tool on the menu bar and then selecting TimeInfo. When the time information has been updated, the icon changes accordingly. The icon reverts to its original form when the time information dialog is displayed.	"2.2.7. Checking the time information from the WebManager"

Continued on next page

Table 2.1 – continued from previous page

Button	Function	Refer to
	Displays Integrated WebManager. This is the same as clicking Tool on the menu bar and then selecting Integrated WebManager.	"2.2.8. Executing Integrated WebManager from the WebManager"

Tree view

The statuses of servers and group resources can be confirmed. For further information, see "2.3. Checking the status of each object in the tree view of WebManager".

List view

The upper part of the view provides information on the server or other resource selected in the tree view. The lower part lists the start/stop statuses and comments of each server, group resource, and monitor resource. If you click the **Details** button located on the upper right of the view, further information will be displayed in a dialog. For further information, see "2.4. Checking the cluster status by using the WebManager list view".

Alert view

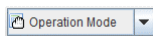
The operation status of EXPRESSCLUSTER X SingleServerSafe is indicated by a message. For further information, see "2.5. Checking alerts by using the WebManager".

2.2.2 Changing the WebManager operation mode

The WebManager has the following four operation modes.

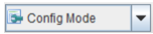
- Operate Mode

This mode allows the user to see the status of and operate the server.

Select **Operation Mode** on the **View** menu or click the **Operation Mode** on the combo box () on the toolbar to switch to the operation mode. However, if you used the reference mode password for login when starting the WebManager or connected to the WebManager from a client that is not allowed to perform operations, it is not possible to switch to the operation mode.


- Config Mode

This mode allows the user to set up the server and change the settings. The WebManager in the config mode is called Builder (online version). For details about operations in the config mode, see the next chapter.

Select **Config Mode** on the **View** menu or click the **Config Mode** on the combo box () on the toolbar to switch to the config mode. However, if you connected to the WebManager from a client that is not allowed to perform operations, it is not possible to switch to the config mode.


- Reference Mode

This mode allows the user to see the cluster status, but not to operate the server.

Select **Reference Mode** on the **View** menu or click the **Reference Mode** on the combo box () on the toolbar to switch to the reference mode.

- Verification mode

This mode allows the user to enable or disable dummy failure of monitor resource.

Select **Verification Mode** on the **View** menu or click **Verification Mode** in the combo box () on the toolbar to switch to verification mode. However, if you connected to the WebManager from a client that is not allowed to perform operations, it is not possible to switch to verification mode.

If you switch from the verification mode to another mode, a dialog box asks if you want to cancel the enabled dummy failure of all the monitor resources. Select **Yes** to place all the monitor resources in the enabled dummy failure back in the normal monitored status. Select **No** to switch to another mode while keeping the monitor resources in the enabled dummy failure.

Note:

When the pop-up window is displayed for **Operation Mode**, **Reference Mode**, or **Verification Mode** in the WebManager, and if switching to **Config Mode** is performed, the open pop-up window closes. The operation performed on the pop-up window continues.

2.2.3 Searching for an alert by using the WebManager

You can search for an alert by using the WebManager. Searching in this method is useful to view only a specific type alert.

Note: For information about alert logs, see *"2.5. Checking alerts by using the WebManager"*.

To search for an alert, click **Filter Alert** on the **Tool** menu or click the alert search icon [🔍] on the toolbar. The window for specifying alert log search conditions is displayed.

To search only the specified number of past alert logs:

1. Select **Display only the specified number of alerts**.
2. Enter the number of past alert logs to search, and then click **OK**. Past alert logs are displayed as many as you have specified.


Note: The maximum value to enter is the number specified for **Max Number to Save Alert Records**. To configure **Max Number to Save Alert Records**, right-click the cluster icon in the Builder, and then click **Cluster Properties** on the shortcut menu. In the properties dialog box, click the **Alert Log** tab.

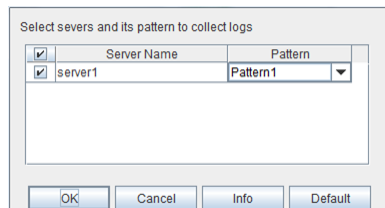
To search by specifying search conditions:

1. Click **Select the filter option**.
2. Enter the search conditions in each field and start searching.
 - **Alert Type:** Select the type of alerts you want to see.
 - **Module Name:** Enter the module type you want to see.

- **Server Name:** Type in the name of a server whose alerts you want to see.
 - **Event ID:** Type in an event ID whose alerts you want to see.
For event IDs, see "Error messages" in the "EXPRESSCLUSTER X SingleServerSafe Operation Guide".
 - **Start Time, Stop Time:** Select this to search by the time of the event occurrence. Enter the values in **Start Time** and **Stop Time**.
3. Enter the number of alerts to display on one page in **The number of alerts to be displayed per page:**, and then click **OK**. Research results are displayed based on the time an alert occurred.
 4. If the results of research are displayed on more than one page, move the page by clicking **Back**, **Next**, and **Jump** buttons.

2.2.4 Collecting logs by using the WebManager

Clicking **Collect Cluster Logs** on the **Tool** menu or clicking the log collection icon [] on the toolbar opens the log collection dialog box.



Check box

Select the check boxes of the servers that have the logs you want to collect.

Pattern

Select the information to be collected. Specify one of Pattern 1 to Pattern 4 as the log collection pattern.

	Pattern1	Pattern2	Pattern3	Pattern4
(1) Default collect Information	✓	✓	✓	✓
(2) syslog	✓	✓	✓	n/a
(3) core	✓	✓	n/a	✓
(4) OS Information	✓	✓	✓	✓
(5) script	✓	✓	n/a	n/a
(6) ESM PRO/AC	✓	✓	n/a	n/a

Continued on next page

Table 2.2 – continued from previous page

	Pattern1	Pattern2	Pattern3	Pattern4
(7) HA Logs	n/a	✓	n/a	n/a

For (1)-(7) information, see "Collecting logs (clplogcc command)" in "EXPRESSCLUSTER X SingleServerSafe command reference" in the EXPRESSCLUSTER X SingleServerSafe Operation Guide.

OK

Starts log collection and displays the dialog box of log collection progress.

Cancel

Closes this dialog box.

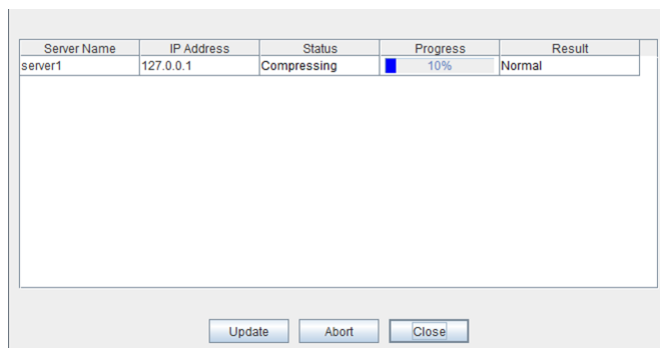
Info

Displays the information for each pattern.

Default

Resets the selections of servers and collect patterns to default values.

The dialog box of the log collection progress



Update

Updates the dialog box of the log collection progress.

Abort

Aborts the log collection.

Close

Closes the **Cluster Log Collection Progress** dialog box. Log collection continues.

At this time, the display of **Collect Cluster Logs** in title view has changed to **Progress**. Click **Progress** to display the log collection progress dialog box again.

Collect Logs Results

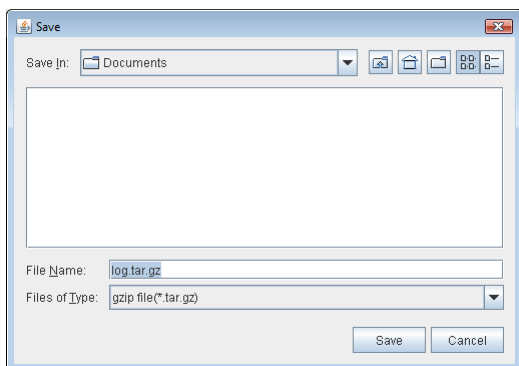
Result	Explanation
Normal	Log collection succeeded.
Abort	Log collection was canceled by user.
Invalid parameter	Internal error may have occurred.
Communication Error	Connecting error occurred.

Continued on next page

Table 2.3 – continued from previous page

Result	Explanation
Timeout	Timeout occurred.
Busy	The server is busy.
Compression Error	Error occurred when compressing a file.
File I/O Error	File I/O failed.
Not Enough Free Space	No free space on the disk.
Unknown Error	Failure caused by other errors.

When the log collection completes, the browser displays a dialog box that asks where you want to save the logs. Download the logs to any location.



Note: Logs may not be downloaded properly if nothing is changed for more than 10 minutes.


When you collect logs, the following message may be displayed in the server console.

```
hda: bad special flag: 0x03
ip_tables: (C) 2000-2002 Netfilter core team
```

This will not affect log collection. Ignore this message.

Note: If other modal dialog box is displayed while collecting logs, the file saving dialog box for the log collection will not be displayed. To display the file saving dialog box, close the modal dialog box.

2.2.5 Updating the WebManager information

Click **Reload** on the **Tool** menu or click the reload icon [] on the toolbar to update the information displayed in the WebManager.

Note:

When **RealTime** is set for the client data update method, what is displayed for the WebManager is updated automatically.

When **Polling** is set for the client data update method, what is displayed for the WebManager is generally updated automatically, however, it does not always display the latest status because of the refresh interval configuration. To display the latest information, click the reload icon or **Reload** on the **Tool** menu after performing an operation.

To configure the client data update method, from the shortcut menu, select **Properties**. In the properties dialog box, click the **WebManager** tab. Select the **Client Data Update Method** on **Tuning**.

To configure the automatic reload interval of the WebManager, from the shortcut menu, select **Cluster Properties**. In the properties dialog box, click the **WebManager** tab.

If communication with the connection destination is not available, or if EXPRESSCLUSTER X SingleServerSafe is not running at the connection destination, some objects might be grayed out.

2.2.6 Changing the screen layout on the WebManager


The WebManager screen layout can be changed by clicking the buttons of the split bars that divide the screen or by dragging the bars. This is useful to display only a specific view.

The split bars divide the views in the WebManager.

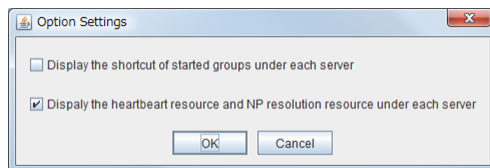


On the bar, click ▲ to maximize the view. Click ▼ to minimize it.



To change the display items on the tree view, click **Option** on the **Tool** menu or option icon

[

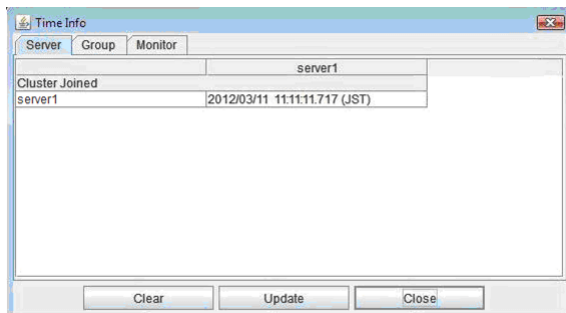
The following dialog is displayed. Check items you want to display.



2.2.7 Checking the time information from the WebManager

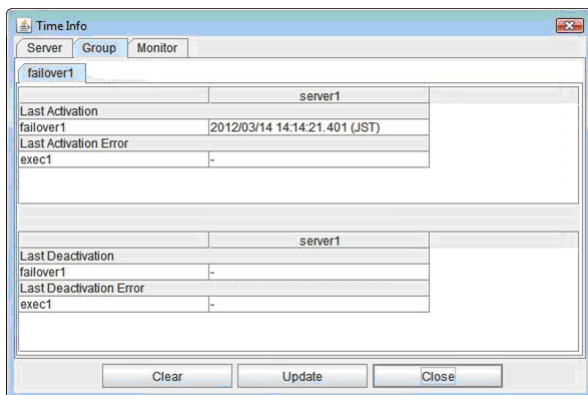
 Check the time information from the WebManager by clicking **Time info** on the **Tool** menu or by clicking the time information icon [] on the toolbar.

Time information displayed on the Server tab



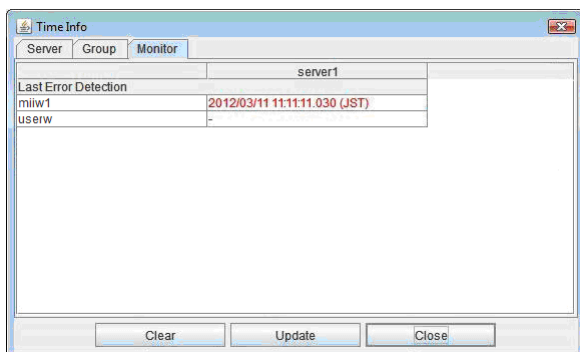
- Cluster joined
Displays the most recent time at which server joined the cluster.

Time information displayed on the Group tab



- Last activation
Displays the time at which the failover group was last activated on server.
- Last activation error
Displays the time at which an activation failure of a group resource was last detected on server.
- Last deactivation
Displays the time at which the failover group was last deactivated on server.
- Last deactivation error
Displays the time at which a deactivation failure of a group resource was last detected on server.

Time information displayed on the Monitor tab



- Last error detection
Displays the time at which each monitor resource last transitioned from normal status to abnormal status on server.

Clear

Deletes the time information displayed on the current tab.

Update


Acquires the time information for all the tabs.

Close

Closes the time information dialog box.

Note: When **Client Data Update Method** is set to **Polling**, the time information icon on the toolbar may be blinked if you push **Clear** button. But it's not a problem.

2.2.8 Executing Integrated WebManager from the WebManager

To execute Integrated WebManager from the WebManager, click **Integrated WebManager** on the **Tool** menu or Integrated WebManager icon () on the tool bar.

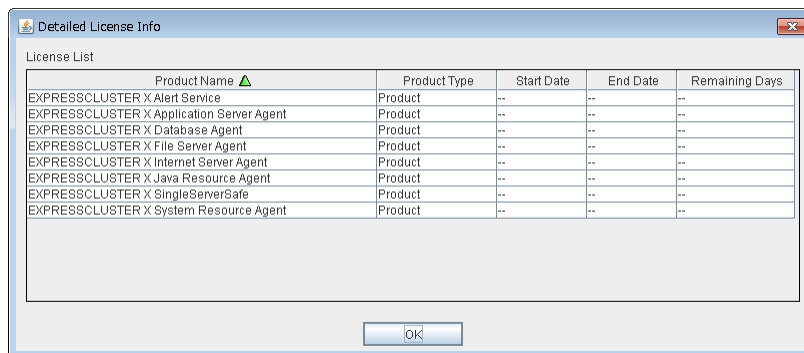
2.2.9 Operating cluster services from the WebManager

To operate cluster services from the WebManager, select each item from the following **Service** menu:

- **Suspend Cluster**
Suspends the server. This item can be selected only when the server is running.
- **Resume Cluster**
Resumes a suspended server. This item can be selected only when the server is suspended.
- **Start Cluster**
Starts the server. This item can be selected only when the server is stopped.
- **Stop Cluster**
Stops the server. This item can be selected only when the server is running.
- **Restart Manager**
Restarts a manager.

2.2.10 Confirming the license from the WebManager

To confirm the license from the WebManager, click **License Info** on the **Help** menu.



Registered License List

Displays the licenses registered on the connection destination server.
You can rearrange each item by selecting the field name from the list.
By default, the items are arranged in descending order of **Product Name**.

Note: In case of license which includes multiple licenses, all included licenses information are displayed.

OK button

Closes the **License Info** dialog box.

2.3 Checking the status of each object in the tree view of WebManager

You can visually check the status of each object in the WebManager window.

1. Start the webManager.
2. On the left pane of the window, a tree is displayed. Check the status by looking at each icon and object color. The following is the brief overview of a tree.

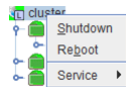
Note: The tree configuration depends on the version of and optional products used with EXPRESSCLUSTER X SingleServerSafe.

2.3.1 Operations that can be executed from the WebManager

You can operate a server by right-clicking **Cluster**, **Individual server**, **Individual group**, or **VM resource**.

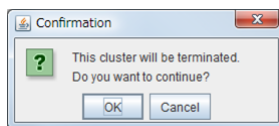
Object of the cluster

When you right-click the **cluster** object, the following shortcut menu is displayed.



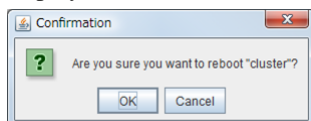
- **Shut down**

Shuts down the running server. When you select this operation, the following dialog box is displayed for confirmation.



- **Reboot**

Reboots the running server. When you selected this operation, the following dialog box is displayed for confirmation.

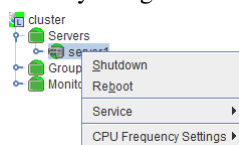


- **Service**

If you select Service, Suspend Cluster, Resume Cluster, Start Cluster, Stop Cluster and Restart Manager are displayed on the shortcut menu.

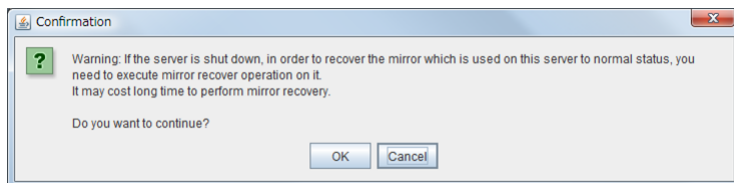
Individual server objects

When you right-click an individual server object, the following shortcut menu is displayed.



- **Shut down**

Shuts down the server. When you execute this command, the following confirmation dialog box is displayed:



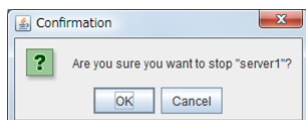
- **Reboot**

Reboots the selected server. When you selected this operation, the following dialog box is displayed for confirmation.



- **Service**

Starts and stops the selected service. When you select this operation, the following dialog box is displayed for confirmation.

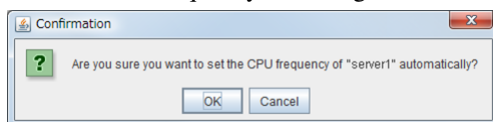


- **CPU frequency control**

Configures the CPU frequency control function of the selected server.

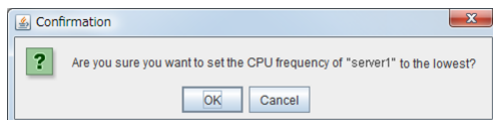
- **Highest Frequency**

Sets the CPU frequency to the highest.



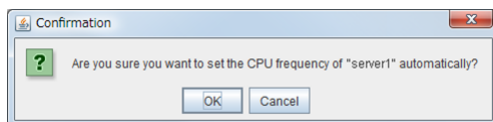
- **Lowest Frequency**

Lowers the frequency to turn it to power-saving mode.



- **Auto**

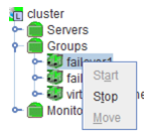
Restores the CPU frequency control to the control by EXPRESSCLUSTER.



This function cannot be used when the **Use CPU Frequency Control** check box is not selected in the **Extension** tab in the **Cluster Properties**.

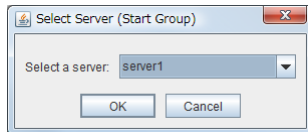
Individual group objects (when Failover group is selected)

When you right-click a monitor resource object, the following shortcut menu is displayed.



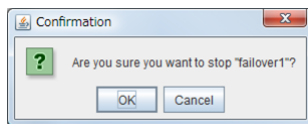
- **Start (enabled only when the group is stopped)**

Starts up the selected group. The dialog box for choosing a server that starts up the selected group is displayed.



- **Stop (enabled only when the group has been started up or when it has an error)**

Stops the selected group resource. When you selected this operation, the following dialog box is displayed for confirmation.

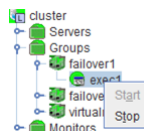


- **Move**

Not used.

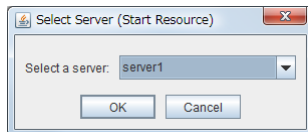
Individual group resource objects (except VM resources)

When you right-click a monitor resource object, the following shortcut menu is displayed.



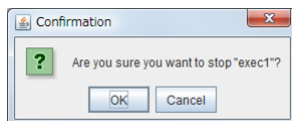
- **Start (enabled only when the group is stopped)**

Starts up the selected group resource. The dialog box for choosing a server that starts up the selected group is displayed.



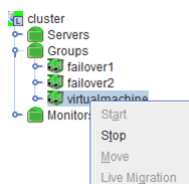
- **Stop (enabled only when the group has been started up or when it has an error)**

Stops the selected group resource. When you selected this operation, the following dialog box is displayed for confirmation.



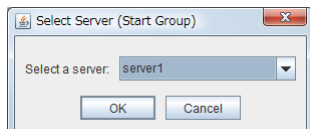
Individual group objects (when Virtual Machine is selected)

When you right-click a monitor resource object, the following shortcut menu is displayed.



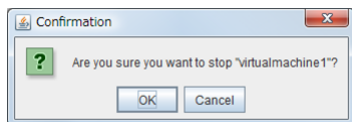
- **Start (enabled only when the group is stopped)**

Starts up the selected group resource. The dialog box for choosing a server that starts up the selected group is displayed.



- **Stop (enabled only when the group has been started up or when it has an error)**

Stops the selected group resource. When you select this operation, the following dialog box is displayed for confirmation.



- **Move**

Not used.

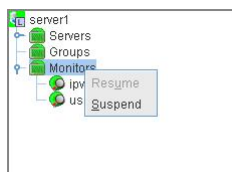
- **Live Migration**

Not used.

Monitors object

When you right-click the **Monitors** object, the following shortcut menu is displayed.

When operation mode is selected

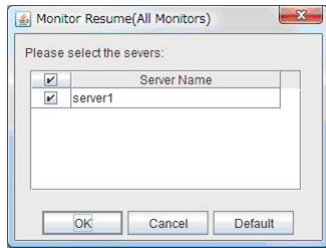


When verification mode is selected

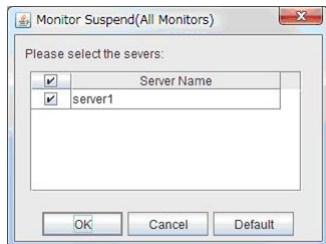


- **Resume (enabled only when the monitor is suspended)**

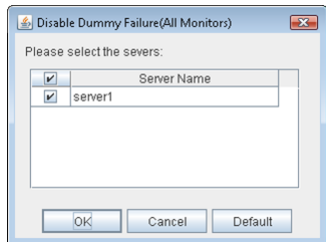
Resumes all the monitor resources that are configured. This operation is not performed on the monitor resources where suspending/resuming the monitoring is not possible. The following dialog box for selecting the server where monitor resources are resumed is displayed.



- **Suspend** (enabled only when the monitor is running)
Suspends all the monitor resources that are configured. This operation is not performed on the monitor resources where suspending/resuming the monitoring is not possible. The following dialog box for selecting the server where monitor resources are suspended is displayed.



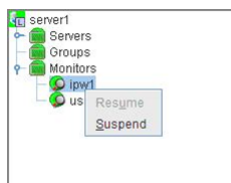
- **Disable Dummy Failure** (available only when dummy failure is enabled)
Disable dummy failure for all monitor resources. Select the server on which dummy failure for monitor resources is to cleared from the dialog box shown below.



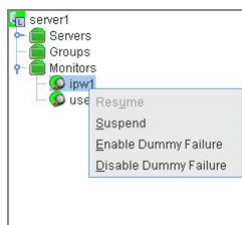
Individual monitor resource objects

When you right-click an individual monitor resource object, the following shortcut menu is displayed.

When operation mode is selected

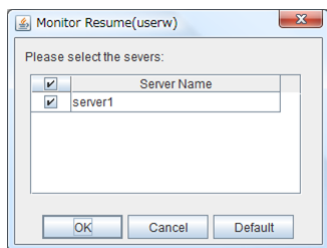


When verification mode is selected



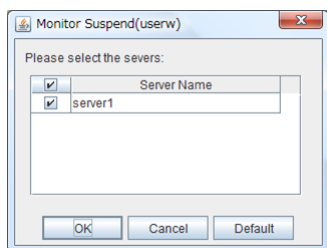
- **Resume** (enabled when the resource is stopped temporarily)

Resumes a selected monitor resource. The dialog box for choosing the server on which the selected monitor resource is resumed.



- **Suspend (enabled when the resource is monitoring)**

Resumes the selected monitor resource. The dialog box for choosing the server on which the selected monitor resource is stopped temporarily.



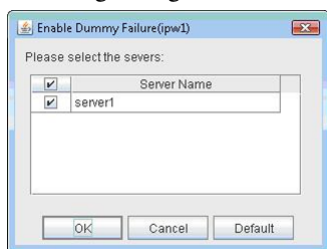
- **Enable Dummy Failure** (available only in verification mode)

Enable dummy failure for a selected monitor resource. Dummy failure can be enabled only on a server on which **Resource Status on Each Server** of the relevant monitor resource indicates a status other than **Error** or **Dummy Failure**.

Note, however, that the following monitor resources cannot be selected:

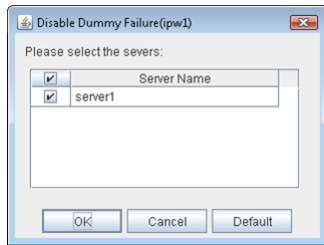
- User space monitor resources
- External coordination monitor resources
- VM monitor resource

Select the server on which to enable dummy failure for the selected monitor resource from the following dialog box.



- **Disable Dummy Failure** (available only in verification mode)

Dummy failure is disabled for the selected monitor resource. Select the server on which the dummy failure is to be disabled for the selected monitor resource from the dialog box shown below.

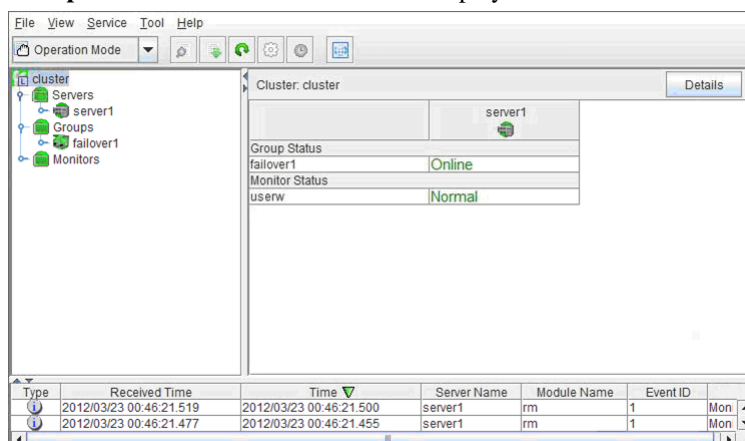


2.4 Checking the cluster status by using the WebManager list view

Details about the object selected in the WebManager tree view can be displayed in the list view.

2.4.1 To display information on the whole cluster

1. Start the WebManager.
2. In this tree view, click the object icon [📁] for the cluster. In the list view in the right pane of the window, the **Group Status** and **Monitor Status** are displayed.



3. In the following dialog box, click the **Details** button to display the following information. A dialog box is displayed with the content shown below.

Monitor	Recovery	Alert Service	Delay Warning	Mirror Agent	Mirror Driver	JVM Monitor	Extension
Info	Heartbeat I/F	NP Resolution	Timeout	Port No.	Port No. (Mirror)	Port No. (Log)	
Properties				Value			
Name				server1			
Comment							
Status				Normal			

Name: Cluster name

Comment: Comment for the cluster

Status: Status of the cluster

Monitor	Recovery	Alert Service	Delay Warning	Mirror Agent	Mirror Driver	JVM Monitor	Extension
Info	Heartbeat I/F	NP Resolution	Timeout	Port No.	Port No. (Mirror)	Port No. (Log)	
Properties				Value			
Server Down Notification				On			

Server Down Notification: Not used

Monitor	Recovery	Alert Service	Delay Warning	Mirror Agent	Mirror Driver	JVM Monitor	Extension
Info	Heartbeat I/F	NP Resolution	Timeout	Port No.	Port No. (Mirror)	Port No. (Log)	
Properties				Value			
Action at NP Occurrence				Stop the cluster service and shutdown OS			

Action at NP Occurrence: Not used

Monitor	Recovery	Alert Service	Delay Warning	Mirror Agent	Mirror Driver	JVM Monitor	Extension	
Info	Heartbeat I/F	NP Resolution	Timeout	Port No.	Port No.(Mirror)	Port No.(Log)		
Properties				Value				
Server Sync Wait Time (sec)				300				
Heartbeat Timeout (msec)				300000				
Heartbeat Interval (msec)				30000				
Server Internal Timeout (sec)				180				
Timeout Ratio				1				

Server Sync Wait Time (sec): Not used

Heartbeat Timeout (msec): Heartbeat time-out (in milliseconds)

Heartbeat Interval (msec): The interval for sending heartbeats (in milliseconds)

Server Internal Timeout (sec): Internal communication time-out (in seconds)

Timeout Ratio: Current time-out ratio

Monitor	Recovery	Alert Service	Delay Warning	Mirror Agent	Mirror Driver	JVM Monitor	Extension	
Info	Heartbeat I/F	NP Resolution	Timeout	Port No.	Port No.(Mirror)	Port No.(Log)		
Properties				Value				
Server Internal Port Number				29001				
Data Transfer Port Number				29002				
Heartbeat Port Number				29002				
Kernel Mode Heartbeat Port Number				29006				
WebManager HTTP Port Number				29003				
Alert Sync Port Number				29003				

Server Internal Port Number: Port number for internal communication

Data Transfer Port Number: Port number for data transfer

Heartbeat Port Number: Port number for heartbeat

Kernel Mode Heartbeat Port Number: Port number for kernel-mode heartbeat

WebManager HTTP Port Number: Port number for WebManager

Alert Sync Port Number: Port number for alert synchronization

Monitor	Recovery	Alert Service	Delay Warning	Mirror Agent	Mirror Driver	JVM Monitor	Extension	
Info	Heartbeat I/F	NP Resolution	Timeout	Port No.	Port No.(Mirror)	Port No.(Log)		
Properties				Value				
Communication Method for Internal Logs				UNIX Domain				
Port Number				0				

Communication method for Internal Logs: Communication method used for logs

Port Number: Port number used for logs

Monitor	Recovery	Alert Service	Delay Warning	Mirror Agent	Mirror Driver	JVM Monitor	Extension	
Info	Heartbeat I/F	NP Resolution	Timeout	Port No.	Port No.(Mirror)	Port No.(Log)		
Properties				Value				
Shutdown Monitor				Always execute				
Shutdown Monitoring Method				softdog				
Action				RESET				
Enable SIGTERM Handler				Off				
Use HB Timeout				Off				
Timeout (sec)				90				
Collect System Resource Information				Off				

Shutdown Monitor: Whether or not to monitor shutdown

Shutdown Monitoring Method: Method for monitoring shutdown

Action: Operation at time-out

Enable SIGTERM Handler: Whether or not to enable SIGTERM

Use HB Timeout: Whether or not to use HB time-out

Timeout (sec): Timeout (in seconds)

Collect System Resource Information: Whether or not to collect System Resource Information

Monitor	Recovery	Alert Service	Delay Warning	Mirror Agent	Mirror Driver	JVM Monitor	Extension	
Info	Heartbeat I/F		NP Resolution	Timeout	Port No.	Port No.(Mirror)	Port No.(Log)	
Properties								Value
Action When the Cluster Service Process Is Failure								Shut down the OS
Recovery Action for HA Agents:Max Restart Count								3
Recovery Action for HA Agents:Recovery Action over Max Restart Count								No operation
Disable Recovery Action Caused by Monitor Resource Failure								Off
Action at Group Resource Activation or Deactivation Stall								Stop the cluster service and shutdown OS
Restrain the shutdown action if only one server is alive (when active group resource abnormality detected)								Off
Restrain the shutdown action if only one server is alive (when deactive group resource abnormality detected)								Off
Restrain the shutdown action if only one server is alive (when monitoring resource abnormality detected)								Off

Action When the Cluster Service Process Is Failure: Action to be taken when a cluster service process fails

Recovery Action for HA Agents: Max Restart Count: Maximum count to restart an HA process if the process fails

Recovery Action for HA Agents: Recovery Action over Max Restart Count: Action to be taken when an HA process fails and the process cannot be restarted even after retrying restart of the process for the maximum number of retries

Disable Recovery Action Caused by Monitor Resource Failure: Whether or not to disable the recovery action when the monitor resource fails

Action at Group Resource Activation or Deactivation Stall: Action to be taken when group resource activation/deactivation is stalled

When active group resource abnormality detected: Disable the Final Action When Activation Failure Detected

When deactive group resource abnormality detected: Disable the Final Action When Deactivation Failure Detected

When monitoring resource abnormality detected: Disable the Final Action When Failure Detected

Monitor	Recovery	Alert Service	Delay Warning	Mirror Agent	Mirror Driver	JVM Monitor	Extension	
Info	Heartbeat I/F		NP Resolution	Timeout	Port No.	Port No.(Mirror)	Port No.(Log)	
Properties								Value
E-mail Address								
Use Network Warning Light								Off
Use Chassis Identify								Off
Enable Alert Setting								Off

E-mail Address: Destination e-mail address for sending alerts

Use Network Warning Light: Whether or not to use a network warning light

Use Chassis Identify: Whether or not to use a chassis identify function

Enable Alert Setting: Whether or not to use the alert setting

Monitor	Recovery	Alert Service	Delay Warning	Mirror Agent	Mirror Driver	JVM Monitor	Extension	
Info	Heartbeat I/F		NP Resolution	Timeout	Port No.	Port No.(Mirror)	Port No.(Log)	
Properties								Value
Heartbeat Delay Warning								80
Monitor Delay Warning								80

Heartbeat Delay Warning: Heartbeat delay warning (%)

Monitor Delay Warning: Monitor delay warning (%)

Monitor	Recovery	Alert Service	Delay Warning	Mirror Agent	Mirror Driver	JVM Monitor	Extension	
Info	Heartbeat I/F	NP Resolution	Timeout	Port No.	Port No.(Mirror)	Port No.(Log)		
Properties				Value				
Java Install Path								
Maximum Java Heap Size (MB)				16				
Load Balancer Connection Setting				Off				
Log Level				INFO				
Generation Count for Stored Log Files				10				
Log Rotation Type				File Size				
Log File Maximum Size (KB)				3072				
Time of First Log Rotation				00:00				
Log Rotation Interval (Hours)				24				
Resource Measurement: Retry Count				10				
Resource Measurement: Threshold for Abnormal Judgment				5				
Resource Measurement: Default Interval				60				
Resource Measurement: Interval for Full GC				120				
WebLogic Monitoring: Retry Count				3				
WebLogic Monitoring: Threshold for Abnormal Judgment				5				
WebLogic Monitoring: Request Count Measurement Interval				60				
WebLogic Monitoring: Interval for Average measurement				300				
Management Port				25500				
Connection Retry Count				3				
Time until Reconnect				60				
Management Port for Load Balancer Linkage				25550				
Health Check Linkage Function				Off				
Directory containing HTML files								
HTML File Name								
HTML Renamed File Name								
Retry count for renaming				3				
Wait time for retry				3				
Management IP Address								
Connection Port				443				

Java Install Path: Java installation path

Maximum Java Heap Size (MB): Maximum Java heap size (MB)

Load Balancer Linkage Settings: Load balancer linkage settings

Log Level: Log level

Generation Count for Stored Log Files: Number of generations of log files to be stored

Log Rotation Type: Log rotation type

Log File Maximum Size (KB): Maximum log file size (KB)

Time of First Log Rotation: Time of the first log rotation

Log Rotation Interval (Hours): Log rotation interval (hours)

Resource Measurement: Retry Count: Measurement retry count

Resource Measurement: Threshold for Abnormal Judgment: Threshold for abnormal judgment

Resource Measurement: Default Interval: Interval for memory and thread measurement (sec)

Resource Measurement: The time and count in Full GC: Interval for Full GC measurement (sec)

WebLogic Monitoring: Retry Count: Measurement retry count

WebLogic Monitoring: Threshold for Abnormal Judgment: Threshold for abnormal judgment

WebLogic Monitoring: Request Count Measurement Interval: Interval for measuring the number of requests (sec)

WebLogic Monitoring: Interval for Average measurement: Interval for measuring the average (sec)

Management Port: Management port number

Connection Retry Count: Connection retry count

Time until Reconnect: Time to wait for reconnection (sec)

Management Port for Load Balancer Linkage: Management port number for load balancer linkage

Health Check Linkage Function: Whether or not to use the health check linkage function

HTML Path: HTML storage directory

HTML File Name: HTML file name

HTML Renamed File Name: Renamed HTML file name

Retry Count: Retry count if renaming fails

Retry Interval: Time to wait for a renaming retry (sec)

Management IP address: BIG-IP LTM management IP address

Connection Port: Communication port number for BIG-IP LTM

Monitor	Recovery	Alert Service	Delay Warning	Mirror Agent	Mirror Driver	JVM Monitor	Extension	
Info	Heartbeat I/F	NP Resolution	Timeout	Port No.	Port No.(Mirror)	Port No.(Log)		
Properties				Value				
Max Reboot Count				3				
Max Reboot Count Reset Time (min)				60				
Use Forced Stop				Off				
Forced Stop Action				BMC Reset				
Forced Stop Timeout (sec)				3				
Execute Script for Forced Stop				Off				
Use CPU Frequency Control				Off				
Start Automatically After System Down				On				
Exclude Mount/Unmount Commands				On				

Max Reboot Count: Maximum reboot count

Max Reboot Count Reset Time (min): Maximum reboot count reset time (in minutes)

Use Forced Stop: Whether or not to use a forced stop function

Forced Stop Action: Forced stop action

Forced Stop Timeout (sec): Wait time till the activation of failover group is started after a forced stop function is performed (in seconds)

Execute Script for Forced Stop: Whether to execute a script for forced stop

Use CPU Frequency Control: Whether or not to use CPU frequency control

Start Automatically After System Down: Whether or not to prohibit automatic startup of the cluster service when it is stopped abnormally

Exclude Mount/Unmount Commands: Whether or not to exclude a mount or unmount command

Monitor	Recovery	Alert Service	Delay Warning	Mirror Agent	Mirror Driver	JVM Monitor	Extension	
Info	Heartbeat I/F	NP Resolution	Timeout	Port No.	Port No.(Mirror)	Port No.(Log)		
Properties				Value				
Mirror Agent Port Number				29004				

Mirror Agent Port Number: Not used

Monitor	Recovery	Alert Service	Delay Warning	Mirror Agent	Mirror Driver	JVM Monitor	Extension	
Info	Heartbeat I/F	NP Resolution	Timeout	Port No.	Port No.(Mirror)	Port No.(Log)		
Properties				Value				
Auto Mirror Recovery				On				
Collect Mirror Statistics				On				
Receive Timeout (sec)				10				
Send Timeout (sec)				120				
Recovery Data Size (kbyte)				4096				
Recovery Retry Count				0				
Start Wait Time (sec)				10				
Cluster Partition I/O Timeout (sec)				30				

Auto Mirror Recovery: Not used

Collect Mirror Statistics: Not used

Receive Timeout (sec): Not used

Send Timeout (sec): Not used

Recovery Data Size (kbyte): Not used

Recovery Retry Count: Not used

Start Wait Time (sec): Not used

Cluster Partition I/O Timeout (sec) : Not used

Monitor	Recovery	Alert Service	Delay Warning	Mirror Agent	Mirror Driver	JVM Monitor	Extension	
Info	Heartbeat I/F	NP Resolution	Timeout	Port No.	Port No.(Mirror)	Port No.(Log)		
Properties					Value			
Request Queue Maximum Number					2048			
Difference Bitmap Size (MB)					1			
Difference Bitmap Update Interval (sec)					100			
Cluster Partition					RESET			
Data Partition					RESET			

Request Queue Maximum Number: Not used


Difference Bitmap Size (MB): Not used

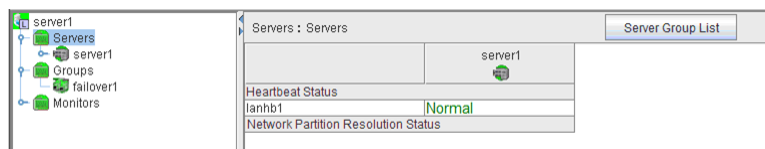
Difference Bitmap Update Interval(sec): Not used

Cluster Partition: Not used


Data Partition: Not used

2.4.2 Checking an overview of the server status by using the WebManager list view

In the tree view, select the object icon []. In the upper part of the list view in the right pane of the window, **Server Name**, **Type** (master or not), and **Status** are displayed. In the lower part, **Server Group Name** and **Server Name** are displayed.



2.4.3 Checking the detailed server status by using the WebManager list view

1. Start the WebManager.
2. In the tree view, select the object of the server[]. The **Server Comment**, **Virtual Infrastructure**, **Product**, **Version**, **Platform**, **Status** of the server are displayed.

Server Name: server1		Details
Properties	Value	
Comment		
Virtual Infrastructure		
Product	EXPRESSCLUSTER X SingleServerSafe 4.0 for Linux	
Version	4.0.0-1	
Platform	Red Hat Enterprise Linux Server release 6.8 (Santiago)	
Status	Online	
Heartbeat Status		
lanhb1	Normal	
Network Partition Resolution Status		

Comment: Comment for the server

Virtual Infrastructure: Virtual infrastructure name

Product: Product name

Version: Version (identical to the RPM version value)

Platform: Platform

Status: Status of the server

When you click **Details**, the following information is displayed.

Properties	Value
Name	server1
Edition	SSS
Mirror Disk Connect IP Address	
Network Warning Light IP Address(Type)	
Disk I/O Lockout Device	
BMC IP Address	-
CPU Frequency Status	-
No shutdown when double activation detected	Off

Name: Server name

Edition: Edition

Mirror Disk Connect IP Address mdc: Not used

Network Warning Light IP Address(Type): Not used


Disk I/O Lockout Device: Not used

BMC IP Address: Not used

CPU Frequency Status: Current setting status of CPU frequency control

No shutdown when double activation detected: Not used

2.4.4 Checking the status of the entire monitor in the WebManager list view

1. Start the WebManager.
2. In the tree view, select the object icon for the entire monitor []. In the list view, **Monitor Name** and a list of server statuses are displayed.

2.5 Checking alerts by using the WebManager

You can view alerts in the bottom part of the WebManager.

Each field of the alert view is configured as follows.

Type	Received Time	Time	Server Name	Module Name	Event ID	Message
	2018/02/14 16:05:44.652	2018/02/14 16:05:44.644	server1	rm	30	Monitoring userw was resumed.
	2018/02/14 16:05:44.122	2018/02/14 16:05:44.100	server1	apisv	61	There was a request to resume monitor resources from the Web Manager(IP=::ffff:127.0.0.1).
	2018/02/14 16:05:02.404	2018/02/14 16:05:02.396	server1	rm	29	Monitoring userw was suspended.
	2018/02/14 16:05:00.908	2018/02/14 16:05:00.899	server1	apisv	60	There was a request to suspend monitor resources from the Web Manager(IP=::ffff:127.0.0.1).
	2018/02/14 16:02:58.923	2018/02/14 16:02:58.839	server1	rc	21	Stopping group failover1 has completed.
	2018/02/14 16:02:58.127	2018/02/14 16:02:58.111	server1	rm	2	Monitoring iraw1 has stopped.
	2018/02/14 16:02:54.349	2018/02/14 16:02:54.323	server1	rm	2	Monitoring wfs1w1 has stopped.
	2018/02/14 16:02:52.296	2018/02/14 16:02:52.288	server1	rm	2	Monitoring tux1w1 has stopped.
	2018/02/14 16:02:50.580	2018/02/14 16:02:50.572	server1	rm	2	Monitoring sybasew1 has stopped.
	2018/02/14 16:02:48.935	2018/02/14 16:02:48.927	server1	rm	2	Monitoring psqlw1 has stopped.
	2018/02/14 16:02:47.652	2018/02/14 16:02:47.571	server1	rm	2	Monitoring orac1w1 has stopped.
	2018/02/14 16:02:45.888	2018/02/14 16:02:45.770	server1	rm	2	Monitoring mysqlw1 has stopped.
	2018/02/14 16:02:44.496	2018/02/14 16:02:44.465	server1	rm	2	Monitoring db2w1 has stopped.
	2018/02/14 16:02:43.531	2018/02/14 16:02:43.504	server1	rc	20	Stopping group failover1 has started.
	2018/02/14 16:02:43.513	2018/02/14 16:02:43.365	server1	apisv	32	There was a request to stop group(failover1) from the Web Manager(IP=::ffff:127.0.0.1).

For meanings of alert messages, see "Error messages" in the "EXPRESSCLUSTER X SingleServerSafe Operation Guide".

For information about searching alert messages, see "2.2.3. Searching for an alert by using the WebManager" in this chapter.

2.5.1 Alert view fields

The meaning of each of the fields in the alert view of the WebManager are the following.

(1) **Alert type icon**

Alert type	Meaning
	Informational message
	Warning message
	Error message

(2) **Alert received time**

The time the alert was received. The time in the server to which the WebManager connects is applied.

(3) **Alert sent time**

The time the alert was sent from a server. The time in the alert sender server is used.

(4) **Alert sender server**

The name of a server that sent the alert.

(5) **Alert sender module**

The name of a module that sent the alert.

(6) **Event ID**

The event ID number set to each alert.

(7) **Alert message**

The alert messages.

2.5.2 Alert view operations

By clicking an item on the bar showing the name of each field, you can change the order of alerts.

Type	Received Time ▲	Time	Server Name	Module Name	Event ID	Message
------	-----------------	------	-------------	-------------	----------	---------

Whenever you select an item, the ▲ or ▼ mark is displayed in each field.

Mark	Meaning
▲	Sorts alerts in the ascending order of the selected field.
▼	Sorts alerts in the descending order of the selected field.

By default, alerts are displayed in the Time descending order.

By dragging a field name left or right, you can change the order in which the items are displayed.

When you right-click this bar, the following pop-up window is displayed so that you can select the items to be displayed. All items are selected by default.

Type	Received Time	Time ▼	Server Name
2018/02/14 16:02:47.652	02:47.571	server1	
2018/02/14 16:02:45.888	02:45.770	server1	
2018/02/14 16:02:44.496	02:44.465	server1	
2018/02/14 16:02:43.531	02:43.504	server1	
2018/02/14 16:02:43.513	02:43.365	server1	
2018/02/14 16:02:41.936	02:41.928	server1	
2018/02/14 16:02:25.198	02:25.012	server1	
2018/02/14 16:02:25.295	02:25.011	server1	
2018/02/14 16:02:24.631	02:24.607	server1	
2018/02/14 16:02:24.617	2018/02/14 16:02:23.079	server1	
2018/02/14 16:02:22.029	2018/02/14 16:02:22.004	server1	
2018/02/14 16:02:22.019	2018/02/14 16:02:22.004	server1	

When you double-click the displayed alert, the following window is displayed where you can check the detail of the alert.

Alert Log Detail Information

Detail Information

Type: Info ▲

Received Time: 2018/02/14 16:02:58.923 ▼

Time: 2018/02/14 16:02:58.839

Server Name: server1

Module Name: rc

Event ID: 21

Message:
Stopping group failover1 has completed.

Close

When you right-click the alert, the following pop-up window is displayed where you can select the type of the alert to be displayed. All items are selected by default.

מחשבים	16:02:43.531
Info	16:02:43.513
Warning	16:02:41.936
Error	16:02:25.198
	16:02:25.295

2.6 Manually stopping and starting the WebManager

After EXPRESSCLUSTER X SingleServerSafe is installed, the WebManager on the servers is set up to start up or stop as the OS starts up or stops.

Run the following commands from the server console to stop and start the WebManager manually.

To stop

For an init.d environment:

```
[root@server1 root]# /etc/init.d/clusterpro_alertsync stop
Shutting down clusterpro webalert: OK
[root@server1 root]# /etc/init.d/clusterpro_webmgr stop
Shutting down clusterpro webmanager server: OK
```

For a systemd environment:

```
[root@server1 root]# systemctl stop clusterpro_alertsync
[root@server1 root]# systemctl stop clusterpro_webmgr
```

To start

For an init.d environment:

```
[root@server1 root]# /etc/init.d/clusterpro_webmgr start
Starting clusterpro webmanager server: OK
[root@server1 root]# /etc/init.d/clusterpro_alertsync start
Starting clusterpro webalert: OK
```

For a systemd environment:

```
[root@server1 root]# systemctl start clusterpro_webmgr
[root@server1 root]# systemctl start clusterpro_alertsync
```

Note: For the above commands, only type the bold characters.

2.7 If you do not want to use the WebManager

If you do not want to use the WebManager for security reasons, change the settings of your OS or that of the Builder not to start the WebManager.

You can use the command to control startup and stop of the WebManager-related daemon.

To prevent WebManager from starting up

For an init.d environment:

```
[root@server1 root]# chkconfig --del clusterpro_alertsync  
[root@server1 root]# chkconfig --del clusterpro_webmgr
```

For Ubuntu, run the following.

```
[root@server1 root]# update-rc.d clusterpro_alertsync remove  
[root@server1 root]# update-rc.d clusterpro_webmgr remove
```

For a systemd environment:

```
[root@server1 root]# systemctl disable clusterpro_alertsync  
[root@server1 root]# systemctl disable clusterpro_webmgr
```

To get WebManager to start up

For an init.d environment:

```
[root@server1 root]# chkconfig --add clusterpro_webmgr  
[root@server1 root]# chkconfig --add clusterpro_alertsync
```

For Ubuntu, run the following.

```
[root@server1 root]# update-rc.d clusterpro_webmgr defaults 91 4  
[root@server1 root]# update-rc.d clusterpro_alertsync defaults 92 3
```

For a systemd environment:

```
[root@server1 root]# systemctl enable clusterpro_webmgr  
[root@server1 root]# systemctl enable clusterpro_alertsync
```

Note: For the above commands, only type the bold characters.

In **Cluster Properties**, you can specify the settings for using the WebManager. For details about these settings, see "3.2.11. *WebManager tab*" in "3.2. *Cluster properties*" in "3. *Function of the Builder*" in this guide".

2.8 Setting up connection limitations and operation limitations of the WebManager

The limitation in connection and operation of the WebManager can be configured in **Cluster Properties** in the Builder. For details about these settings, see "3.2. *Cluster properties*" "3.2.11. *WebManager tab*" in "3. *Function of the Builder*" in this Guide.

2.8.1 Types of usage limitations

There are two ways to set usage limitations:

- Limiting the access by using client IP addresses
- The limitation by using a password

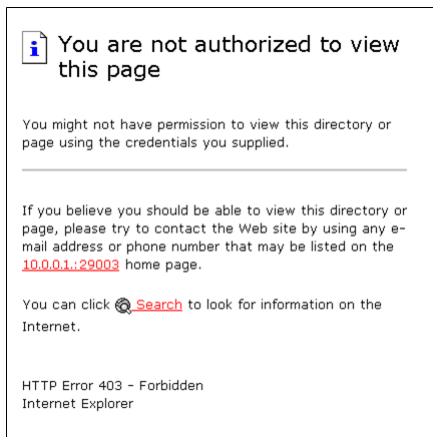
Limiting the access by using client IP addresses

This function limits clients who can access the WebManager and operations on the WebManager by using client IP addresses.

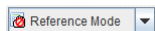
Add IP addresses to **IP Addresses of the Accessible Clients** on the **WebManager** tab in the **Cluster Properties** of the Builder.

When setting the limitation of the connection of the WebManager, if you attempt to access to the WebManager from the IP address that is not added to **IP Addresses of the Accessible Clients**, the following error messages are displayed.

Example: when using the Internet Explorer



The following **Reference Mode** is displayed to the WebManager that is connected from the client registered to limit the operation.



The following operations cannot be performed from the WebManager when operations are limited.

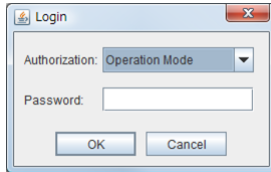
- Shutting down or shutting down and then rebooting servers
- Starting or stopping groups
- Change to operation mode
- Change to config mode
- Change to verification mode

The limitation by using a password

This function limits viewing and operations on the WebManager by using a password.

To configure this limitation: in **Cluster Properties** of the Builder, click the **WebManager** tab and then **Control connection by using password**.

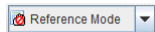
Once password limitation of the WebManager is set, the following authorization dialog box is displayed when trying to access the WebManager by setting a password.



You can log on to the WebManager by selecting **Operation Mode** or **Reference Only** in **Authorization** and entering a correct password.

- The authorization dialog box is not displayed when the password limitation is not configured (you can log on to the WebManager without authorization).
- You cannot log on to the WebManager if you enter a wrong password three consecutive times.

When you log on with a reference-only authorization, the following **Reference Only** message is displayed.



The following operations cannot be performed from the WebManager when operations are limited.

- Shutting down or shutting down and then rebooting servers
- Starting or stopping groups

For the information on switching the authorization after log on and/or log out, "[2.8.2. Switching authorization of the WebManager](#)".

Combination of the IP address and password

The operational limitations when using both IP addresses and passwords are the following:

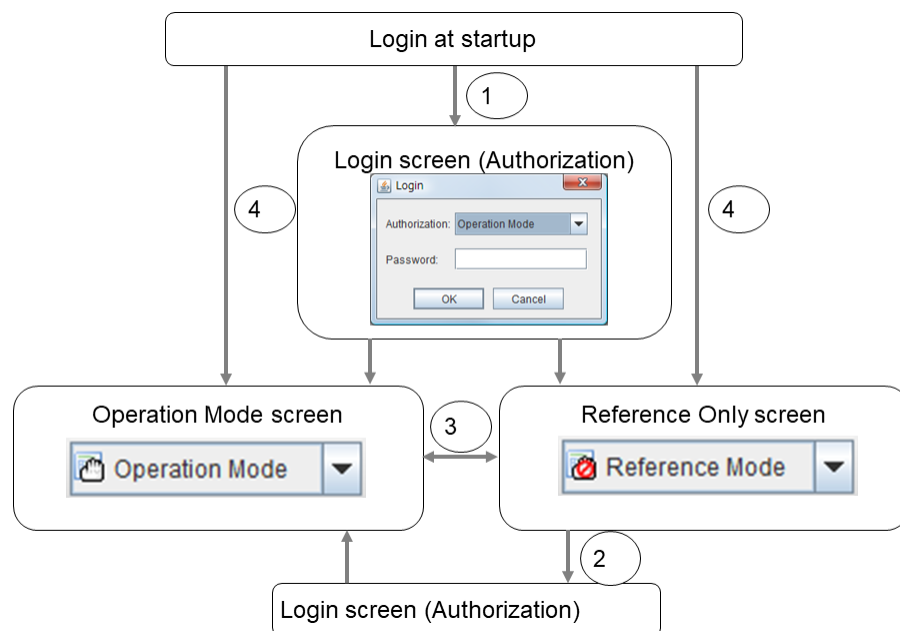
	Password limitation		
Client IP address limitation	Operable mode	Reference only	Unable to operate/view (authorization failed)
Operable mode	Operable mode	Reference only	Unavailable
Reference only	Reference only ¹	Reference only	Unavailable
Cannot access	Cannot access	Cannot access	Cannot access

Note: Changing the configuration data with the online version Builder is possible only when the WebManager is on the operable mode.

¹ Authorization cannot be selected.

2.8.2 Switching authorization of the WebManager

The chart below describes the flow of accessing the WebManager and switching authorization.



1. Log on to the WebManager
The log on authorization dialog box is displayed when a password for operation mode or reference only is set. You can log on to the WebManager by selecting the authorization of either **Operation Mode** or **Reference Only** and entering the correct password.
2. Switch the authorization from the reference only screen to the operation mode screen
The dialog box for password authorization is displayed. You can log on by entering the correct password. When password limitation is not configured, log on without entering a password.
3. Switch the authorization from the operation mode screen to the reference only screen
Authorization can be switched without authentication. You can do so even when the password limitation is configured.
4. Login when a password for both operation mode and reference only is not set
Log on by following the client IP limitation. If the client IP limitation is not configured, log on to the WebManager whose authorization is in the operation mode. In this case, you cannot switch the authorization to reference only.

2.8.3 Limitations of the WebManager

- Information displayed by the WebManager does not always reflect the latest status. To acquire the latest information, click the **Reload** icon on the toolbar or **Reload** in the **Tool** menu.
- If a server fails while the WebManager is acquiring information, the information acquisition fails, which may result in the failure to show some objects.
Wait for the next automatic update, or click the **Reload** icon on the toolbar or **Reload** in the **Tool** menu to reacquire the latest information.
- When using the browser on Linux, depending on the combination with the window manager, the dialog box might be placed behind other windows. Switch windows by pressing the **Alt + Tab** keys or by another means.

- You cannot simultaneously collect EXPRESSCLUSTER X SingleServerSafe logs from multiple WebManagers.
- If you work on the WebManager when no connectivity is established, it may take a while to regain control.
- While the mouse pointer is the hourglass which indicates that the OS is processing something, moving the cursor outside the browser may return to the arrow icon even if the process is still underway.
- When you collect logs, the following message may be displayed in a server console:

```
hda: bad special flag: 0x03  
ip_tables: (C) 2000-2002 Netfilter core team
```

You can ignore this message because it does not affect log collection.

- When going through the proxy server, configure the settings for the proxy server be able to relay the port number of the WebManager.
- When a reverse proxy server is used, the WebManager does not run normally.
- When updating EXPRESSCLUSTER X SingleServerSafe, close all running browsers. Clear the Java cache (not browser cache) and open browsers.
- When updating Java, close all running browsers. Clear the Java cache (not browser cache) and open browsers.
- If the client PC to connect to WebManager uses Java™ Runtime Environment Version 8.0 Update 162 or later, and cannot be connected to the Internet, it may take time to start WebManager. This can be avoided by setting Execute Certificate Revocation Check to Not Check on Detailed Settings on the Java Control Panel. For details of how to set it, check the Java website.
- Do not set the "Reload Interval" on the WebManager tab or less than 30 seconds. If you set it for less than 30 seconds, it may affect the performance of EXPRESSCLUSTER X SingleServerSafe.

FUNCTION OF THE BUILDER

This chapter provides information on functions of the EXPRESSCLUSTER X Builder.

This chapter covers:

- 3.1. *Overview of the Builder*
- 3.2. *Cluster properties*
- 3.3. *Server properties*
- 3.4. *Installing the offline version of the Builder*
- 3.5. *Uninstalling the offline version of the Builder*


3.1 Overview of the Builder

The Builder is a tool for creating and changing the cluster configuration data (config and scripts).

Note: You cannot configure or display functions that have been added to or changed in versions later than EXPRESS-CLUSTER X SingleServerSafe 4.0.

There are two versions of the Builder; online version and offline version.

- Online version

Click **Config Mode** on the **View** menu or select the config mode icon [

With the online version Builder, you can connect to the server directly to create a cluster, change its configuration and distribute the cluster configuration data.

- Offline version

With the offline version Builder, you can create or change the cluster configuration data on the machine which cannot connect to a server.

To distribute the cluster configuration data, you need to use the `clpcfctrl` command.

See also:

For the system requirements of the Builder, see the corresponding web page.

Note:

In this guide, Builder refers to the online version of Builder, which runs in the WebManager config mode, and the offline version of Builder, which runs on the management PC.

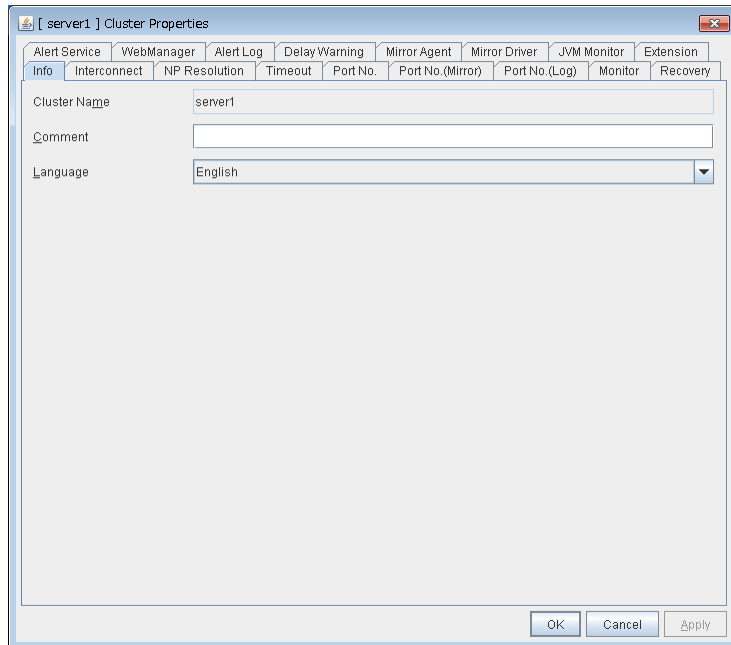
"Host name" in this guide represents the short name that excludes the domain name from a frequently qualified domain name (FQDN).

3.2 Cluster properties

In the **Cluster Properties** window, you can view and change the detailed data of EXPRESSCLUSTER X Single-ServerSafe.

3.2.1 Info tab

You can display the server name, and register and make a change to a comment on this tab.



Cluster Name:

Displays the server name. You cannot change the name here.

Comment (within 127 bytes)

Enter a new comment. You can only enter one byte English characters.

Language

Choose one of the display languages below. Specify the language (locale) of OS on which the WebManager runs.

- English
- Japanese
- Chinese

3.2.2 Interconnect tab

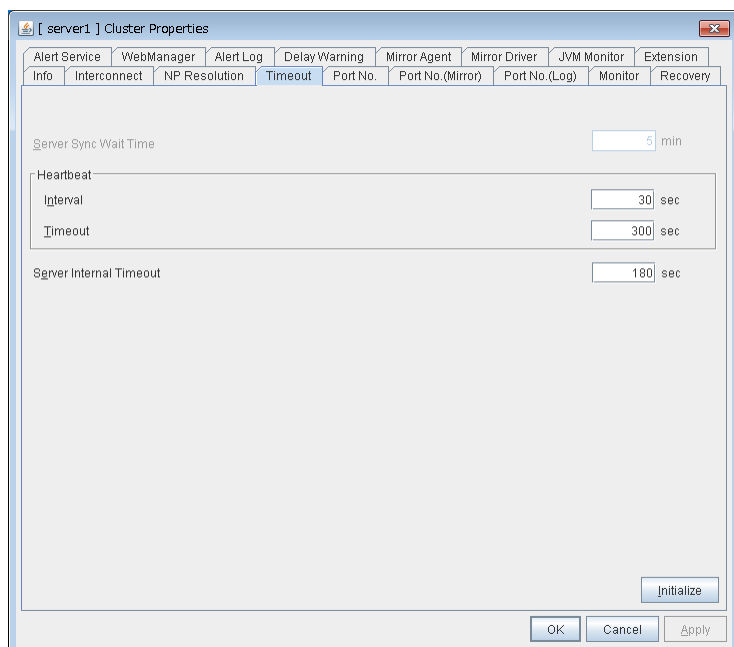
Not used.

3.2.3 NP Resolution tab

Not used.

3.2.4 Timeout tab

Specify values such as time-out on this tab.



Server Sync Wait Time (0 to 99)

Not used.

Heartbeat

Heartbeat interval and heartbeat time-out.

- Interval (1 to 99)
Interval of heartbeats.
- Timeout (2 to 9999)
A failed server is determined if there is no response for the time specified here.
- This time-out should be longer than the interval.
- To perform the shutdown monitoring (see "3.2.8. *Monitor tab*"), this time-out should be longer than the time it takes to shut down applications and the operating system.

Server Internal Timeout (1 to 9999)

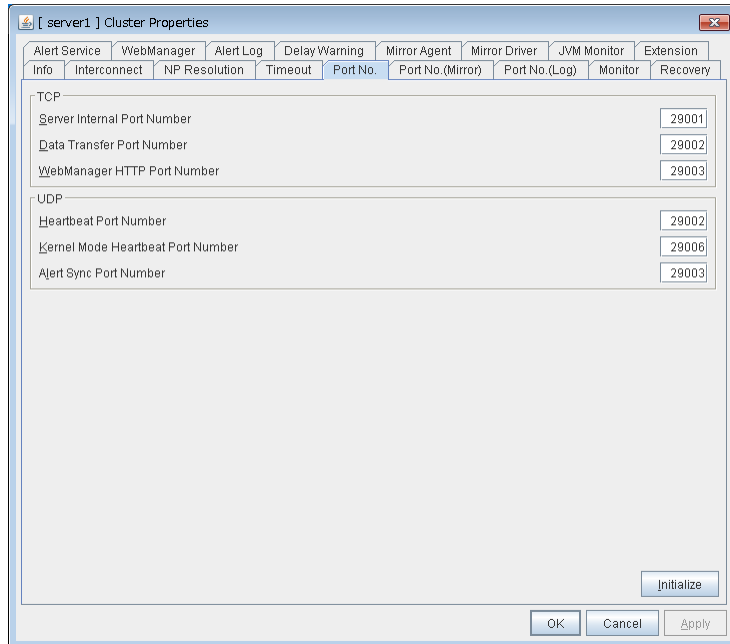
The time-out to be used in the EXPRESSCLUSTER Server internal communications.

Initialize

Used for initializing the value to the default value. Click **Initialize** to initialize all the items to their default values.

3.2.5 Port No. tab

Specify TCP port numbers and UDP port numbers.



TCP

No TCP port numbers can be overlapped.

- Server Internal Port Number (1 to 65,535²)
This port number is used for internal communication.
- Data Transfer Port Number (1 to 65,535²)
This port number is used for transactions such as applying and backing up the configuration data, sending and receiving the license data, and running commands.
- WebManager HTTP Port Number (1 to 65,535²)
This port number is used for a browser to communicate with the EXPRESSCLUSTER Server.

UDP

No UDP port numbers can be overlapped.

- Heartbeat Port Number (1 to 65,535²)
This port number is used for the heartbeat.
- Kernel Mode Heartbeat Port Number (1 to 65,535²)
This port number is used for the kernel mode heartbeat.
Not used.
- Alert Sync Port Number (1 to 65,535²)
This port number is used to synchronize alert messages between servers.

² It is strongly recommended not to use well-known ports, especially reserved ports from 1 to 1,023.

Initialize

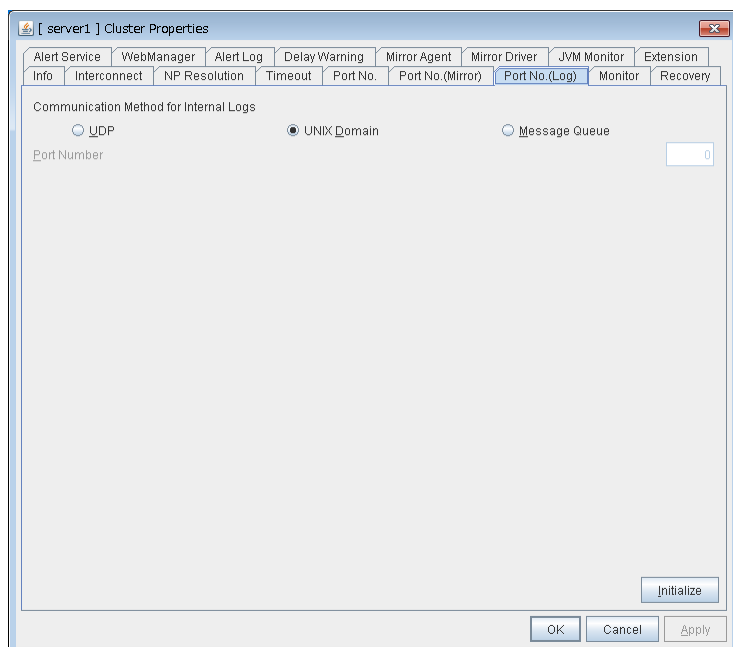
This operation is used to return the value to the default value. Clicking the **Initialize** button resets the values of all items to the default values.

3.2.6 Port No. (Mirror) tab

Not used.

3.2.7 Port No. (Log) tab

Specify the communication method for internal logs.



Communication Method for Internal Logs

- **UDP**
Use UDP for the communication method for internal logs.
- **UNIX Domain**
Use UNIX Domain for the communication method for internal logs.
- **Message Queue**
Use Message Queue for the communication method for internal logs.

Port Number (1 to 65535)

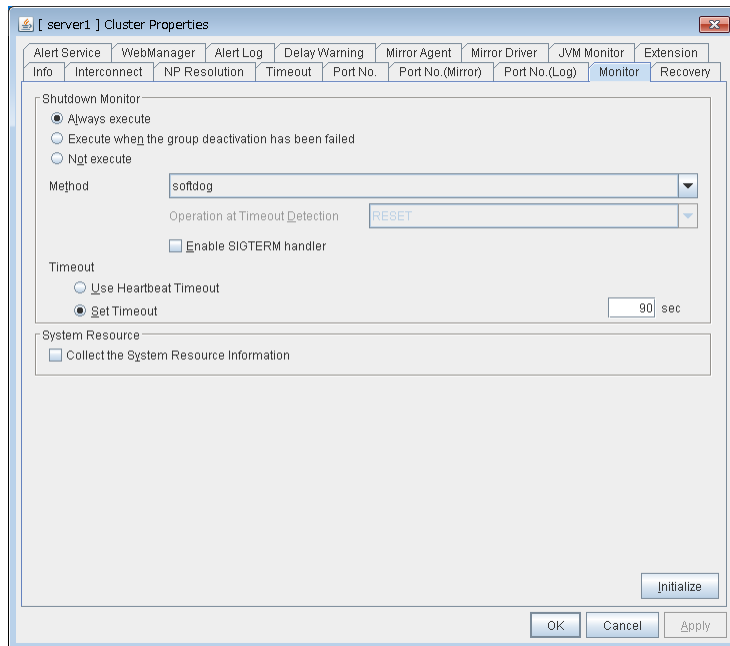
This is the port number used when UDP is selected for the communication method for internal logs.

Initialize

Used for initializing the value to the default value. Click **Initialize** to initialize all the items to their default values.

3.2.8 Monitor tab

Configure the settings for monitoring.



Shutdown Monitor

Monitors whether or not the operating system is stalling when an EXPRESSCLUSTER command to shut down the server is run. The cluster service forcibly resets the operating system or performs a panic of the operating system if it determines the OS stall. Server panic can be set when the monitoring method is keepalive.

- **Always execute:**
If selected, the shutdown monitor is performed. For the heartbeat time-out, specify a longer time than the time required to shut down every application and the operating system (see "3.2.4. *Timeout tab*").
- **Execute when the group deactivation has been failed:**
The shutdown monitor is applied only when a group cannot be deactivated. For the heartbeat time-out, specify a longer time than the time required to shut down every application and the operating system (see "3.2.4. *Timeout tab*").
- **Not execute:**
If selected, the shutdown monitor is not performed.
- **Method**
Select the shutdown monitor method from:
 - softdog
 - ipmi
 - keepalive
- **Operation at Timeout Detection**
Selects the operation performed when the operating system is determined to be stalled. This can be set only when the monitoring method is keepalive.

- RESET
Resets the server.
- PANIC
Performs a panic of the server.
- Enable SIGTERM handler
Select this to enable SIGTERM handler when performing the shutdown monitor.

Note: If you select ipmi in **Method** and set **Enable SIGTERM handler** to **Off**, this may be reset even if the operating system is successfully shut down.

- Use Heartbeat Timeout
Select this for heartbeat time-out to work in conjunction with shutdown monitoring time-out.
- Set Timeout (2 to 9999)
Specify a time-out when the heartbeat time-out value is not used as shutdown monitoring time-out.

System Resource

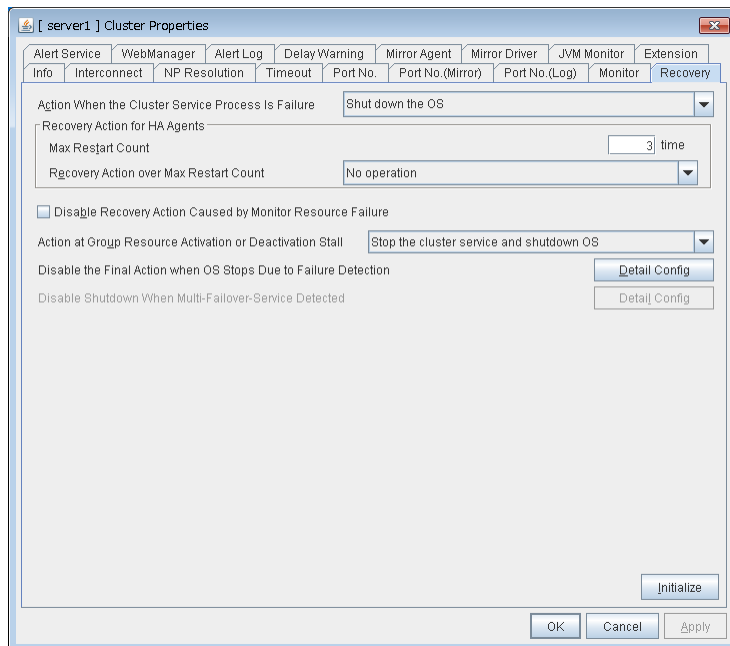
Select whether to **Collect the System Resource Information**.

System resource information is collected regularly so as to improve system operability.

- When the check box is selected
System resource information related to the CPU, memory, processes, and others is collected regularly while the server is running.
The collected system resource information is collected when the clplogcc command or WebManager collects logs. When collecting logs, specify Pattern 1 or type1. A disk area of 450 MB or more is required to store the resource information, depending on the system operating conditions such as the number of processes that are running.
- When the check box is cleared
No system resource information is collected.

3.2.9 Recovery tab

Specify the settings for recovery.



Action When the Cluster Service Process is Failure

Specify the action against process error in daemon.

- Shut down OS
Shuts down the OS.
- Reboot OS
Reboots the OS.

Recovery Action for HA Agents

- Max Restart Count (0 to 99)
Specify the max restart count when an HA Agent error has occurred.
- Recovery Action over Max Restart Count
Specify the action when an HA Agent error has occurred.
 - No operation
 - Stop the cluster service
Stops the cluster service of the server that detected an error.
 - Stop the cluster service and shutdown OS
Stops the cluster service of the server that detected an error, and then shuts down the OS.
 - Stop the cluster service and reboot OS
Stops the cluster service of the server that detected an error, and then reboots the OS.

Note: The HA process is used with the system monitor resources, JVM monitor resources, and the system resource information collection function.

Disable Recovery Action Caused by Monitor Resource Failure

- When the checkbox is selected
The recovery action is disabled when the monitor resource is error.

- When the checkbox is cleared
The recovery action is enabled when the monitor resource is error.

Note:

When recovery action was disabled, recovery action caused by monitor resource error is not performed. Even if this function is enabled, recovery from a group resource activation failure will still be performed.

This function is not available on the monitor in user mode.

This option is not available for the message receive monitor resource.

Action at Group Resource Activation or Deactivation Stall

Specify the action to apply in the event of an activation/deactivation stall of a group resource.

- Stop cluster service and shutdown OS
Stops the cluster service of the server that stalled, and then shuts down the OS.
- Stop cluster service and reboot OS
Stops the cluster service of the server that stalled, and then restarts the OS.
- Sysrq Panic
Performs a sysrq panic on the server that stalled.
- Keepalive Reset
Use this on the server that stalled to perform an OS reset by using the clpkhb and clpka drivers.
- Keepalive Panic
Use this on the server that stalled to perform an OS panic by using the clpkhb and clpka drivers.
- BMC Reset
Use this on the server that stalled to perform a hardware reset of the server by using the ipmi command.
- BMC Power Off
Use this on the server that stalled to power off the server by using the ipmi command. The OS may be shut down depending on how the ACPI of OS is configured.
- BMC Power Cycle
Use this on the server that stalled to perform the Power Cycle (powering on/off) by using the ipmi command. The OS may be shut down depending on how the ACPI of OS is configured.
- BMC NMI
Use this on the server that stalled to generate NMI in the server by using the ipmi command. The behavior after the generation of NMI depends on the OS setting.
- No Operation (Operates as an activity or deactivity failure)
Use this to perform recovery upon the detection of an activation/deactivation failure of a group resource. For details on the recovery operation, see "Displaying and changing the operation settings when a group resource error is detected (Common to group resources)" in "Displaying and changing the settings of group resources" in "Group resource details" in this guide.

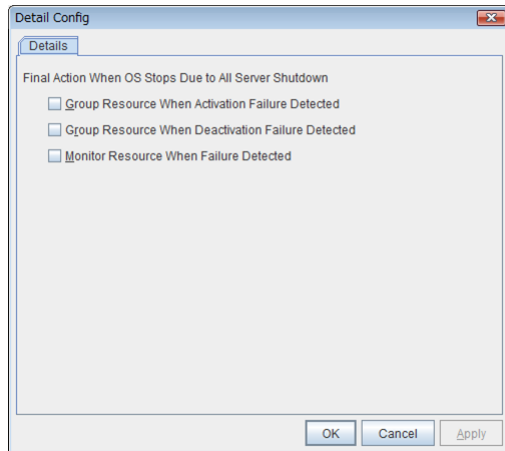
Note: If a stall occurs with "Nothing (handle a stall as an activation/deactivation failure)" specified, the effect on the group resources is undefined, so we do not recommend changing the setting to "Nothing (handle a stall as an activation/deactivation failure)."

If you do specify "Nothing (handle a stall as an activation/deactivation failure)", set the recovery operation upon the detection of an activation/deactivation failure of a group resource as described below.

- Activation/Deactivation Retry Threshold: 0
 - Failover Threshold: 0
 - Final Action: Action that accompanies the OS stop
-

Disable the Final Action when OS Stops Due to Failure Detection

Click **Detail Config** to set suppression of the final action which accompanies the OS stop caused by error detection.



- Group Resource When Activation Failure Detected
If the final action caused by an activation error detection in a group resource accompanies the OS stop, the final action is suppressed.
- Group Resource When Deactivation Failure Detected
If the final action caused by a deactivation error detection in a group resource accompanies the OS stop, the final action is suppressed.
- Monitor Resource When Failure Detected
If the final action caused by an error detection in a monitor resource accompanies the OS stop, the final action is suppressed.

Note:

- The message receive monitor resource does not become the target for which the final action caused by error detection is suppressed.
- The following situations lead to an OS stop during the final action when an activation/deactivation error is detected in a group resource and during the final action when a monitor resource error is detected.
 - Cluster service stop and OS shutdown
 - Cluster service stop and OS restart
 - sysrq panic
 - keepalive reset
 - keepalive panic
 - BMC reset
 - BMC power off

- BMC power cycle
 - BMC NMI
-

Disable Shutdown When Multi-Failover-Service Detected

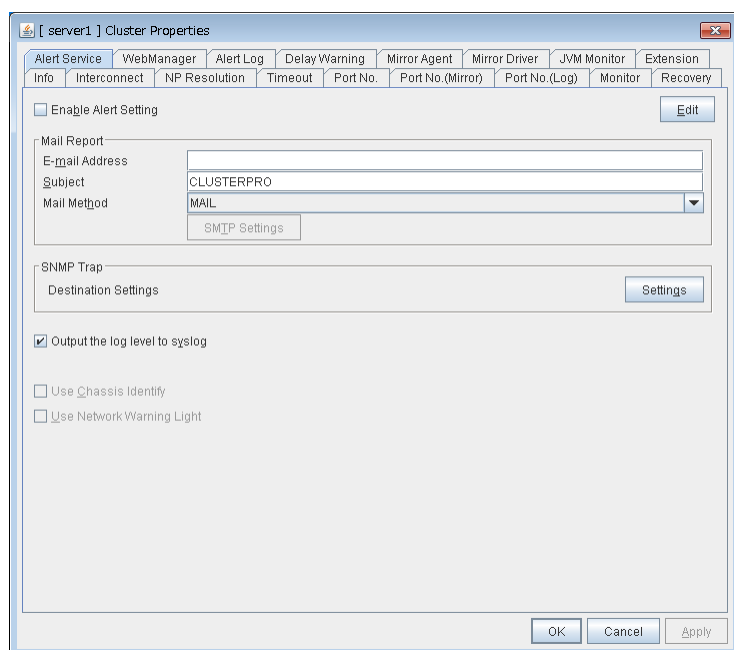
Not used.

3.2.10 Alert Service tab

Configure alert notification settings.

To use the mail report function, register the Alert Service license.

Note: To use the mail report function, purchase EXPRESSCLUSTER X Alert Service 4.0 for Linux and register your license.



Enable Alert Setting

Configures whether or not to modify the default value of the alert settings. To modify the settings, click **Edit** to configure the destination address.

If you clear the checkbox, the destination address you have modified returns to the default settings temporarily.

For the predefined alert destinations, refer to "Messages reported by syslog, alert, mail, SNMP trap, and Message Topic" in "Error messages" in the "EXPRESSCLUSTER X SingleServerSafe Operation Guide".

E-mail Address (within 255 bytes)

Enter the mail address of alert destination. To specify multiple mail addresses, separate each of them by semi-colon ";".

Subject (within 127 bytes)

Enter the mail subject.

Mail Method

Configure the mail method.

- **MAIL**
This method uses the mail command. Check that a mail is sent to the mail address by using the mail command in advance.
- **SMTP**
This method allows mailing through direct communication with the SMTP server.

Output the log level to syslog

Output syslog messages produced by EXPRESSCLUSTER X SingleServerSafe during operation with their levels.

Use Chassis Identify

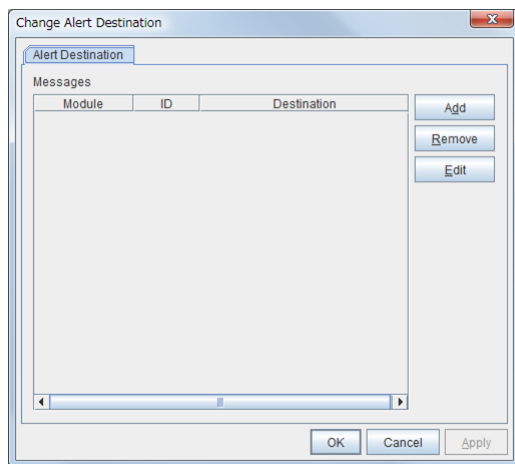
Not used.

Use Network Warning Light

Not used.

Change Alert Destination

Select **Edit** to display the dialog box where you can change alert destination.



Add

Add module types or event IDs for which the destinations are to be customized. Click **Add** to open the dialog box for entering the message.

Send	Destination
<input checked="" type="checkbox"/>	System Log
<input checked="" type="checkbox"/>	WebManager Alertlog
<input type="checkbox"/>	Mail Report
<input type="checkbox"/>	SNMP Trap
<input type="checkbox"/>	Alert Extension

Category

Select a main category of module types.

Module Type (within 31 bytes)

Select the name of the module type for which you want to change the destination address.

Event ID

Enter the event type of the module type for which you want to change the destination address. For the event ID, refer to "Messages reported by syslog, alert, mail, SNMP trap, and Message Topic" in "Error messages" in the "EXPRESSCLUSTER X SingleServerSafe Operation Guide".

Destination

Select a message destination from the following options.

- **System Log**
This sends message to syslog of the OS.
- **WebManager Alertlog**
This sends messages to the alert view of the WebManager.
- **Alert Extension**
This executes the specified function by using the alert extension function. Modify the extension settings by using the Add button and/or the Edit button. (The command must be specified within four lines.)
- **Mail Report**
Uses the mail report function.
- **SNMP Trap**
Uses the SNMP trap transmission function to send messages.

Add

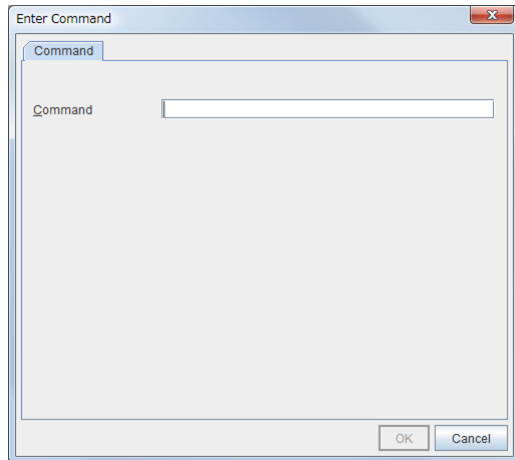
Add a command of the alert extension function. Click **Add** button to display the dialog box for entering a command. Up to 4 commands can be registered with one event ID.

Remove

Click this to remove a command of the alert extension function. Select the command, and then, click **Remove**.

Edit

Click this to modify a command of the alert extension function. Select the command, and then, click **Edit**.



Command (within 511 bytes)

Enter a command such as SNMP trap to execute reporting with the absolute path. The execution results of the specified command cannot be shown.

- Keyword

If you specify `%MSG%`, the body message of the target event ID is inserted.

You cannot specify multiple `%%MSG%%` for one command.

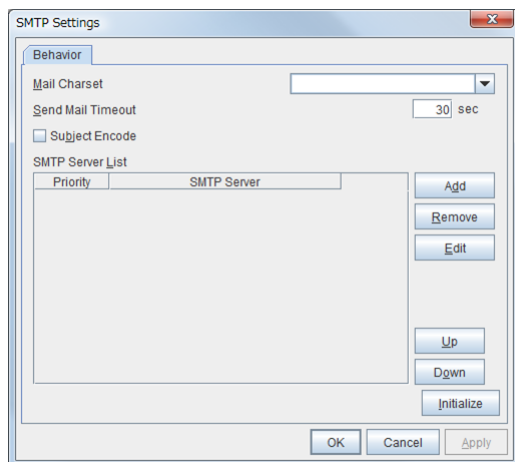
Configure the command within 511 bytes including the description of `%%MSG%%`. As blank characters can be included in `%%MSG%%`, specify as `"%%MSG%%"` when specifying it for a command argument.

Setting example

```
/usr/local/bin/snmptrap -v1 -c HOME 10.0.0.2 0 10.0.0.1 1 0 ''
1 s "%%MSG%%"
```

SMTP Settings

Click this to display the **SMTP Settings** dialog box which is used for the mail alert.



Mail Charset (within 127 bytes)

Configure the character set of the e-mails sent for mail report.

Send Mail Timeout (1 to 999)

Configure the timeout value for the communication with SMTP server.

Subject Encode

Configure whether or not to encode the subject of e-mails.

SMTP Server List

Use this button to display a SMTP server that has been configured. Only one SMTP server can be configured in this version.

Add

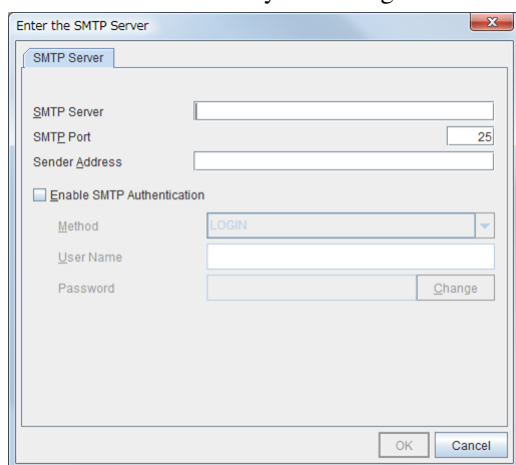
Use this button to add a SMTP server. Click **Add** to open the **Enter the SMTP Server** dialog box.

Remove

Select this to remove the SMTP server.

Edit

Use this button to modify the settings of SMTP server.



SMTP Server (within 255 bytes)

Configure the IP address or host name of the SMTP server.

SMTP Port (1 to 65,535)

Configure the port number of the SMTP server.

Sender Address (within 255 bytes)

Configure the address from which mail report is sent.

Enable SMTP Authentication

Configure whether or not to enable SMTP authentication.

Method

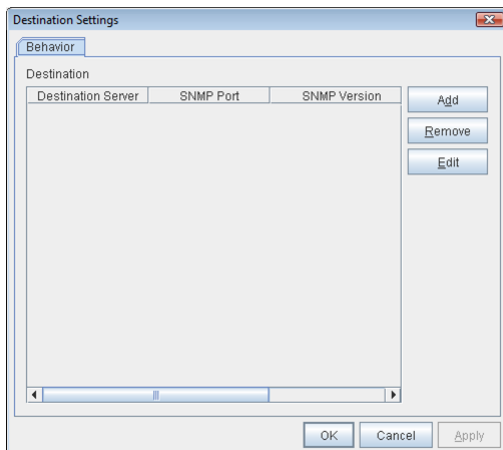
Select a method of SMTP authentication.

User Name (within 255 bytes)

Configure the user name used for SMTP authentication.

Password (within 255 bytes)

Configure the password used for SMTP authentication.



Destination

Displays the set SNMP trap transmission destinations. With this version, up to 255 SNMP trap transmission destinations can be set.

Add

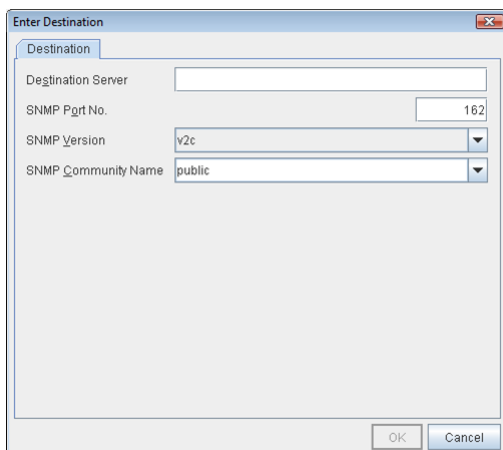
Adds an SNMP trap transmission destination. Click **Add** to display the Change SNMP Destination dialog box.

Remove

Use **Remove** to remove the SNMP trap transmission destination settings.

Edit

Use **Edit** to modify the SNMP trap transmission destination settings.



Destination Server (up to 255 bytes)

Configure the name of the SNMP trap transmission destination server.

SNMP Port No. (1-65535)

Configure the port number of the SNMP trap transmission destination.

SNMP Version

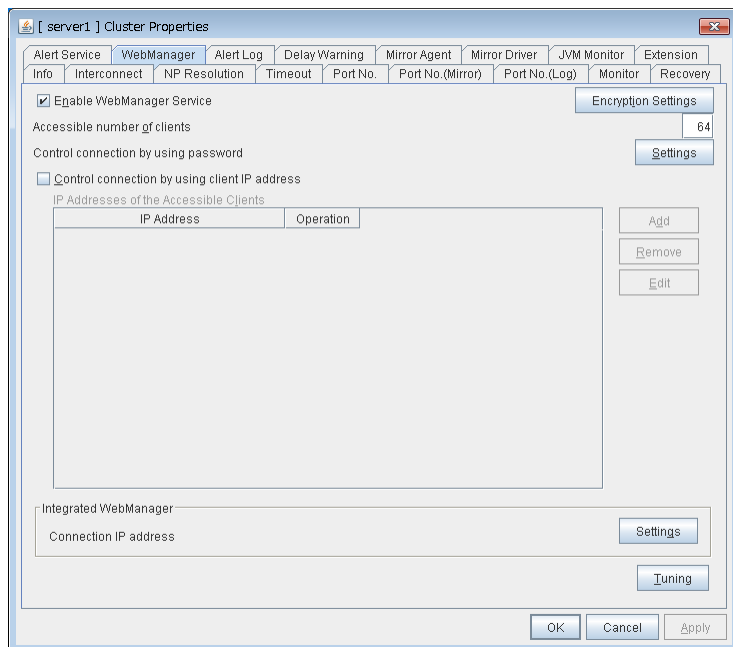
Configure the SNMP version of the SNMP trap transmission destination.

SNMP Community Name (up to 255 bytes)

Configure the SNMP community name of the SNMP trap transmission destination.

3.2.11 WebManager tab

Use this tab to configure the settings for the WebManager.



Enable WebManager Service

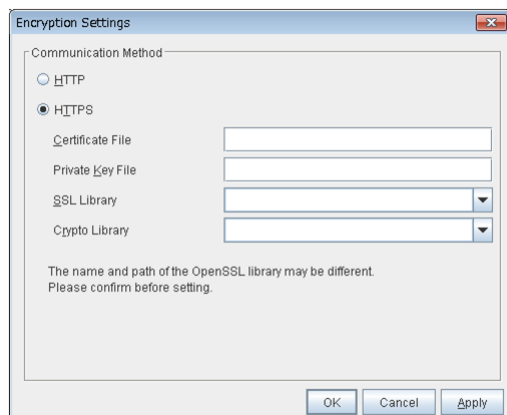
The WebManager service is enabled.

- When selected:
The WebManager service is enabled.
- When cleared:
The WebManager service is disabled.

Encryption Settings

Make settings to encrypt the WebManager service.

Click **Encryption Settings** to display the **Encryption Settings** dialog box.



Communication Method

- HTTP
No encryption is used for communicating with a client.
- HTTPS
Encryption is used for communicating with a client.

Certificate File

Sets the server certificate file used for connecting to a client. Users need to prepare the server certificate file.

Private Key File

Sets the private key file used for connecting to a client. Users need to prepare the private key file.

SSL Library

Sets the SSL library file used for encryption and selects the SSL library file included in OpenSSL. Users need to change it based on the environment, such as an installation folder.

Crypto Library

Sets the Crypto library file used for encryption and selects the Crypto library file included in OpenSSL. Users need to change it based on the environment, such as an installation folder.

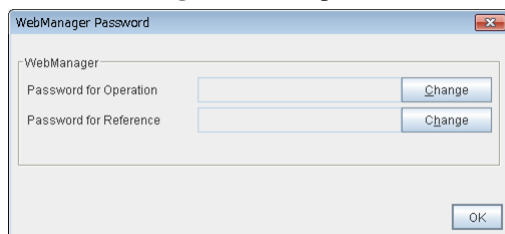
Note: OpenSSL library is necessary to use HTTPS.

Accessible number of clients (1 to 999)

Specify the number of client machines that can be connected.

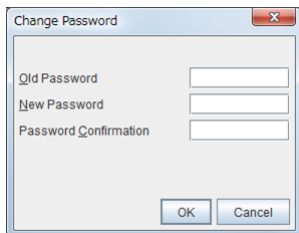
Control connection by using password

Click the **Settings** button to open the **WebManager Password** dialog box.



WebManager

- Password for Operation
Set a password that must be entered to enable connection to the WebManager in operation mode, config mode, or simulate mode.
Click **Change** to display the **Change Password** dialog box.
- Password for Reference
Set a password that must be entered to enable connection to the WebManager in reference mode. Click **Change** to display the **Change Password** dialog box.



- **Old Password: (Within 255 bytes)**
Enter the current password. If the password is not set, leave it blank.
- **New Password: (Within 255 bytes)**
Enter a new password. When deleting the old password, leave it blank.
- **Password Confirmation: (Within 255 bytes)**
Enter the password again which you entered in **New Password**.

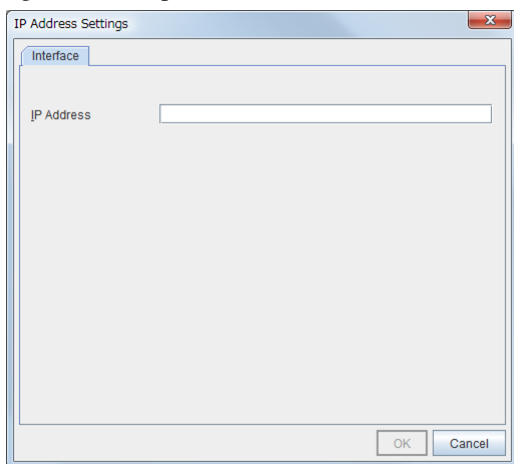
Control connection by using client IP address

If selected, accesses are controlled by client IP addresses.

- When selected:
Add, **Remove** and **Edit** are enabled.
- When cleared:
Add, **Remove** and **Edit** are disabled.

Add

Use **Add** to add an IP address in **IP Addresses of the Accessible Clients**. By clicking **Add**, the **IP Address Settings** dialog box is displayed to enter an IP address. Newly added IP addresses have the rights for the operation.



- **IP Address** (within 80 bytes)
Specify a client IP address that can be connected.
 - IP address: 10.0.0.21
 - Network address: 10.0.1.0/24

Remove

Use **Remove** to remove an IP address from **IP Addresses of the Accessible Clients**. Select an IP address you want to remove in **IP Addresses of the Accessible Clients** and click **Remove**.

Edit

Use **Edit** to change an IP address. Select an IP address you want to edit in **IP Addresses of the Accessible Clients** and click **Edit**. A dialog box where the specified IP address is preset is displayed. The rights for operating the edited IP addresses remain the same.

Note: The client IP address used to allow this connection is also used to restrict connections for external operations using clprexec.

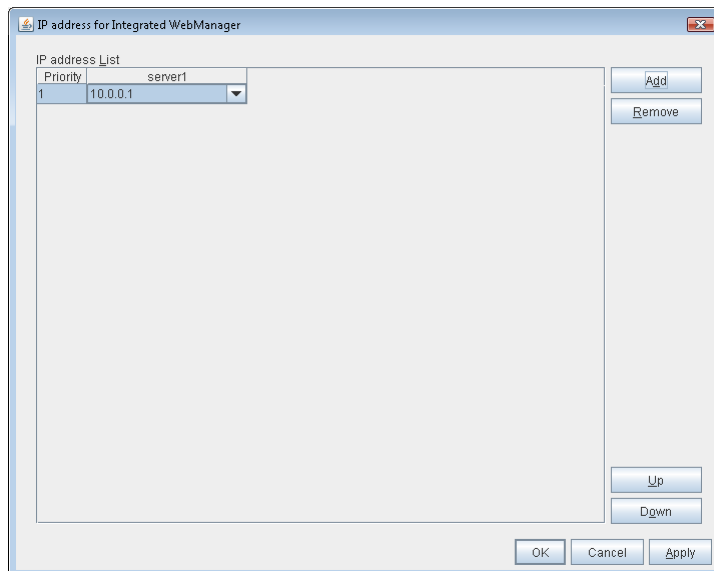
Control connection by using client IP address

Sets the operation rights for IP addresses that are registered in IP Addresses of the Accessible Clients.

- When selected:
A client can operate EXPRESSCLUSTER X SingleServerSafe and display its status.
- When cleared:
The client can only display the status of EXPRESSCLUSTER X SingleServerSafe.

IP address for Integrated WebManager

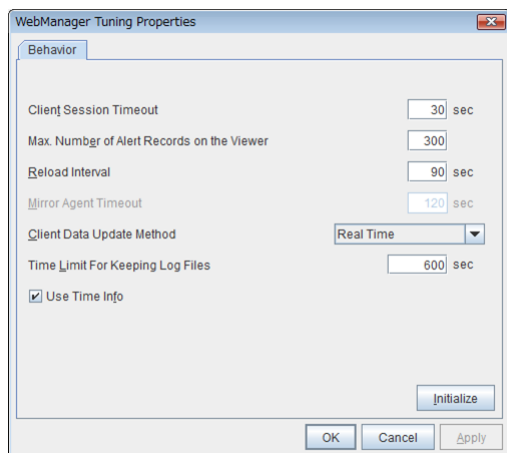
Click the **Settings** button to open the IP address dialog box for the Integrated WebManager.



- Add
Add IP addresses for the Integrated WebManager. Click the column cell of each server and select or enter IP address for the IP address of each server. For the communication path not connected to some server, set blank to the server cell of which the server is not connected.
- Remove
Remove the communication path. Select the communication path to be removed and click **Remove**, then the selected path is removed.
- Up, Down
When multiple IP addresses for Integrated WebManager are configured, the communication path with the smallest number in the **Priority** column is used preferentially for the internal communication among cluster servers. When changing the priority, click **Up** and **Down** to change the order of the selected row.

Tuning

Use **Tuning** to tune the WebManager. Click **Tuning** to open the **WebManager Tuning Properties** dialog box.



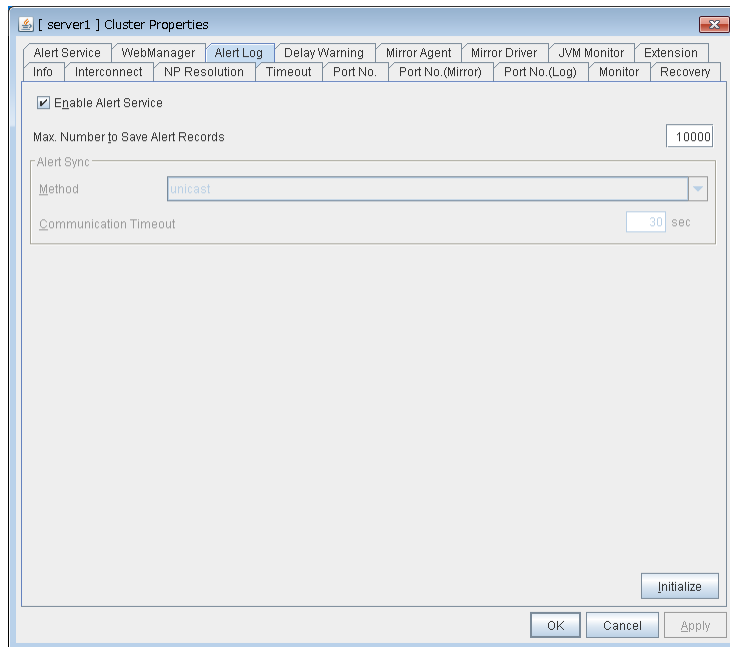
- **Client Session Timeout (1 to 999)**
A timeout is determined if the time specified here elapses after the last communication between the WebManager server and the WebManager.
- **Max. Number of Alert Records on the Viewer (1 to 999)**
Specify the maximum number of alert viewer records to display on the **Alert Viewer** of the WebManager.
- **Reload Interval (0 to 999)**
At this time interval, the WebManager screen is refreshed.
- **Mirror Agent Timeout (1 to 999)**
A timeout is determined if the time specified here elapses till the mirror disk information is acquired.
- **Client Data Update Method**
You can select the method to update the screen data of the WebManager from the following.
 - **Polling**
The screen data is updated regularly.
 - **Real Time**
The screen data is updated on the real time.
- **Time Limit For Keeping Log Files (60 to 43,200)**
Time limit determines when the log collection information temporarily saved on the server will be deleted. When the time specified here has elapsed, the log collection information will be deleted unless you save the file when the dialog box asking you if you save the log collection information is displayed.
- **Use Time Info**
Specify whether the time information display function is enabled or disabled.
 - **When selected:**
The time information display function is enabled.
 - **When cleared:**
The time information display function is disabled.

- Initialize

This operation is used to return the value to the default value. Clicking the **Initialize** button resets the values of all items to the default values.

3.2.12 Alert Log tab

Configure the settings for the alert log.



Enable Alert Service

Select this to start alert service for the server.

- When selected:
Alert service is enabled.
- When cleared:
Alert service is disabled.

Max. Number to Save Alert Records (1 to 99,999)

Alert service for server can retain alert messages up to this number.

Alert Sync: Method

Not used.

Alert Sync: Communication Timeout (1 to 300)

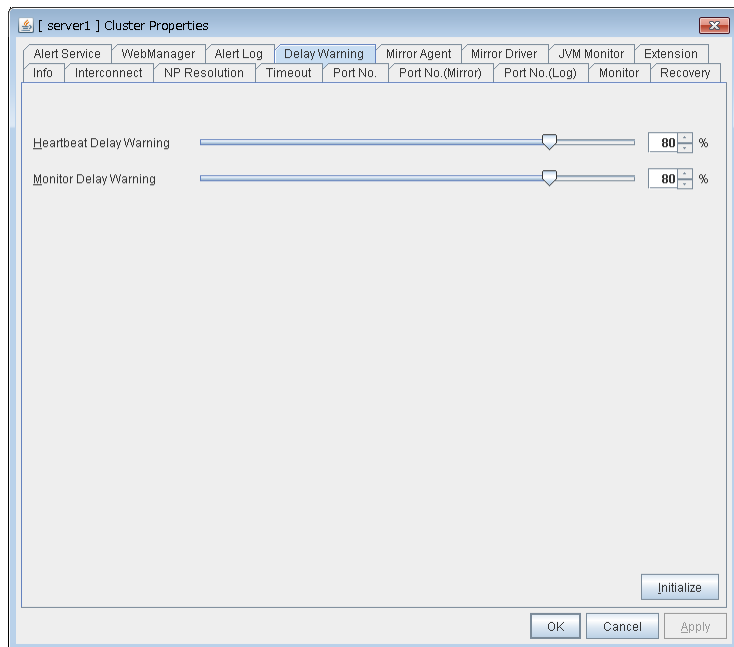
Not used.

Initialize

This operation is used to return the value to the default value. Clicking the **Initialize** button resets the values of all items to the default values.

3.2.13 Delay Warning tab

Specify the settings for **Delay Warning** on this tab. For details about **Delay Warning**, see "Delay warning of a monitor resource" in "Monitoring details" in the "EXPRESSCLUSTER X SingleServerSafe Configuration Guide".



Heartbeat Delay Warning (0 to 100)

Set a percentage of heartbeat timeout at which the heartbeat delay warning is issued. If the time for the percentage passes without any heartbeat response, the warning will be produced in an alert log. If you set 100, the warning will not be issued.

Monitor Delay Warning (0 to 100)

Set a percentage of monitor timeout at which the monitor delay warning is issued. If the time for the percentage passes without any monitor response, the warning will be produced in an alert log. If you set 100, the warning will not be issued.

Note:

If you specify 0% for the delay warning, an alert log is shown in every heartbeat interval and monitor interval.

Setting 0% allows you to see the time spent for monitoring. This will be helpful particularly in a test operation.

Make sure not to set low values such as 0% in the production environment.

3.2.14 Mirror Agent tab ~ For the Replicator/Replicator DR~

Not used.

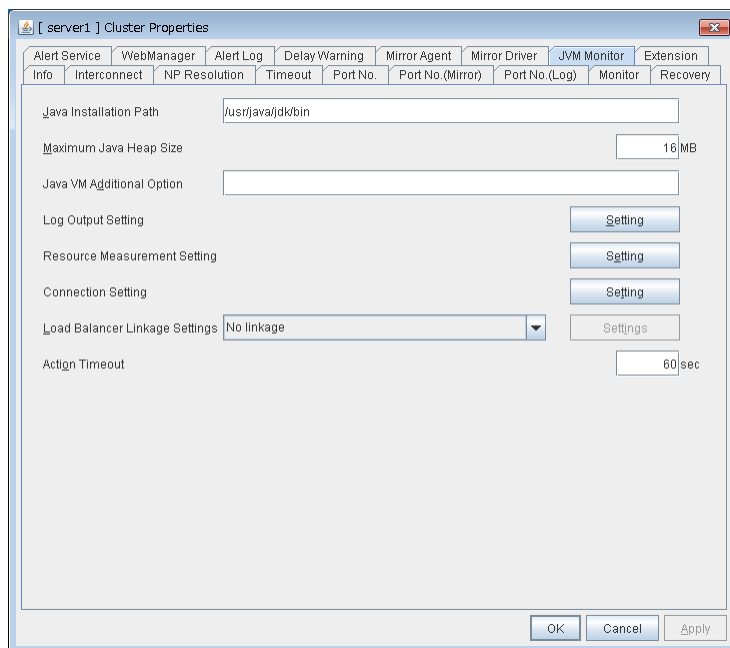
3.2.15 Mirror driver tab ~ For Replicator/Replicator DR ~

Not used.

3.2.16 JVM monitor tab

Configure detailed parameters for the JVM monitor.

Note: To display the **JVM monitor** tab on the online version Builder, you need to execute **Update Server Info** from the **File** menu after the license for Java Resource Agent is registered.



Java Installation Path (up to 255 bytes)

Set the Java VM install path used by the JVM monitor. Specify an absolute path using ASCII characters. Do not add "/" to the end of the path. This setting becomes common for all servers in the cluster. Specification example: /usr/java/jdk-9

Maximum Java Heap Size (7 to 4096)

Set, in megabytes, the maximum Java VM heap size used by the JVM monitor (equivalent to -Xmx of the Java VM startup option). This setting becomes common for all servers in the cluster.

Java VM Additional Option (up to 1024 bytes)

Set the Java VM startup option used by the JVM monitor. However, specify -Xmx in the [Maximum Java Heap Size]. This setting becomes common for all servers in the cluster. Specification example: -XX:+UseSerialGC

Log Output Setting

Click the Setting button to open the Log Output Setting dialog box.

Resource Measurement Setting

Click the Setting button to open the Resource Measurement Setting dialog box.

Connection Setting

Click the Setting button to open the Connection Setting dialog box.

Load Balancer Linkage Settings

Select the load balancer type and then click the **Settings** button. The **Load Balancer Linkage Settings** dialog box appears.

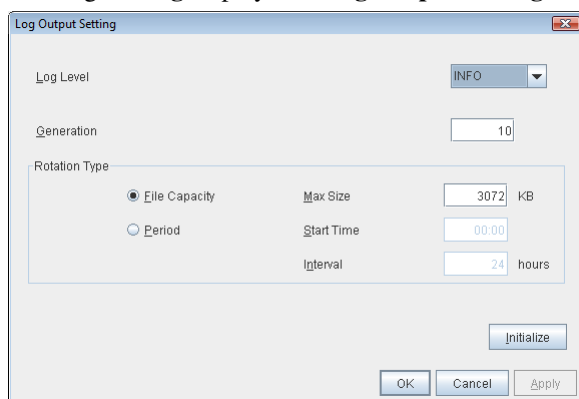
Select the load balancer type from the list. To perform load balancer linkage, select the load balancer you are using. To cancel the load balancer linkage, select **No linkage**.

Action Timeout (30 to 300)

Set the timeout value of [Command] specified in each window of the JVM monitor. This setting becomes common for all the [Command] items.

Log Output Setting

Clicking **Setting** displays the **Log Output Setting** dialog box.



Log Level

Select the log level of the log output by the JVM monitor.

Generation (2 to 100)

Set the number of generations to be retained for log output by the JVM monitor. When **Period** is selected for **Rotation Type**, the rotation count is reset when cluster is suspended. Therefore, note that log files under the <EXPRESSCLUSTER_install_path>loghajra increase per cluster suspend.

Rotation Type

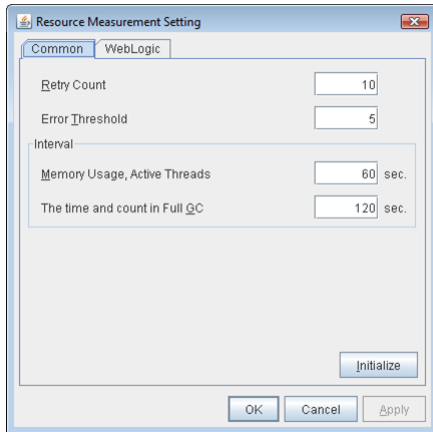
Select a rotation type for the log output by the JVM monitor. If you select **File Capacity** as the rotation type, set the maximum size (200 to 2097151), in kilobytes, for each log file such as the JVM operation log. If you select **Period** as the rotation type, set the log rotation start time in "hh:mm" format (hh: 0 to 23, mm: 0 to 59) and the rotation interval (1 to 8784) in hours.

Initialize

Clicking **Initialize** returns the log level, generation, and rotation type items to their default values.

Resource Measurement Setting [Common]

Clicking **Setting** displays the Resource Measurement Setting dialog box. For details on the scheme for error judgment by the JVM monitor, see "Monitor resource details" in the "EXPRESSCLUSTER X SingleServerSafe Configuration Guide".



Retry Count (1 to 1440)

Set a resource measurement retry count to be applied if the JVM monitor fails in resource measurement.

Error Threshold (1 to 10)

Set the number of times abnormal judgment is performed when the usage of the Java VM or the application server resources collected by the JVM monitor via resource measurement continuously exceed the customer-defined threshold.

Memory Usage, Active Threads (15 to 600)

Set the interval at which the JVM monitor measures the memory usage and active thread count.

The time and count in Full GC (15 to 600)

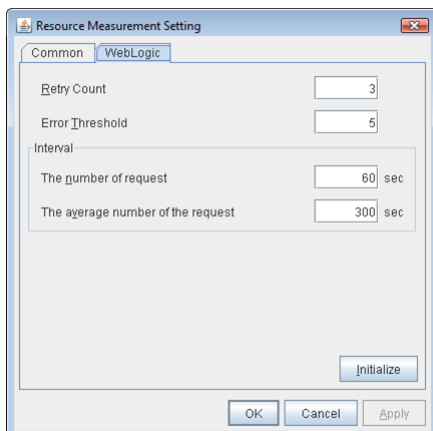
Set the **interval** at which the JVM monitor measures the time and count in Full GC execution.

Initialize

Clicking **Initialize** returns the retry count, error threshold, and interval items to their default values.

Resource Measurement Setting [WebLogic]

Clicking **Setting** displays the **Resource Measurement Setting** dialog box. For details on the scheme for error judgment by the JVM monitor, see "Monitor resource details" in the "EXPRESSCLUSTER X SingleServerSafe Configuration Guide".



Retry Count (1 to 5)

Set the resource measurement retry count to be applied if the JVM monitor fails in resource measurement.

Error Threshold (1 to 10)

Set the number of times abnormal judgment is to be performed when the usage of the Java VM or the application server resources collected by the JVM monitor via resource measurement continuously exceed the customer-defined threshold.

The number of request (15 to 600)

Set the interval at which the JVM monitor measures the number of work manager or thread pool requests during WebLogic monitor.

The average number of the request (15 to 600)

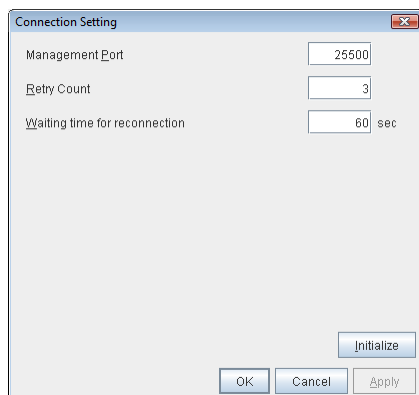
Set the interval at which the JVM monitor measures the average number of work manager or thread pool requests during WebLogic monitor. Set a value that is an integer multiple of the value set in **The number of request**.

Initialize

Clicking **Initialize** returns the retry count, error threshold, and interval items to their default values.

Connection Setting

Clicking **Setting** displays the **Connection Setting** dialog box.



Management Port (10000 to 65535)

Sets the port number internally used by the JVM monitor resource. Make sure not to set the port number that has been used by other functions or programs. Set the number of the port connected to the monitor target Java VM. This setting becomes common for all the servers in the cluster. Do not set 32768 to 61000.

Retry Count (1 to 5)

Set the retry count to be applied if connection to the monitor target Java VM fails.

Waiting time for reconnection (15 to 60)

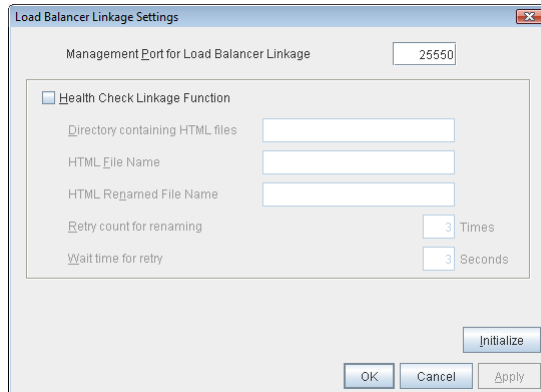
Set the interval at which the JVM monitor retries connection if it fails in Java VM connection.

Initialize

Clicking **Initialize** sets the management port, retry count, and wait time for reconnection items to their default values.

Load Balancer Linkage Settings

If you select other than BIG-IP LTM as the load balancer type and then click the **Settings** button, the **Load Balancer Linkage Settings** dialog box appears.



Management Port for Load Balancer Linkage (10000 to 65535)

Set the port number used by the load balancer linkage function. This setting becomes common to all the servers in the cluster. Do not set 32768 to 61000.

Health Check Linkage Function

Set whether to use the load balancer health check function if the monitor target Java VM detects a failure.

Directory containing HTML files (up to 1023 bytes)

Set the directory in which the HTML file used by the load balancer health check function is stored. Specify an absolute path using ASCII characters. Do not add "/" to the end of the path.

HTML File Name (up to 255 bytes)

Set the HTML file name used by the load balancer health check function. Specify this filename using ASCII characters.

HTML Renamed File Name (up to 255 bytes)

Set the HTML renamed file name used by the load balancer health check function. Specify this file name using ASCII characters. Specify an HTML renamed file name that is different from the HTML file name.

Retry count for renaming (0 to 5)

Set the number of times HTML file renaming is retried if it fails.

Wait time for retry (1 to 60)

Set the interval at which HTML file renaming is retried if it fails.

Initialize

Clicking **Initialize** returns the management port for load balancer linkage, health check linkage function, directory containing HTML files, HTML file name, HTML renamed file name, retry count for renaming and wait time for retry items to their default values.

Load Balancer Linkage Settings

Select BIG-IP LTM as the load balancer type and then click the **Settings** button. The **Load Balancer Linkage Settings** dialog box appears.

Load Balancer Linkage Settings

Management Port for Load Balancer Linkage: 25550

mgmt IP address:

User Name: admin

Password:

Communications Port: 443

List of IP address of distributed nodes

Server Name	IP address
-------------	------------

Add

Remove

Initialize

OK Cancel Apply

Management Port for Load Balancer Linkage (10000 to 65535)

Set the port number used by the load balancer linkage function. This setting becomes common to all the servers in the cluster. Do not set 42424 to 61000.

mgmt IP address

Set the BIG-IP LTM IP address.

User Name (up to 255 bytes)

Set the BIG-IP LTM management user name.

Password (up to 255 bytes)

Set the BIG-IP LTM management user password.

Communications Port (10000 to 65535)

Set the communication port number for BIG-IP LTM.

Add

Add the server name and IP address for the distributed node. For the server name, specify the EX-PRESSCLUSTER server name. For the IP address, specify the value set to **Members** in **LocalTraffic - Pools:PoolList - Relevant pool - Members** of BIG-IP Configuration Utility. To change the value, select the line and directly edit the description.

Remove

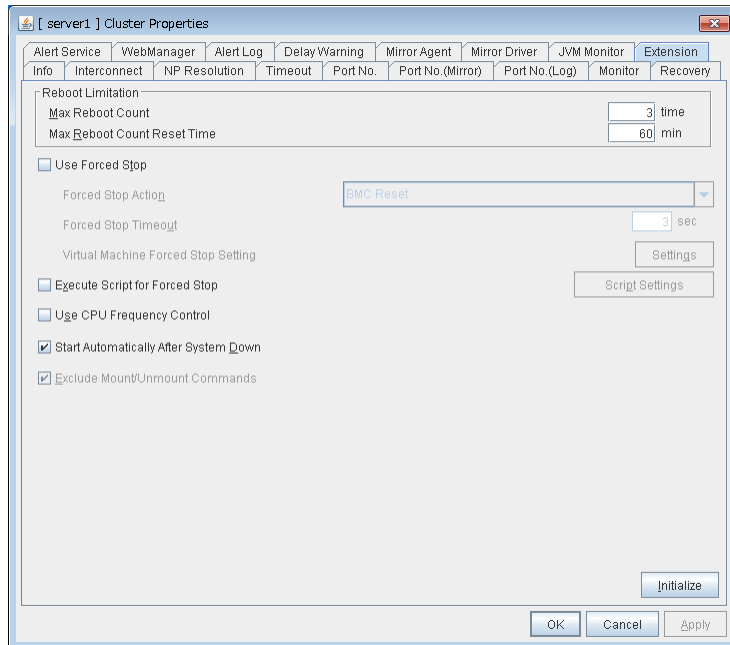
Remove the server name and IP address for the distributed node. Select the line to be removed and then click **Remove**. The selected server is removed.

Initialize

Clicking **Initialize** returns the management port for load balancer linkage, management user name, and communication port number to the default settings.

3.2.17 Extension tab

Configure other cluster settings.



Reboot Limitation

In case that the final action of the group resource and the monitor resource when an error is detected is configured so that the OS reboot accompanies, reboot may be repeated infinitely. By setting the reboot limit, you can prevent repeated reboots.

- **Max Reboot Count (0 to 99)**
Specify how many times the operating system can reboot. The number specified here is separately counted for group resource and monitor resource.
- **Max Reboot Count Reset Time (0 to 999)**
When the max reboot count is specified, if the operation from the cluster startup keeps running normally for the time specified here, the reboot count is reset. The time specified here is separately counted for group resource and monitor resource.

Note: If **Max Reboot Count Reset Time** is set to 0, the reboot count is not reset. When you reset the reboot count, use the `clpregctrl` command.

Use Forced Stop

Not used.

Forced Stop Action

Not used.

Forced Stop Timeout (0 to 99)

Not used.

Virtual Machine Forced Stop Setting

Not used.

Execute Script for Forced Stop

Not used.

Script Settings

Not used.

Use CPU Frequency Control

Select the checkbox when you use CPU frequency control.

Select the checkbox to set the CPU frequency to high at group activation and set the CPU frequency of the server to low after group deactivation.

Clear the checkbox to disable the CPU frequency control.

When CPU frequency control is performed by using a command or the WebManager, the settings changed by the command or WebManager are given higher priority regardless of whether the group is started or stopped. Note that the settings changed by the command or WebManager is discarded after the server is stopped/started or suspended/resumed, so that CPU frequency is controlled by the server.

- When selected:
CPU frequency control is performed.
- When cleared:
CPU frequency control is not performed.

Note: To perform CPU frequency control, the frequency must be changeable with a BIOS setting, the CPU must support frequency control by the OS power management function, and the kernel must support such control.

Start Automatically After System Down

Set whether to prohibit automatic startup of the cluster service at the next OS startup when the server has been stopped by a means other than cluster shutdown or cluster stop, or when cluster shutdown or stop does not terminate normally.

Exclude Mount/Unmount Commands

Not used.

Initialize

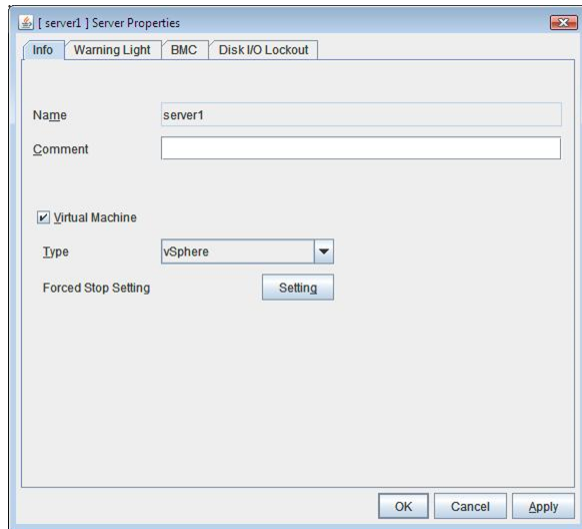
This operation is used to return the value to the default value. Clicking the **Initialize** button resets the values of all items to the default values.

3.3 Server properties

In the **Server Properties** window, you can edit the special settings of the server.

3.3.1 Info tab

You can display the server name, and register and make a change to a comment on this tab.



Name:

The selected server name is displayed. You cannot change the name here.

Comment (within 127 bytes)

You can specify a comment for the server. You can only enter one byte English characters.

Virtual Machine

Specify whether this server is a virtual machine (guest OS).

- On
If selected, the server is a virtual machine (guest OS). You can configure this virtual machine.
- Off
If selected, the server is a physical machine. You cannot configure a virtual machine.

Type

Specify the type of virtual infrastructure.

- vSphere
Virtual infrastructure provided by VMware, Inc.
- KVM
Linux kernel virtual infrastructure.
- XenServer
Virtual infrastructure provided by Citrix Systems, Inc.
- Container
Virtual infrastructure provided by Oracle Systems, Inc.

- Hyper-V
Virtual infrastructure provided by Microsoft Corporation.
- other
Specify this option to use any other virtual infrastructure.

Forced Stop Setting

Not used.

3.3.2 Warning Light tab

Not used.

3.3.3 BMC tab

Not used.

3.3.4 Disk I/O Lockout tab

Not used.

3.4 Installing the offline version of the Builder

It is not necessary to install the offline version of the Builder on the server on which EXPRESSCLUSTER X SingleServerSafe is installed. If you will create or modify the configuration data of EXPRESSCLUSTER X SingleServerSafe by using a machine that cannot access EXPRESSCLUSTER X SingleServerSafe through a Web browser, you need to install the offline version of the EXPRESSCLUSTER Builder on that machine.

Follow the procedures below to install the offline version of the Builder .

Note: Install the Builder with the administrator privileges. In case the Builder has already been installed, first uninstall and install again, or install by specify another install destination.

1. Insert the Installation CD-ROM to the CD-ROM drive.
2. Select EXPRESSCLUSTER(R) SingleServerSafe for Linux.

Note: If the menu screen does not open automatically, double-click menu.exe in the root folder of the CD-ROM.

3. Select EXPRESSCLUSTER(R) SingleServerSafe Builder.
4. Select EXPRESSCLUSTER(R) SingleServerSafe Builder.
5. Select where to install in the Cluster Builder self-extracting dialog and click Extract.
6. Click OK in the ZIP self-extract dialog box. Installation is completed.

Load the following file with a Web browser to start up the offline version of the Builder:

`<installation path>/clptrek.htm`

3.5 Uninstalling the offline version of the Builder

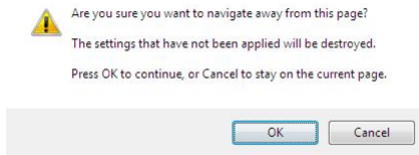
For Windows

To uninstall the Builder, follow the procedures below:

1. Close all Web browsers (and then confirm that the JavaVM icon is no longer in the task tray).
2. Delete the Builder installation folder from Windows Explorer.

3.6 Limitations of the Builder

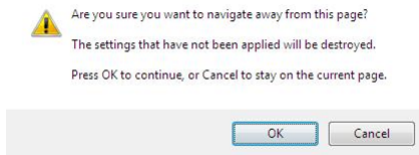
- The configuration data of the following products is not compatible:
 - Builder other than EXPRESSCLUSTER X SingleServerSafe 4.0 for Linux
- Cluster configuration data created using a later version of this product cannot be used with this product.
- Cluster configuration data of EXPRESSCLUSTER X SingleServerSafe 1.0/2.0/2.1/3.0/3.1/3.2/3.3/4.0 for Linux can be used with this product.
You can use such data by clicking Import from the File menu in the Builder.
- Closing the Web browser (by clicking Exit from the menu), the dialog box to confirm to save is displayed.



When you continue to edit, click the **Cancel** button.

Note: This dialog box is not displayed if JavaScript is disabled.

- Reloading the Web browser (by selecting Refresh button from the menu or tool bar), the dialog box to confirm to save is displayed.



When you continue to edit, click the **Cancel** button.

Note: This dialog box is not displayed if JavaScript is disabled.

- When creating the cluster configuration data using the Builder, do not enter the value starting with 0 on the text box. For example, if you want to set 10 seconds for a timeout value, enter "10" but not "010."
- If you change the screen resolution while the Builder is running, the Java VM stack trace (example: NullPointerException) may be logged on the Java console. The Builder can keep running.
- If you press **Esc** while a pull-down menu of your browser is displayed, the Java VM stack trace (example: NullPointerException) may be logged on the Java console. The Builder can keep running.
- In some cases, you cannot use the keyboard because the keyboard focus of the Builder becomes disabled (the focus changes to the Web browser). Click the Builder window and get the focus back to the Builder.
- When you are using the multi-display function, do not run the Builder on the secondary display. Otherwise, it may not work properly. For example, the screen is not displayed. Use the Builder on the primary display.
- When using the browser on Linux, depending on the combination with the Window Manager, the dialog may be placed behind other windows. Switch the window with **ALT + TAB**.
- On the **Alert Log** tab (see "3.2.12. Alert Log tab"), for **Max. Number to Save Alert Records**, if you set a number smaller than the current one, all alert logs will be deleted. Take into account the available disk space, and specify the number before you start the operation.

- In the environment where **Internet Explorer is used, disable Protected Mode on the security setting of Internet Explorer.**
- The JIS 2004-unique characters are not supported. Thus, you cannot enter or view the characters added by JIS 2004.
- The Builder does not run normally through the Reverse Proxy server.
- The default script editor is Notepad (for Windows) / vi (for Linux). vi cannot properly display multi-byte characters, because its default settings on Linux use xterm for the terminal.
- When you use the Offline Builder and the EXPRESSCLUSTER, a combination of their versions should be the one shown below. The Builder may not operate properly if they are used in a different combination.

Offline Builder version	EXPRESSCLUSTER internal version
4.0.0-1	4.0.0-1
	4.0.1-1

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REVISION HISTORY

Edition	Revised Date	Description
1st	Apr 10, 2019	New manual
2nd	Apr 09, 2021	Corrected the appearance.

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