ServerConductor

Description and Reference Guide

Intel Order Number D71473-003

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Preface

About this Manual

Thank you for purchasing and using Intel® server products.

This manual is written for system technicians who are responsible for managing the Intel® Server System SR9000MK4U. This document provides an overview of the ServerConductor features, and installation and use guidelines. For the latest version of this manual, see http://support.intel.com/support/motherboards/server/SR9000MK4U/.

Note: *The ServerConductor server management software is used on multiple product lines, including blade servers. Some screen shots and iconic indicators in this manual and in the software might not accurately represent the maximum number of fans, power supplies, or other components available. The status of the components is displayed correctly on your server system.*

Manual Organization

Chapter 1 provides a brief overview of the ServerConductor features. In this chapter, you will find a description of ServerConductor components and information that is managed by ServerConductor.

Chapter 2 discuses the different ways to configure your environment for ServerConductor.

Chapter 3 provides instructions on installing and uninstalling ServerConductor, and using the Environment Settings Utility.

Chapter 4 provides an overview of the console service and describes how to start and stop the console service; it also describes the console service's window configuration.

Chapter 5 describes the asset management procedures and describes the inventory information that can be managed.

Chapter 6 describes failure management functions. When a failure occurs on a host, the details of the failure are sent as an alert to the manager service. Alerts can be viewed from the console service, sent to the system administrator by email or pager, and sent to the SNMP manager.

Chapter 7 describes how to perform host power operations remotely, such as performing host power-on, power-off, forced power-on, reboot, shutdown, and forced reset from a remote location.

Chapter 8 describes the settings needed in order to perform remote control operations and explains how to use the remote control functions, including collect maintenance information, sending this information by email, and checking the information for details.

Chapter 9 describes how to group managed hosts and then performing operatings on those group.

Chapter 10 describes performing connection management as systems are added and removed from the environment.

Chapter 11 describes how to remotely view and change information that was configured with the Environment Settings Utility.

Chapter 12 describes how to register and start external programs.

Chapter 13 describes the SNMP translator function provided by the SNMP translator agent service.

Chapter 14 provides notes on a variety of ServerConductor topics. These are items you need to keep in mind when managing your environment.

The appendices provide tables of messages, alerts, and inventory information. The appendices also provide a glossary and information about where to get help.

Additional Information and Software

If you need more information about your Intel® Server System SR9000MK4U or information about the accessories that can be used with the server system, use the following resources.

Table 1. Additional Information and Software

For this information or software	Use this Document or Software
For in-depth technical information about your server product	Intel® Server System SR9000MK4U *Technical Product Specification*. See http://support.intel.com/support/motherboards/server/SR9000MK4U/
If you just received your server system and need to install the hardware	*Intel® Server System SR9000MK4U Quick Start User's Guide* in the server system product box
If you need to install optional peripheral devices	*Intel® Server System SR9000MK4U Product Guide* on the CD that came with your server system
If you need to replace components in your server system	*Intel® Server System SR9000MK4U Product Guide* on the CD that came with your server system
If you need to install your server system into a rack	*Intel® Server System SR9000MK4U Rack Installation Guide* that came in the server system *product box*

Table 1. Additional Information and Software

For this information or software	Use this Document or Software
Processors that have been tested with this product	See http://support.intel.com/support/motherboards/server/SR9000MK4U/
DIMMs that have been tested with this product	See http://support.intel.com/support/motherboards/server/SR9000MK4U/
For drivers	See http://support.intel.com/support/motherboards/server/SR9000MK4U/
For firmware and BIOS updates, or for BIOS recovery	See http://support.intel.com/support/motherboards/server/SR9000MK4U/

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1 ServerConductor Overview

The ServerConductor software provides centralized management of hardware in a network. The functions provided by ServerConductor, such as asset management, failure management, and remote control, enable the user to manage their servers and handle failures in a timely manner.

Note: *The ServerConductor server management software is used on multiple product lines, including blade servers. Some screen shots and iconic indicators in this manual and in the software might not accurately represent the maximum number of fans, power supplies, or other components available. The status of the components is displayed correctly on your server system.*

ServerConductor Features

As systems increase in size, it becomes more and more important to reduce the costs of system management and to streamline the administrative workload, such as for hardware asset management, operations management, and failure management. As the number of servers increases, time and labor assets become important considerations. In a distributed system, error handling and periodic startup and shutdown of systems in various locations contribute to increases in management costs and administrative workload.

ServerConductor collects information for management, operation, and error handling of servers and centralizes management and operations. Centralized management of a distributed system can ensure efficient system operations management, lowered costs, and reductions in the administrative workloads. The following figure shows an example of system management by ServerConductor.

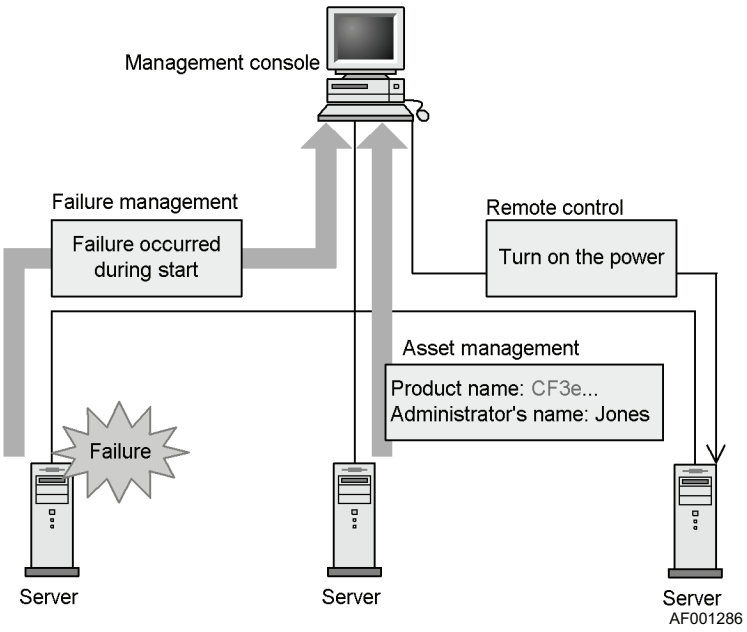


Figure 1. ServerConductor System Management

The ServerConductor features are as follows:

- ServerConductor manages the Intel® Server System SR9000MK4U.
- Centralized management of assets: ServerConductor can manage hardware and firmware information in servers. Hardware information includes the number of processors and their status. Firmware information includes BIOS version information. ServerConductor manages these assets as follows:
  - — Provides a management console to view server asset information as inventory information.
  - — Stores the inventory information in the management console's database and retrieves the hosts whose inventory information matches the specified conditions, and periodically conducts searches and sends the results by email.
- Manage failures: ServerConductor can manage error information for servers as well as the information needed for determining the causes of failures. ServerConductor supports sending server alerts and email notifications to the management console in real-time.
- Control power on / off: ServerConductor can manage the power supply for remote servers, such as turning the power on and off. It can also set a power control schedule, such as for turning the power on and off at a Windows* or Linux* server on specific dates or at specified times on a weekly schedule.
- Remote control: ServerConductor enables servers to be manipulated from the management console. This makes it possible for a user at the management console to remotely acquire a managed server's operating system information and ServerConductor log information. This data can be transferred to the management console as a file or through email.

Information Managed by ServerConductor

ServerConductor manages asset information, such as hardware configuration information, and failure information. This section describes the information that can be managed by ServerConductor.

- Asset information: ServerConductor manages hardware and software configuration information.
- Inventory information: ServerConductor enables the user to view information about system devices, such as operating system versions, hardware configuration information, and installation sites.
- Error information: ServerConductor manages information about server errors.
- Alert information: If a failure occurs on a server, details about the error are sent as an alert to the administrator. Filters and threshold values can be set for reporting alerts and the user can implement an alert notification system that is appropriate for the operating environment.
- Alert log function: Alerts are stored as log information at the server. The administrator can view alerts. ServerConductor manages the server alert log.

ServerConductor Configuration

ServerConductor consists of the systems shown in the following figure:

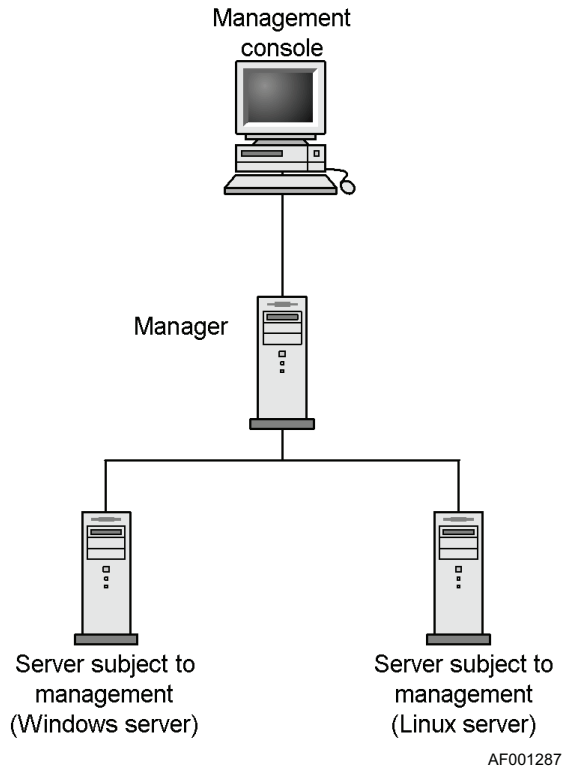


Figure 2. ServerConductor System Configuration

Management Console

The management console is the system that is used to manage the status of servers. By logging on to the manager from the management console, the user can monitor the status of the servers and clients that are being handled by the manager.

You may use either of the following operating systems on the management console:

- Microsoft Windows XP* (Professional)
- 32-bit Windows Server 2003* (Standard Edition or Enterprise Edition)

Manager

The manager is the system that is used to integrate the management of the entire ServerConductor. It monitors the status of the managed servers and clients, collects information, and makes the information viewable from the management console. At least one manager is required in a ServerConductor management configuration.

You may use either of the following operating systems on the manager:

- Windows XP*, Professional
- 32-bit Windows Server 2003*, Standard Edition or Enterprise Edition

Managed Server

The managed server is the server system that is managed by the manager. You may use either of the following operating system on a managed server:

- Windows Server 2003* Enterprise Edition with SP1 for Itanium®-based systems
- Red Hat* Enterprise Linux AS 4

In Figure 2 on page 4, “Windows server” refers to a managed Windows Server 2003* server; “Linux server” refers to a managed Linux* server.

Service Configuration

You must execute components called services on each system that constitutes the ServerConductor. The following figure provides an overview of the ServerConductor services.

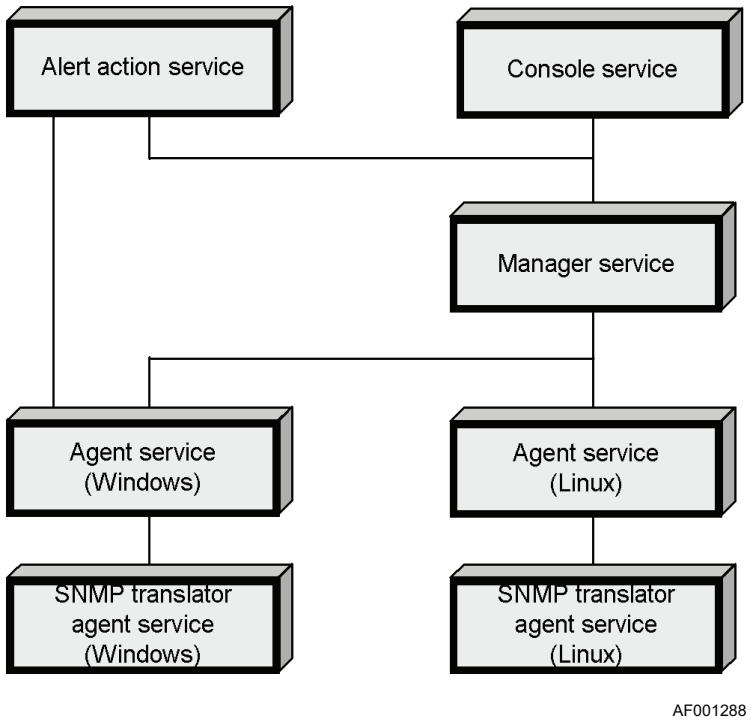


Figure 3. Configuration of ServerConductor Services

Console Service

The console service is executed on the system that is used as the management console. The console service is used to log on to the manager service and to manage the managed servers.

Manager Service

The manager service is executed on the system used as the manager. The service collects management information from the managed servers, sends this information to the console service, and transmits instructions from the console service to the agent service.

Alert Action Service

The action alert service starts a program automatically when an alert is received.

Agent Service

The agent service is executed on a system that is used as a managed server. The agent service is provided in both a Windows* and a Linux* version. The agent constantly monitors the server's status and sends the status information to the managed service.

SNMP Translator Agent Service

The SNMP translator agent service is required to use the SNMP translator function at a Windows* or Linux* server. The service converts the alerts sent by ServerConductor to SNMP traps and sends them to the SNMP manager.

IP Address Settings

The management PC on which the Blade Server Manager is installed is connected to the server system management LAN port. The Blade Server Manager issues power on / power off chassis control commands to the server system BMC. The Blade Server Manager communicates with the Server Conductor Agent.

The Management LAN port has separate IP addresses for the operating system and for the BMC. These IP addresses must be different, but they share a MAC address that is stored in the NIC. DHCP is not supported on the management LAN port for ServerConductor. Use the System Setup utility to assign this IP address.

The second IP address is configured in the EFI menu.

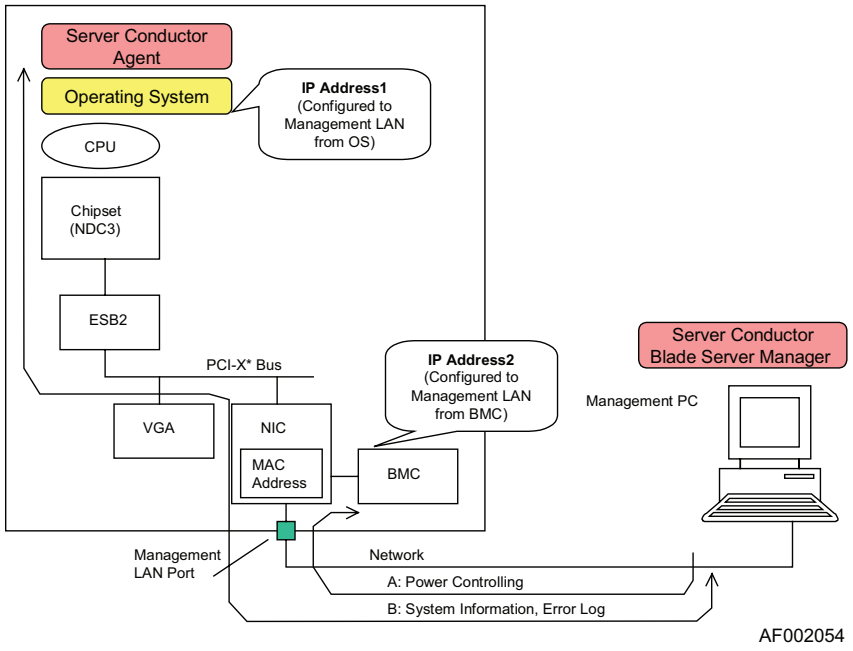


Figure 4. ServerConductor Communication Path

2 System Configuration

There are several ways to configure an environment for ServerConductor use, depending on the purpose, number of servers, and installation sites. This chapter presents several examples of configurations and describes the prerequisites, setup procedures, and settings.

Notes:

- *This document uses the names Console 1, Manager 1, Agent 1, and Agent 2 to refer to components of an example configuration. These names are used for clarity only. The examples in this manual demonstrate the management of a Windows* server and a Linux* server from one manager and one management console.*
- *You can use the same system as both the management console and the manager. With this scenario, install the console service and the manager service on the same system.*

Basic Configuration Overview

With a basic configuration, the manager provides centralized management of several servers. The system administrator works with the managed system from a management console.

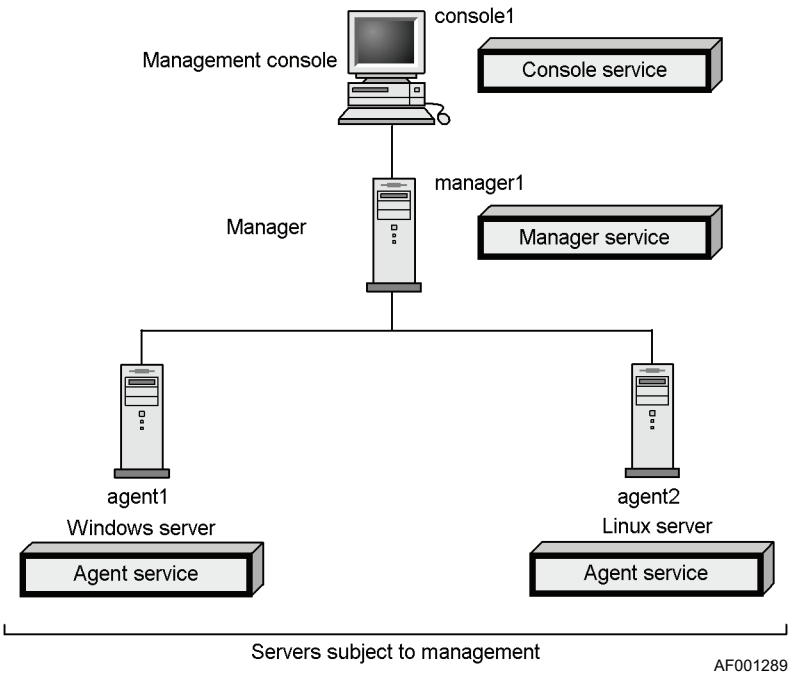


Figure 5. Basic ServerConductor Configuration

Basic Configuration Environment Requirements

Example Console1 Environment

Referring to Figure 5, to configure console1 as the management console, the following environment is required:

Table 2. Basic Configuration Console1 Environment

Item	Requirement
Programs	BSM: Install the console service
Settings	IP address or host name of the manager (manager 1)

Example Manager1 Environment

Referring to Figure 5, to set manager1 as the manager, the following environment is required:

Table 3. Basic Configuration Manager Environment

Item	Requirement
Programs	BSM: Install the manager service MSXML 3.0 or higher SNMP service
Settings	Login password

Example Agent1 Environment (Windows*)

Referring to Figure 5, to use agent1 as a managed Windows* server, the following environment is required:

Table 4. Basic Configuration Agent1 Environment

Item	Requirement
Programs	Agent (Windows): Install the agent service
Settings	IP address or host name of the manager (manager1) Local server's site information

Agent2 Environment (Linux*)

Referring to Figure 5, to use agent2 as a managed Linux* server, the following environment is required:

Table 5. Basic Configuration Agent2 Environment

Item	Requirement
Programs	Agent (Linux): Install the agent service
Settings	IP address of the manager (manager1) Local server's device-type information Local server's site information

Basic Configuration and Setup Procedure

Figure 6 through Figure 9 show the the minimum settings for the basic configuration and an outline of the setup procedure for configuring a ServerConductor system with a basic configuration.

Console1 Settings

To configure the minimum settings for console1 as the management console:

1. Start the Environment Settings Utility. To do so, from the **Start** menu, choose **Programs** | **ServerConductor** | **ServerManager** | **Environment Settings Utility**.
2. Set the manager service at the connection destination. To do so, in the **Environment Settings Utility** window, choose the **Console Service** tab and then click **Register/Delete**. When the **Register/Delete the Manager Service at the Connection Destination** dialog box appears, set the IP address or host name of the manager service at the connection destination, and then click **OK**.
3. Click **OK** in the **Environment Settings Utility** window. The management console is now ready for operation.

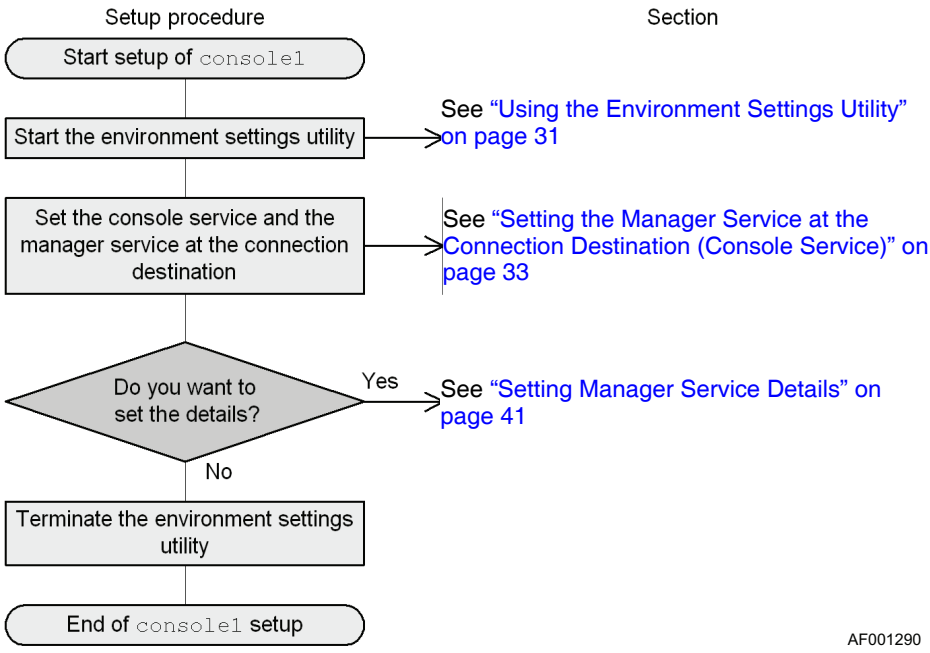


Figure 6. Basic Configuration for Example Console1

Manager1 Settings

To set the minimum information that is required in order to use manager1 as the manager:

1. Start the Environment Settings Utility. To do so, from the **Start** menu, choose **Programs** | **ServerConductor** | **ServerManager** | **Environment Settings Utility**.
2. Set a password. To do so, in the **Environment Settings Utility** window, choose the **Manager Service** tab. Click **Administrators** or **Sub Administrators** and set the password that is to be used to log in to the manager service.
3. Click **OK** in the **Environment Settings Utility** window.
4. Restart the service. The manager is now ready for operation.

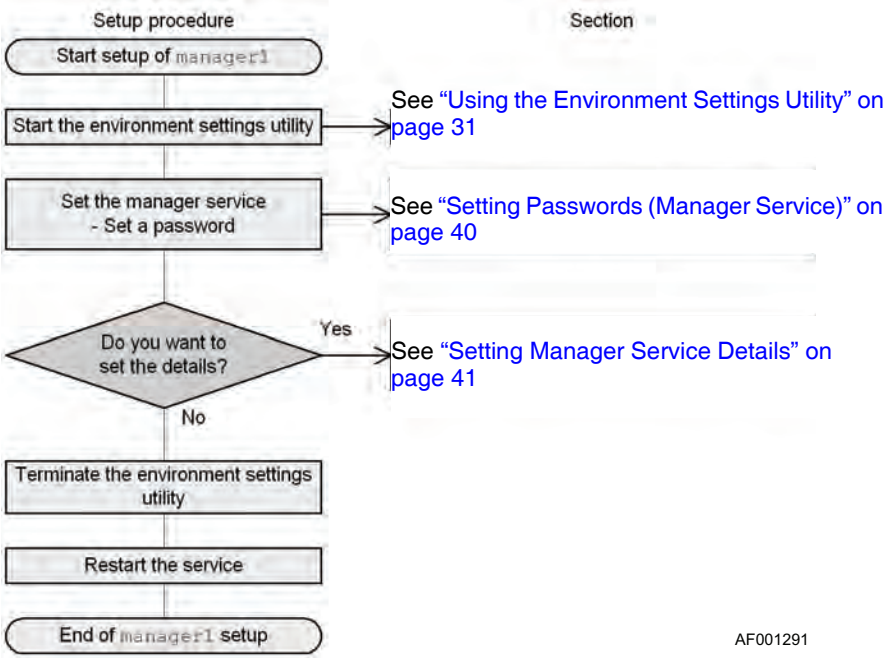


Figure 7. Basic Configuration for Example Manager1

Agent1 Settings (Windows)

To set the minimum information that is required in order to use agent1 as a managed server:

1. Start the Environment Settings Utility. To do so, from the **Start** menu, choose **Programs** | **ServerConductor** | **ServerManager** | **Environment Settings Utility**.
2. Set the manager service at the connection destination. To do so, in the **Environment Setting Utility** window, choose the **Agent Service** tab and then click **Register/Delete**. When the dialog box is displayed to **Register/Delete the Manager Service at the Connection Destination**, set the IP address or host name of the manager service at the connection destination, and then click **OK**.
3. When you finish with the settings, click **OK** in the **Environment Settings Utility** window. The service will be restarted. The Windows* server can now be managed as a server.

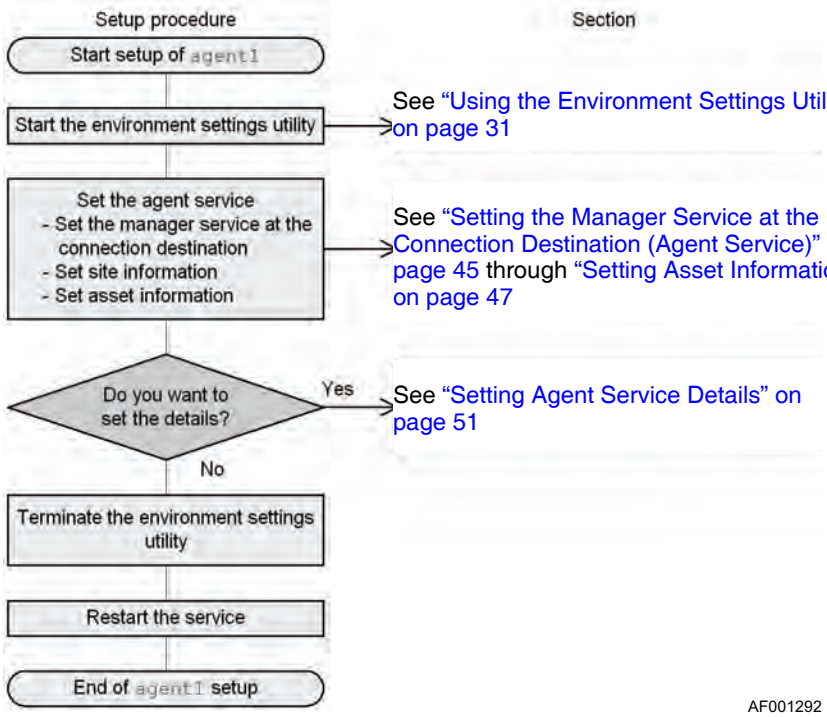


Figure 8. Basic Configuration for Example Agent1

Agent2 Settings (Linux)

To set the minimum information that is required in order to use agent2 as a managed server, use the environment setting command to create and edit the environment settings file. For details about how to create and edit the environment settings files (agent environment settings file and agent settings file), see "Setting the Linux* Server Agent Service" on page 55.

The Linux* server can now be managed as a server.

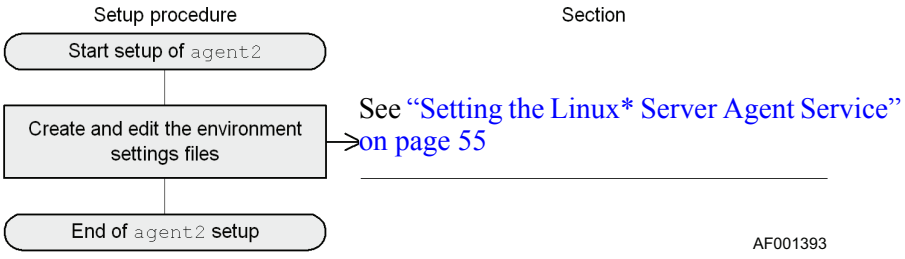


Figure 9. Basic Configuration for Example Agent2

Multiple Managers Configuration

As shown by the figure below, you can install multiple managers and allow simultaneous logins to multiple managers from the management console. This configuration enables a manager to be installed at each site to manage all the hosts at the local site. It also enables the management console to log in to any of these managers. The management console can log into a maximum of 128 managers.

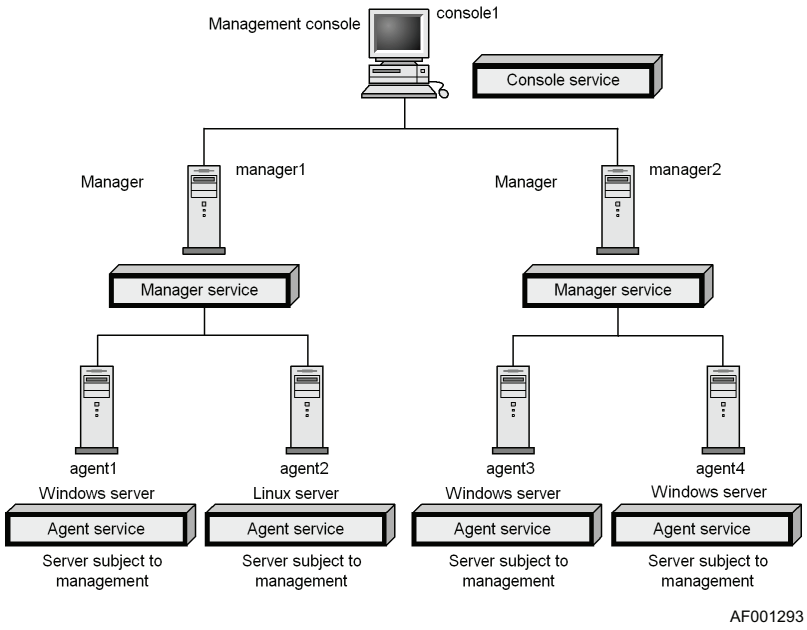


Figure 10. Multiple Managers Configuration

Multiple Managers, Environment Requirements

This section describes the environment required for a multiple-manager configuration.

Multiple Mangers, Console1 Environment

Referring to Figure 10, to set console1 as the management console, the following environment is required:

Table 6. Multiple Managers Console 1 Environment

Item	Requirement
Programs	BSM: Install the console service
Settings	IP address or host name of the manager (manager1, manager2)

Multiple Managers, Manager1 and Manager2 Environment

Referring to Figure 10, to set manager 1 and and manager 2 as the managers, the following environment is required:

Table 7. Multiple Managers, Configuration Manager Environment

Item	Requirement
Programs	BSM: Install the manager service MSXML 3.0 or higher SNMP service
Settings	Login password

Multiple Managers, Agent1, Agent3, and Agent4 Environment

Referring to Figure 10, to set agent1, agent3, and agent4 as managed servers, the following environment is required.

Table 8. Multiple Managers, Agent 1, 3, and 4 Environment

Item	Requirement
Programs	Agent (Windows): Install the agent service
Settings	agent1 is the IP address or host name of the manager (manager1) agent3 is the IP address or host name of the manager (manager2) agent4 is the IP address or host name of the manager (manager2) Local server's site information

Multiple Managers, Agent2 Environment

Referring to Figure 10, to use agent2 as a managed server, the following environment is required.

Table 9. Multiple Managers, Agent 2 Environment

Item	Requirement
Programs	Agent (Linux): Install the agent service
Settings	IP address of the manager (manager1) Local server's device-type information Local server's site information

Multiple Managers Setup Procedure

The setup procedure is the same as for the basic configuration. See “Basic Configuration and Setup Procedure” on page 11.

Managing Servers from Multiple Managers

As shown by the figure below, you can set multiple managers as connection destinations for the managed servers. If manager1 is shut down, the user can continue managing servers by logging on to manager2. A maximum of four managers can be set as connection destinations. A user can also log in to both manager1 and manager2 at the same time.

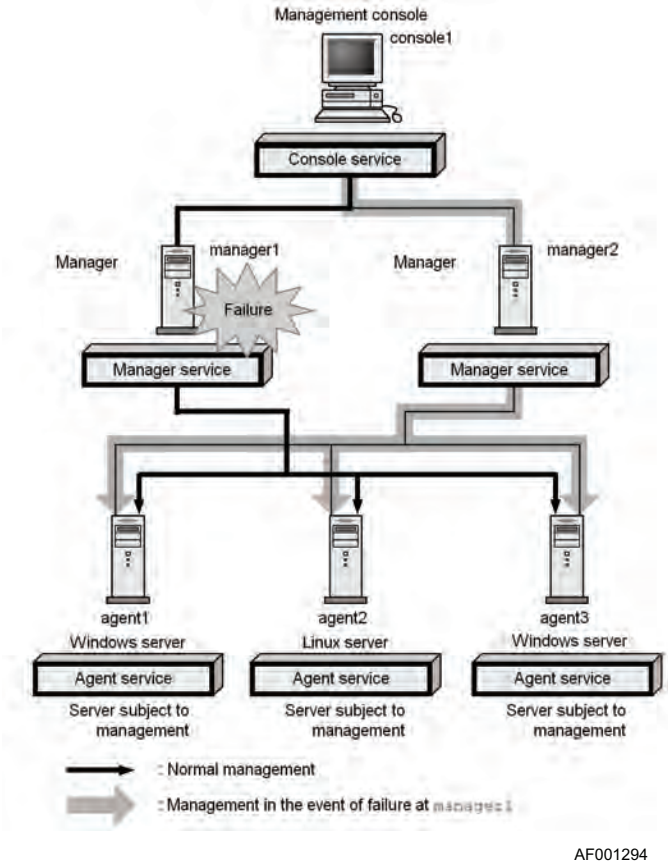


Figure 11. Managing Servers from Multiple Managers

Managing from Multiple Servers, Environment Requirements

This subsection describes the environment required for managing servers from multiple managers.

Console1

Referring to Figure 11, to set console1 as the management console, the following environment is required.

Table 10. Multiple Managers Console 1 Environment

Item	Requirement
Programs	BSM: Install the console service
Settings	IP address or host name of the manager (manager1, manager2)

Manager1, Manager2

Referring to Figure 11, for details about the environment required for a manager, see "Multiple Managers, Environment Requirements" on page 16.

Agent1, Agent3 (Windows)

Referring to Figure 11, to set agent1 and agent3 as managed servers, the following environment is required.

Table 11. Multiple Managers Agent 1 and 3 Environment

Item	Requirement
Programs	Agent (Windows): Install the agent service
Settings	IP address or host name of the manager (manager1, manager2) Local server's site information

Agent2 (Linux)

Referring to Figure 11, to use agent2 as a managed server, the following environment is required.

Table 12. Multiple Managers Agent 2 Environment

Item	Requirement
Programs	Agent (Linux): Install the agent service
Settings	IP address of the manager (manager1, manager2) Local server's device-type information Local server's site information

Setup Procedure

The setup procedure is the same as for the basic configuration. See “Basic Configuration and Setup Procedure” on page 11.

Performing Power Control

This section describes a configuration for turning on and off the power to managed servers from the management console or for setting a power schedule. To perform power control, a Windows* or Linux* server must have a LAN adapter that is equipped with a power-on feature.

The following figure shows a configuration for controlling the power on a managed server.

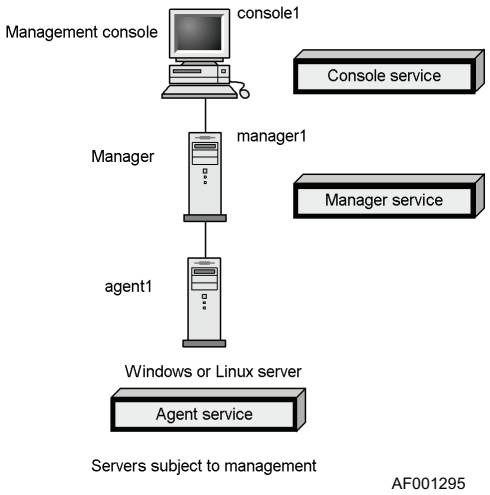


Figure 12. Power Control Configuration

Power Control Environment Requirements

This section describes the environment required for controlling power to the managed servers.

Power Control Requirements for Console1, Manager1

For details about the environment required for the manager and management console, see "Basic Configuration Environment Requirements" on page 10.

Power Control Requirements for Agent1

To use agent1 as a managed server, the following environment is required:

Table 13. Agent 1 as Managed Server

Item	Requirement
Programs	Agent (Windows or Linux): Install the agent service
Harware	LAN adapter equipped with a power-on feature
Settings	IP address or host name of the manager (manager1) Local server's site information

Power Control Setup Procedure

This subsection describes the setup procedure for performing power control on the managed servers. For details about the setup procedure for the manager and management console, see "Basic Configuration and Setup Procedure" on page 11.

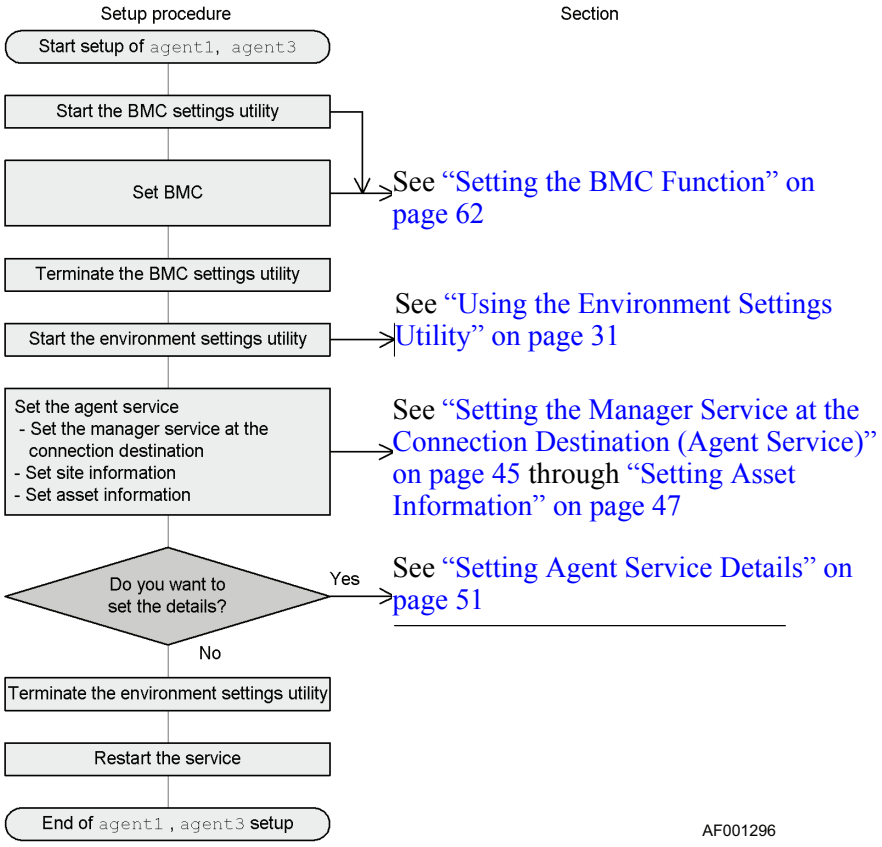


Figure 13. Setup Procedure for Performing Power Control on a Windows Server

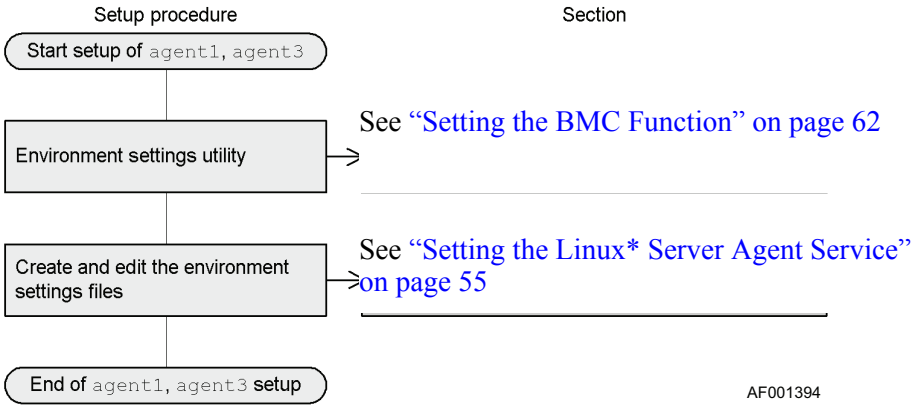


Figure 14. Setup Procedure for Performing Power Control on a Linux Server

Using SNMP for Linkage

This section describes a configuration that enables the SNMP manager to use the SNMP translator to view information managed by ServerConductor's agent service.

The figure below shows a configuration for using an SNMP translator. The SNMP translator provides functionality for converting information that can be managed by the agent service of ServerConductor to MIB, which is a network management database, and then using SNMP to send it. The information sent by SNMP can be viewed with a management software program, called the SNMP manager.

Note: *Only the Windows* version can manage machine status by referencing MIB. The Linux* version cannot reference MIB.*

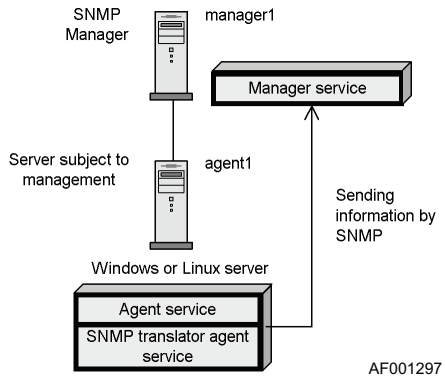


Figure 15. Configuration using an SNMP Translator

SNMP Translator Environment Requirements

This subsection describes the environment, such as the programs, that the configuration requires to use the SNMP translator.

SNMP Translator Requirements for Manager1

To set manager 1 as the manager, the following environment is required.

Table 14. SNMP Manager Environment

Item	Requirement
Programs	BSM: Install the manager service MSXML 3.0 or higher SNMP service
Settings	Login password

SNMP Translator Requirements for Agent1 (Windows or Linux)

To set the managed server, the following environment is required.

Table 15. SNMP Translator Requirements for Agent1

Item	Requirement
Programs	Agent (Windows or Linux) • Install the agent service. • Install the SNMP translator agent service. • In the case of a Linux server, set the program in such a manner that the SNMP translator agent service is enabled after installation. SNMP service: Install the Windows or Linux SNMP service
Settings	IP address or host name of the manager (manager1) Local server's site information

SNMP Translator Setup Procedure

For details about the setup procedure for linking managed servers and the SNMP manager, see “SNMP Translator” on page 165.

3 Setup

To create a ServerConductor system, programs must be installed on systems for the management console, the manager, and the hosts This chapter describes how to install and set up ServerConductor.

Services that are Installed

The table below lists the services that can be installed by each ServerConductor program. For details about each service, see "Service Configuration" on page 6.

Table 16. Correspondence Between Programs and Services

Program Name	Installable Service	Installable Service
BSM	Console service	Windows XP* Professional 32-bit Windows 2003* Standard Edition, Enterprise Edition
	Manager service	Windows XP Professional 32-bit Windows 2003 Standard Edition, Enterprise Edition
	Alert action service	Windows XP Professional 32-bit Windows 2003 Standard Edition, Enterprise Edition
Agent (Windows)	Agent service	Windows Server 2003 Enterprise Edition with SP1 for Itanium®-based systems
	SNMP translator agent service	Windows Server 2003 Enterprise Edition with SP1 for Itanium®-based systems
Agent (Linux)	Agent service	Red Hat* Enterprise Linux AS 4
	SNMP translator agent service	Red Hat Enterprise Linux AS 4

If a ServerConductor system is to be managed as shown in the figure below, then the ServerConductor programs and services listed in Table 17 can be installed on the individual systems.

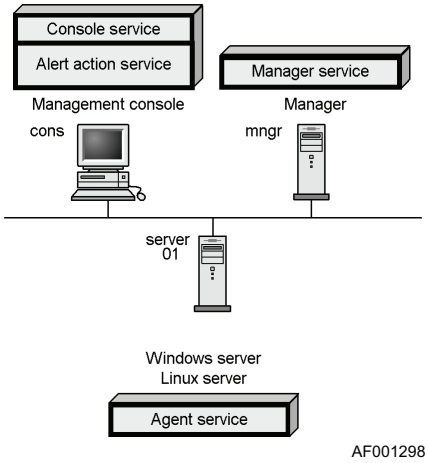


Figure 16. Relationships Between Installed Programs and Services

Table 17. Relationships Between Installed Programs and Services

Host Name	Role	Programs	Services
cons	Management console	BSM	Console service Alert action service
mngr	Manager	BSM	Manager Service
server01	Windows* server	Agent (Windows)	Agent service
	Linux* server	Agent (Linux)	Agent service

Installing ServerConductor

The installation procedure depends on the operating system. This section describes the following installation procedures:

- Installing ServerConductor programs on a manager, management console, or Windows* server
- Installing ServerConductor programs on a Linux* server

System Setup Sequence

1. Install the operating system onto the server.
2. Install the Server Conductor Agent.
3. Restart the system and boot to the EFI shell.
4. Optional: See the EFI Utility User's Guide if Serial Over LAN is required. Syscfg information is in chapter 2 and SOL configuration information is in Appendix C. Server Conductor uses User ID 10 of the IPMI functions to communicate with the BMC. The User ID is reserved for Server Conductor.
5. Use the EFI tool, syscfg, to create IPMI user account for Server Conductor and configure the BMC. Download syscfg from http://support.intel.com/support/motherboards/server/sr9000mk4u/index.htm. Use the command:
   `syscfg /r syscfg_SCconf /f`

```
[Header]
Syscfg="01-02"
Dataformat="01-01"

[LAN Configuration Parameters 10 BMC-generated ARP control]
ARP responses="disable"
Gratuitous ARPs="enable"
[LAN Configuration Parameters 11 Gratuitous ARP interval]
Gratuitous ARP interval=4

[User Access_1]
Maximum number of User IDs=10
User Restricted to Callback_10=1
link authentication_10="enable"
IPMI Messaging_10="enable"
User Privilege Limit_10=4
```

Figure 17. Configuration File Syscfg_SCconf.bmc

6. Reset the system and boot to the operating system.

Installing on a Manager, Management Console, or Windows* Server

Install each service provided by BSM and Agent. A user with Administrator permissions must perform the installation.

Notes:

- *When you install a new agent service, you must specify the model of the server system. Therefore, you must determine the server's model before you install a new agent service.*
- *Make sure that you install the programs on the local hard drive.*
- *If you move the installation window during installation, the dialog box may fall outside of the window, thereby disabling operation. To prevent this, never move the installation window during the installation process.*
- *The required disk space displayed by the installer is the value required for installation. When each service starts, additional disk space will be needed.*

To install ServerConductor programs:

1. Insert the CD-ROM disk that contains the ServerConductor programs.
2. Execute setup.exe from the CD-ROM. Follow the on-screen instructions to perform the installation.
3. Select the service to be installed.
4. Set the environment.

   At the conclusion of the installation, the Environment Settings Utility starts automatically. To perform setup, see the sections beginning with "Setting an Environment" on page 30.
5. Restart the system.

   When each service has been set by the Environment Settings Utility, a message is displayed asking whether or not the system is to be restarted. When you have completed setting the environment, click **Yes** to apply the settings, and then restart the system.

Installing on a Linux* Server

Install each service provided by the Agent on the Linux server. Use the RPM package and installation shell script. A superuser (root) must perform this procedure.

To install ServerConductor programs:

1. Insert the CD-ROM disk that contains the ServerConductor programs.
2. Mount the CD-ROM. If the CD-ROM is mounted on mnt/cdrom, enter the following command:

   ```
   mount /mnt/CDROM
   ```

3. Run install.sh. If the CD-ROM is mounted on mnt/cdrom, enter the following command:
   `/mnt/cdrom/install.sh`

   A message appears asking if the installation should be started.
4. Press the **Y** key. The installation begins.
5. Enter the following command to set up an environment for the agent:
   `/usr/sbin/smhedit`
6. Enter the following command to set up an environment for the SNMP trap service:
   `/usr/sbin/smhaaedit`
7. Enter the following command to start the agent service:
   `/etc/rc.d/init.d/hsysmgr start`

After you have installed the agent service, starting the Linux server at run level 3 or higher automatically starts the agent service. For details about the agent service settings, see "Setting the Linux* Server Agent Service" on page 55.

Port Numbers used by ServerConductor

When ServerConductor programs are installed, the default port numbers listed below are used. You can use the services file to change a port to be used. You must set a port that is not in use by any other application.

Table 18. Port Numbers

Port Number	Service Name	Description
20075/tcp	sys_agt_port	Communication to the agent service • Manager service to agent service • Hardware maintenance registration application (MRegAgt.exe) to agent service
20076/tcp	sys_ra_port	Communication to the manager service • Agent service to manager service • Managed client to manager service
20077/tcp	sys_gui_port	Communication to the console • Manager service to console service
20079/tcp	sys_svalt_port	Communication to the manager service • For internal processing of the manager service
20299/tcp	sys_altact_port	Communication to the alert action service • Manager service to alert action service
623/udp	-	Communication to the BMC • Manager service to the BMC

Table 18. Port Numbers

Port Number	Service Name	Description
22311/tcp	sys_agtssmp_port	For hardware maintenance

Setting an Environment

This section provides important information about the ServerConductor security required for an environment, starting the Environment Settings Utility, the service startup sequence, and the Environment Settings Utility.

Note: *For a Linux* server, use the environment setting command, not the Environment Settings Utility. For details about setting the environment for a Linux server, see* *"Setting the Linux* Server Agent Service" on page 55*.

ServerConductor Security

ServerConductor's uses passwords for security management. ServerConductor supports two user permissions:

- Administrator: This permission enables the user to access all ServerConductor functions, such as settings for information acquisition and failure notifications.
- Sub-administrator: This permission enables the user to view information that is displayed on the console service, such as acquired information and failure notifications. It does not enable the user to set information.

By setting different passwords for these users, you can protect information on the hosts from being set by any user other than the system administrator. For details about how to set the passwords, see "Setting the Manager Service" on page 40.

Using the Environment Settings Utility

To change an existing ServerConductor environment or to set up a new environment, start the Environment Settings Utility as explained below.

Notes:

- *For Windows*, the Environment Settings Utility must be started by a user with the Windows Administrator permissions.*
- *The **Apply** button is not enabled on the **Agent Service Settings** dialog box; to apply the settings, click **OK**.*
- *If the console service and manager service are on the same system, changing a setting for any one of the services restarts all of the services.*
- *If console service settings are changed by the Environment Settings Utility while the console service is active, the new settings do not take effect until you must restart the console service.*

To start the Environment Settings Utility:

1. From the **Start** menu, choose **Programs** | **ServerConductor** | **Server Manager**.
2. Choose the **BMC Environment Settings Utility**. The Environment Settings Utility starts.
3. Choose the tab for the service that you wish to set up. For details about the settings on each page, see "Setting the Console Service" on page 32.
4. Restart the service by following the instructions in the displayed message. A restart is necessary to apply the settings.

Service Startup Sequence

When you finish setting each service, start the hosts on which the services have been installed. You must start hosts in the following sequence:

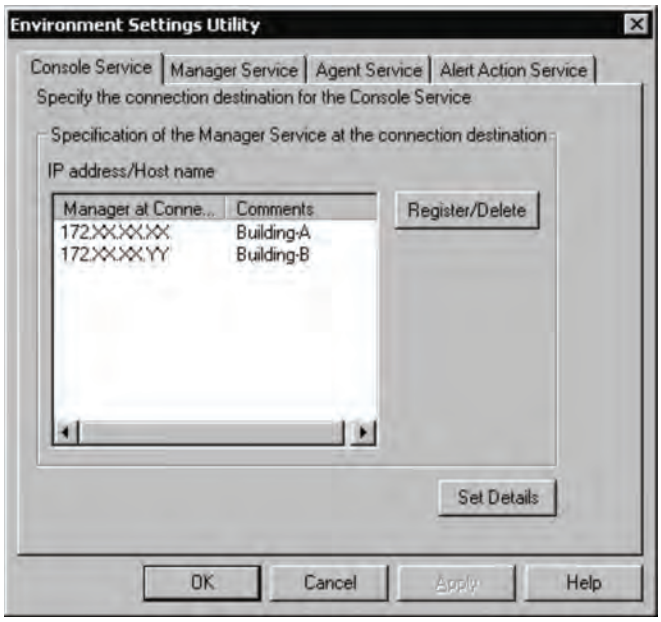
1. Hosts on which the manager service has been installed.
2. Hosts on which the agent service has been installed.

If the hosts are not started in this order, the managed hosts may not be displayed at the management console. If you mistakenly start an agent service first, see "Changing the Hosts to be Managed" on page 149. Take appropriate action so that the managed hosts are displayed at the console service.

Setting the Console Service

This section describes the information to be set to execute the console service. To set the console service information, execute the Environment Settings Utility on the host where the console service has been installed.

To specify settings for the console service, choose the **Console Service** tab in the **Environment Settings Utility** dialog box.

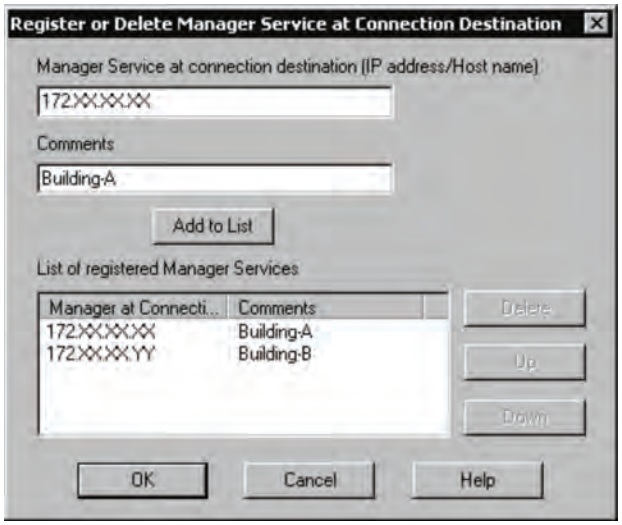


AF001299

Setting the Manager Service at the Connection Destination (Console Service)

On the **Console Service** page, select the manager service that is to be the connection destination of the console service. You can select multiple manager services.

To register a new manager service as a connection destination or to delete an existing manager service as a connection destination, click **Register/Delete**. The **Register/Delete the Manager Service at the Connection Destination** dialog box appears, as shown below.



AF001300

- To register a new manager service as a connection destination:

  Enter the IP address or host name of the manager service at the connection destination and then click **Add to List**. You can enter a comment, if necessary. A maximum of 128 manager services can be added as connection destinations.

- To delete a manager service as a connection destination:

  From **List of Registered Manager Services**, select the manager service you wish to delete, and then click **Delete**.

- When changing the connection order:

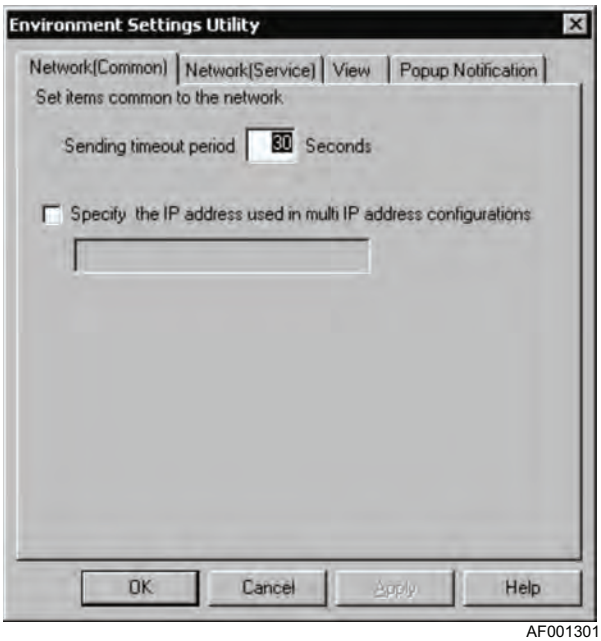
  When multiple services are connected, an attempt is made to establish connection sequentially in the order they are listed on the **List of Registered Manager Services**. To change the priority (connection order), select the applicable manager at the connection destination, and then click **Up** or **Down**.

Setting Console Service Details

You can set the details of the console service. To do this, click **Set Details**. The following subsections describe the details that can be set in the console service.

Network (Common) Information

You can set information common to the network. To do this, click the **Network(Common)** tab. The **Network(Common)** dialog box appears.



AF001301

In this dialog box, you can set the following information.

Item	Setting
Sending timeout period	The sending timeout period is the retry interval for transmission in the event of a transmission error between manager and agent services or between manager and console services. Set the sending timeout time in seconds. The permitted value range is from 1 to 600. The default is 30 seconds. See the figure below.
Specify the IP address used in multi IP address configurations	When multiple LAN boards have been installed, select this check box and set the IP address to be used.

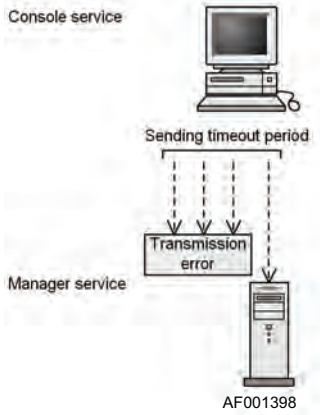
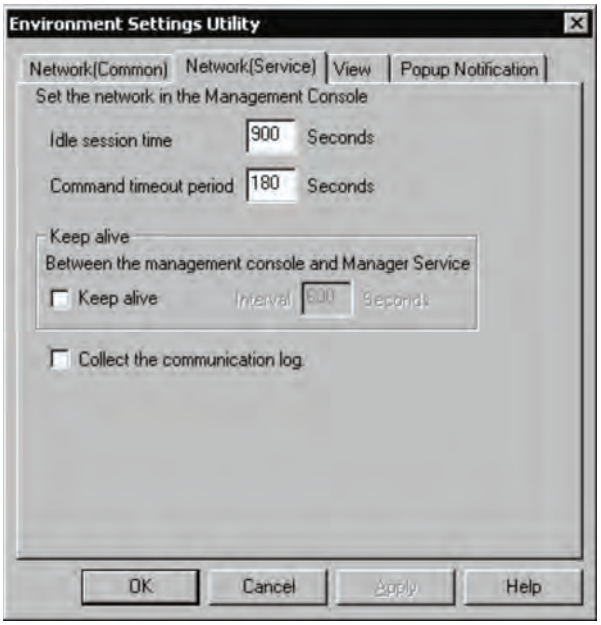


Figure 18. Sending Timeout

Network (Service) Information

You can set information about the network service. To do this, in the **Environment Settings Utility** dialog box, click the **Network(Service)** tab.



In this dialog box, you can set the following information:

Item	Setting
Idle session time (console service)	Set the amount of time before the session is to be closed when there is no communication between the console and manager services. The permitted value range is from 0 to 7,200 seconds. The default is 900 seconds. If there are no charges for the communication line with the manager service because of the network in use (such as a LAN), you can set the value 0. When 0 is set, the session will not be closed.
Command timeout period	The command timeout period is the amount of time the system is to wait for a response to be returned during communication from the console service to an agent service. Set the wait time (in seconds) for a response to a transmission from the console service to an agent service. The permitted value range is from 1 to 600. The default is 180 seconds. See Figure 19 on page 37
Keep alive	Keep alive is a function for periodically checking the line between services for interruptions. Set whether or not the connection between the console service and the manager service is to be kept open. Once you select this check box, you can set a keep-alive interval in seconds. The permitted value range for the keep-alive interval is from 1 to 3,600 seconds. The default is that the keep-alive option is not selected. When the keep-alive option is selected, the default keep-alive interval is 600 seconds.
Collect communication log	Select this check box to collect a communication log.

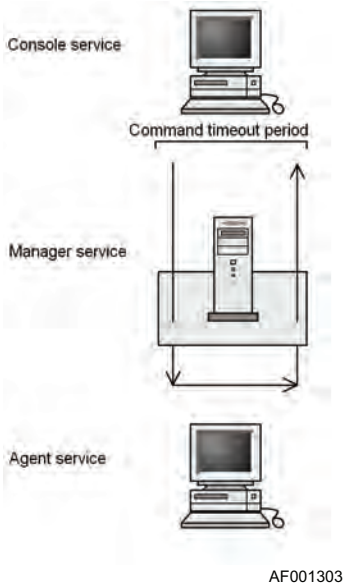


Figure 19. Command Time-out Period

The keep alive periodically checks the line between services for interruptions. With ServerConductor, the keep alive function between the console and agent services is set as shown in the following diagram.

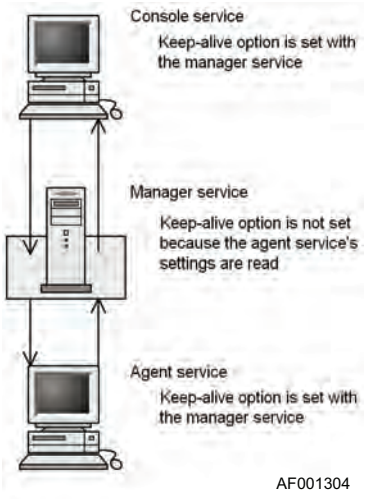
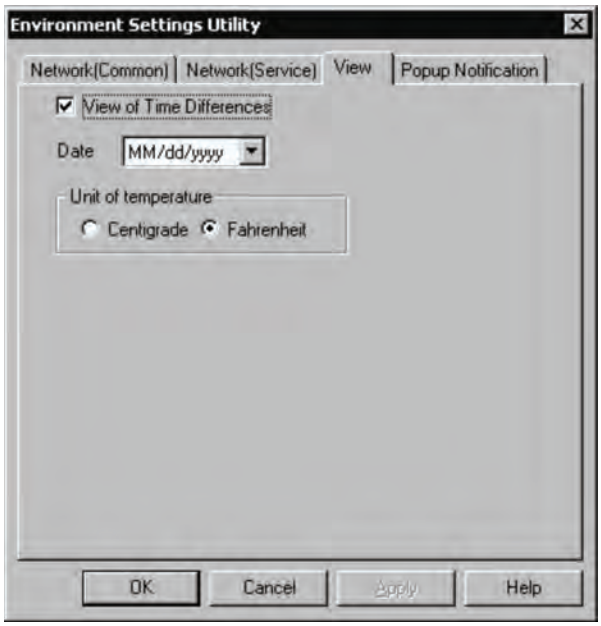


Figure 20. Keep-alive

Note: *When you use a line for which there are charges, such as a telephone line, you should not select the keep-alive option. When you set a keep-alive interval, make sure that the specified value is greater than the command timeout value.*

View Information

You can set information about displaying the time difference when the console service is used. To do this, in the **Environment Settings Utility** dialog box, click the **View** tab.

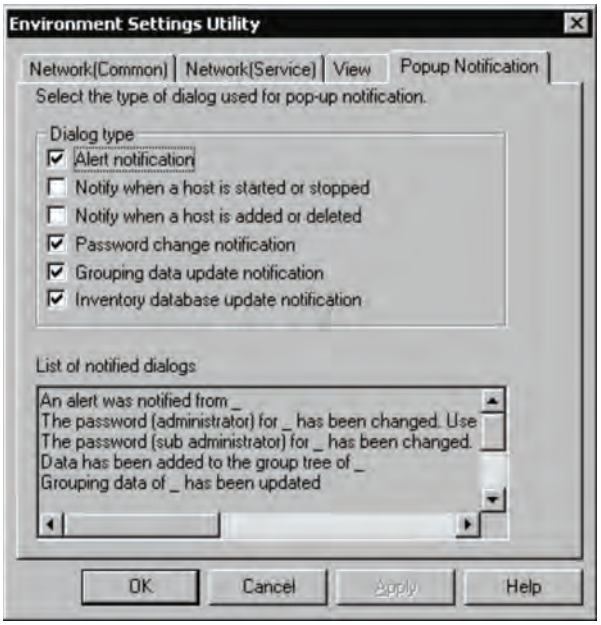


AF001305

To display the time difference, select the **View of Time Differences** check box.

Popup Notification Information

You can set information about displaying alert or data updating notifications that are sent from hosts to the console service. To do this, in the **Environment Settings Utility** dialog box, click the **Popup Notification** tab.

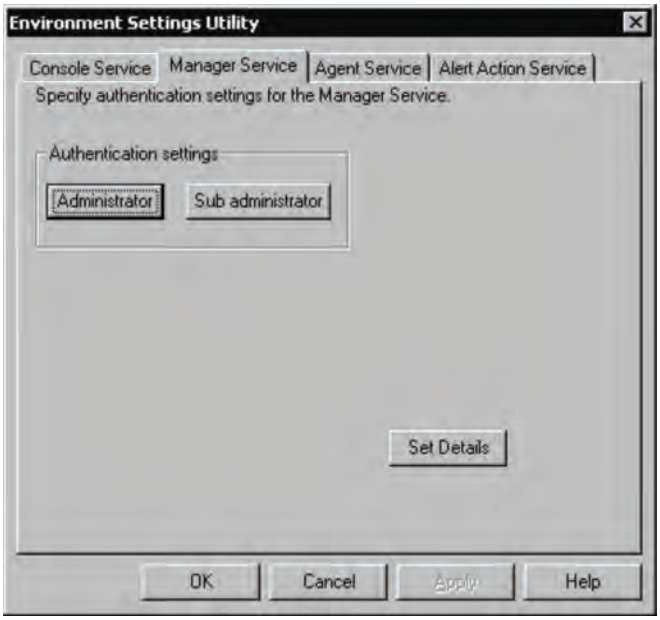


AF001306

Item	Setting
Dialog box type	Select the types of dialog boxes for which popup notifications are to be sent. To sent popup notifications, select the check boxes for the applicable dialog box types. The default is that the following are selected: • Alert notification • Password change notification • Grouping data update notification • Inventory database update notification

Setting the Manager Service

This section describes the information to be set for the manager service. To set the manager service information, run the Environment Settings Utility on the host where the manager service has been installed (host that is run as the manager), and then click the **Manager Service** tab. The **Manager Service** dialog box appears.



AF001307

Setting Passwords (Manager Service)

You can set passwords for logging on to the manager service from the management console.

Item	Setting
Administrator	Click **Administrator** to set a password for the administrator.
Sub administrators	Click **Sub administrator** to set a password for the sub-administrator.

Clicking **Administrator** or **Sub administrator** displays the **Set Password** dialog box if a password has not yet been set. If a password has already been set, the **Change Password** dialog box appears.

AF001308

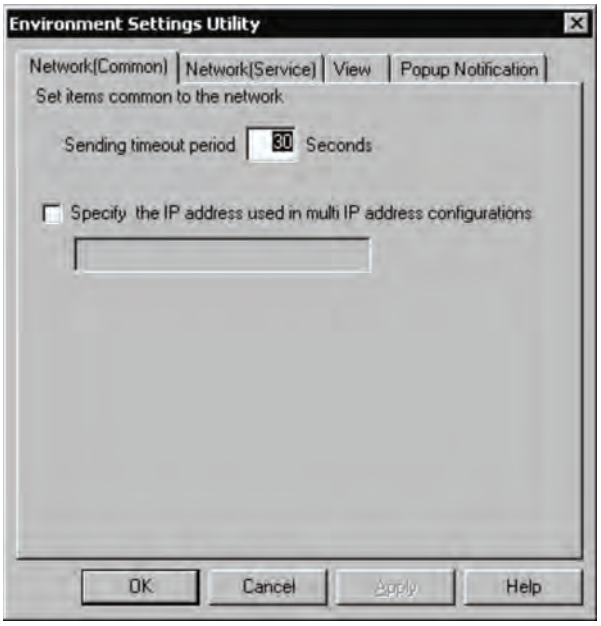
The administrator can monitor the host status and change the settings. The sub-administrator can monitor the host status but cannot change the settings. Set a password using 1-16 alphanumeric characters, spaces, and symbols. Setting passwords is mandatory.

Setting Manager Service Details

You can set the details of the manager service.To set the details, click **Set Details**.

Network (Common) Information

You can set information common to the network. To do this, in the **Environment Settings Utility** dialog box, click the **Network(Common)** tab.



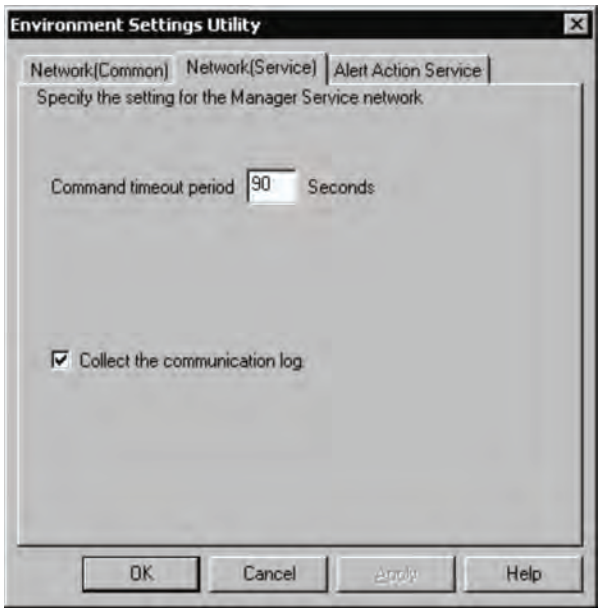
AF001309

In this dialog box, you can set the following information:

Item	Setting
Sending timeout period	Set the sending timeout time in seconds. The permitted value range is from 1 to 600. The default is 30 seconds.
Specify the IP address used in multi IP address configurations	When multiple LAN boards have been installed, select this check box and set the IP address to be used.

Network (Service) Information

You can set information about the network service. To do this, in the **Environment Settings Utility** dialog box, click the **Network (Service)** tab.



AF001310

In this dialog box, you can set the following information:

Item	Setting
Command timeout period	Set the wait time (in seconds) for a response to a transmission from the manager service to an agent service. The permitted value range is from 1 to 600. The default is 90 seconds.
Collect communication log	Select this check box to collect a communication log.

For details about the command timeout period, see “Setting the Console Service” on page 32.

BMC Power Control

You can set information about BMC power control. To do this, in the Environment Settings Utility, click the **BMC Power Control** tab.

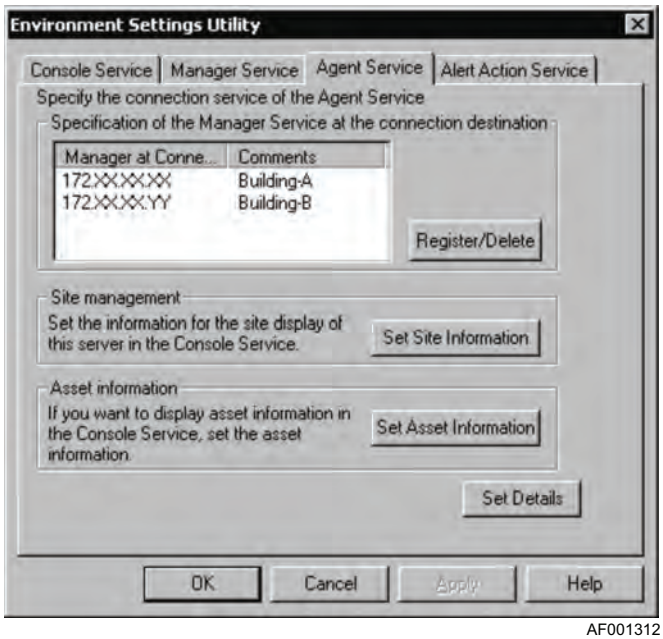
In this dialog box, you can set the following information:

Item	Setting
Sending timeout period	Set the wait time (in seconds) for a response when communicating with the BMC. The permitted value range is from 3 to 60. The default is 15 seconds.
Number of times to retry	Set the retry count in the event of a timeout when waiting for a response from the BMC. The permitted value range is from 1 to 10. The default is 1 retry.

Setting the Windows* Server Agent Service

This section describes the agent service settings information for a Windows* server. For the agent service settings for a Linux* server, see "Setting the Linux* Server Agent Service" on page 55.

On the Windows* server where you have installed the agent service, start the Environment Settings Utility and choose the **Agent Service** tab. The **Agent Service** dialog box appears.

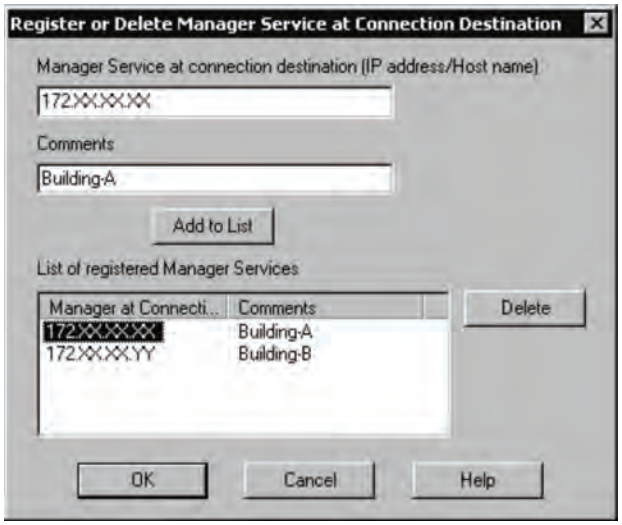


AF001312

Setting the Manager Service at the Connection Destination (Agent Service)

On the **Agent Service** page, select the manager service to which the agent service is to be connected. You can select multiple manager services.

To register a new manager service as a connection destination or to delete an existing manager service as a connection destination, click **Register/Delete**. The **Register/Delete the Manager Service at the Connection Destination** dialog box appears.



AF001313

- To register a new manager service as a connection destination

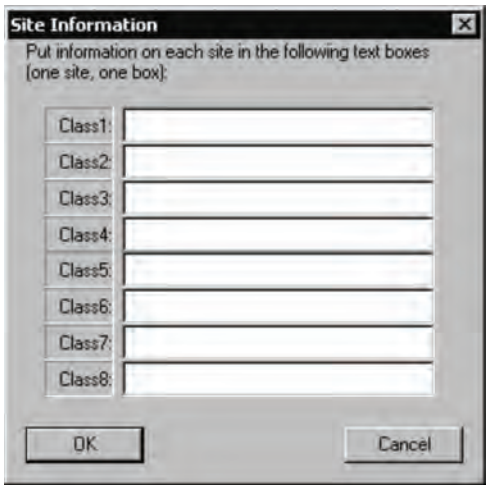
  Enter the IP address or host name of the manager service at the connection destination, and then click **Add to List**. You can enter a comment, if necessary. A maximum of four manager services can be added as connection destinations.

- To delete a manager service as a connection destination

  From **List of registered Manager Services**, select the manager service you wish to delete, and then click **Delete**.

Setting Site Information

To manage servers by site, you can set site information. This information is required when the console service manages servers by site. To set site information, on the **Agent Service** page, click **Set Site Information**. The **Site Information** dialog box appears.



AF001314

In this dialog box, you can set for each site up to eight items of information, which are called classes. We recommend that you set one class at a time, such as the city in class 1, the facility in class 2, and building number, floor, section name, etc., in other classes. The sites can then be classified by accurate site information.

When you set site information for each managed server, the management console can classify the servers by the site information you have set. See Figure 21.

Note: *You can specify a maximum of 256 characters for each class in the* ***Site Information*** *dialog box. Even if the number of characters you specify does not exceed 256, the message Set no more than 256 character per class may be displayed, because the classes are managed by inserting the slash (/) as a delimiter between classes. The following condition must be satisfied:*

Total number of characters in $class + class - 1 \quad 256$.

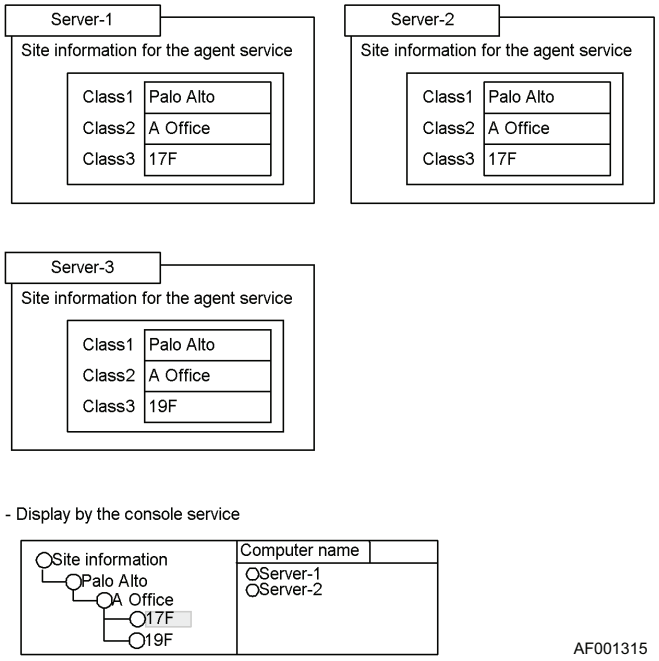
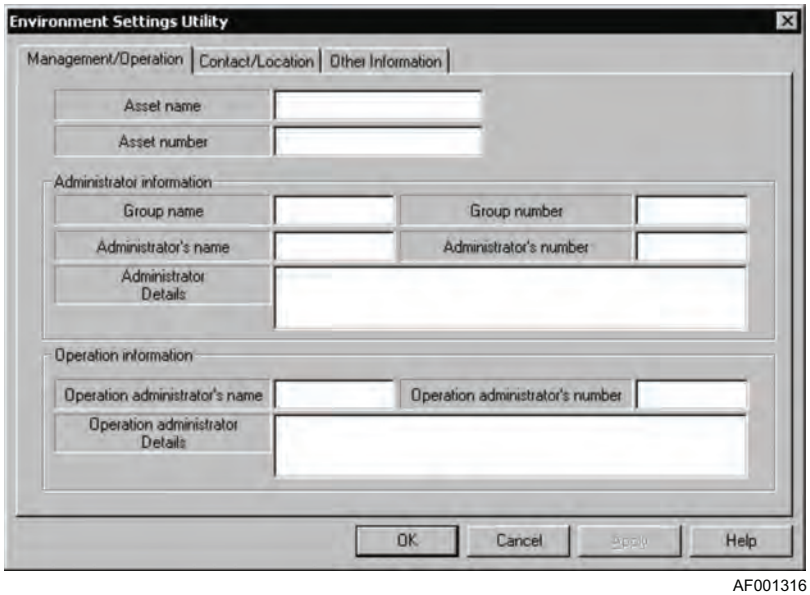


Figure 21. Example of Setting and Displaying Site Information

Setting Asset Information

You can set hardware asset information, such as the location and operations administrator of each managed server. To set asset information, on the **Agent Service** page, click **Set Asset Information**.

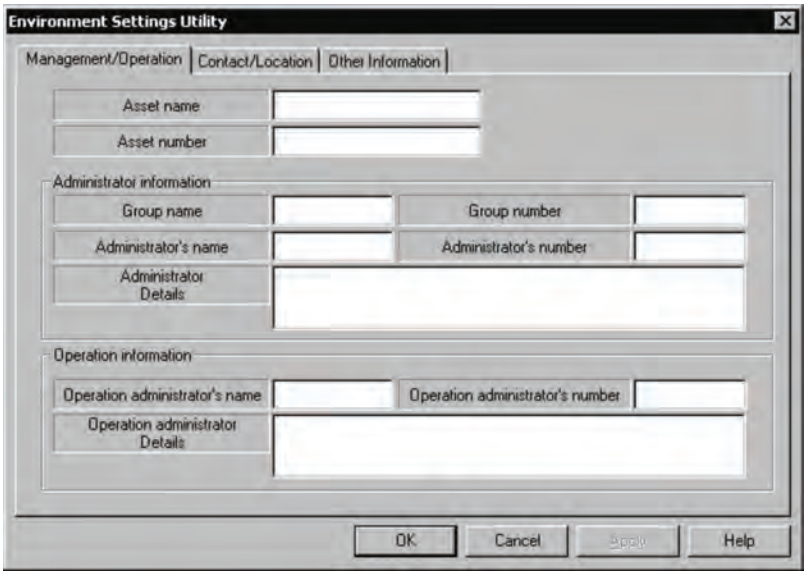


An agent service will start even if no asset information is set, but we recommend that you set the asset information because it is required for server operations and management.

The following subsections describe the information to be set as asset information.

Management/Operation information

You can set information about system operations and management, such as the server's asset name and management information. Click the **Management/Operation** tab.



AF001317

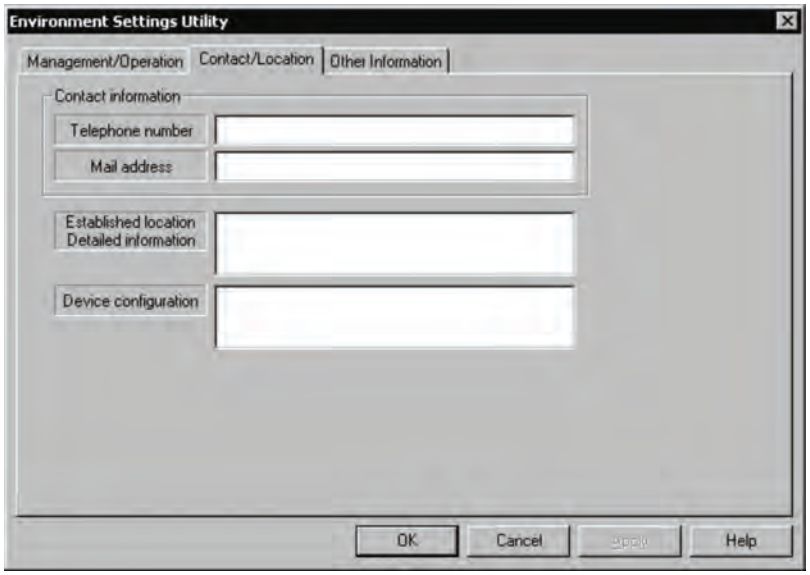
The following table describes the information to be set in this dialog box:

Item	Setting
Asset name	Set the name used to manage the server within the company or organization, or the server's product name.
Asset number	Set the number associated with the asset name.
Group name	Set the name of the group where the server is installed.
Group number	Set the group number if there is one for the group.
Administrator's name	Set the name of the system administrator who manages the server.
Administrator's number	Set a number, such as the employee number, that is used to identify the system administrator.
Administrator's details	Set details about the manager or any information that is not included in the settings, such as the system administrator's group.

Item	Setting
Operation administrator's name	Set the name of the operation administrator in the group that handles the server.
Operation administrator's number	Set a number, such as the employee number, that is used to identify the operation administrator.
Operation administrator's details	Set details about the operation administrator or any information that is not included in the settings, such as the operation administrator's group.

Contact/Location Information

You can set the system administrator's contact information and the location of the system. Click the **Contact/Location** tab. The **Contact/Location** dialog box appears.

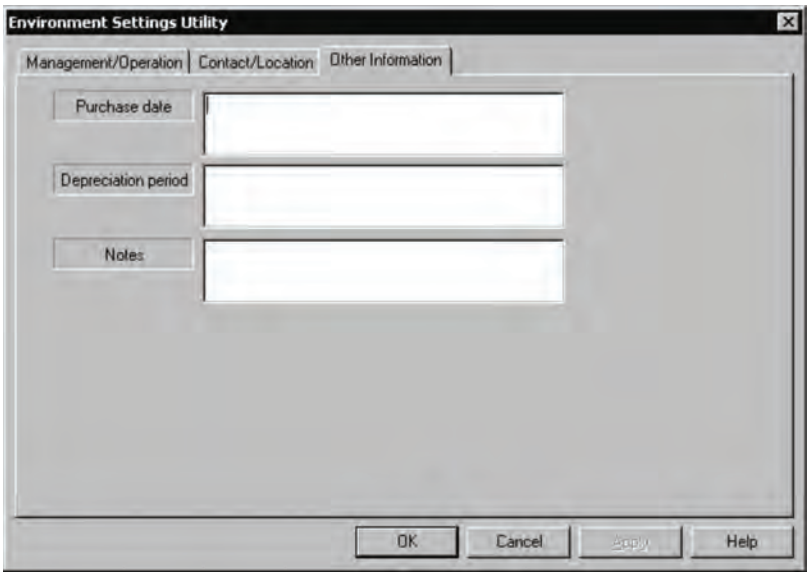


AF001318

Item	Setting
Contact information Telephone number	Set the administrator's telephone number.
Contact information Email address	Set the administrator's email address.
Installation site details	Set details about the server location.
Device configuration	Set information about the device configuration, such as server's CPU and memory.

Other Information

You can set other information, such as the system purchase date and notes. Click the **Other Information** tab. The **Other Information** dialog box appears.



AF001319

In this dialog box, set the following information:

Item	Setting
Purchase date	Set the date the server was purchased.
Depreciation period	Set the depreciation period for the server.
Note	Set other asset information, if necessary.

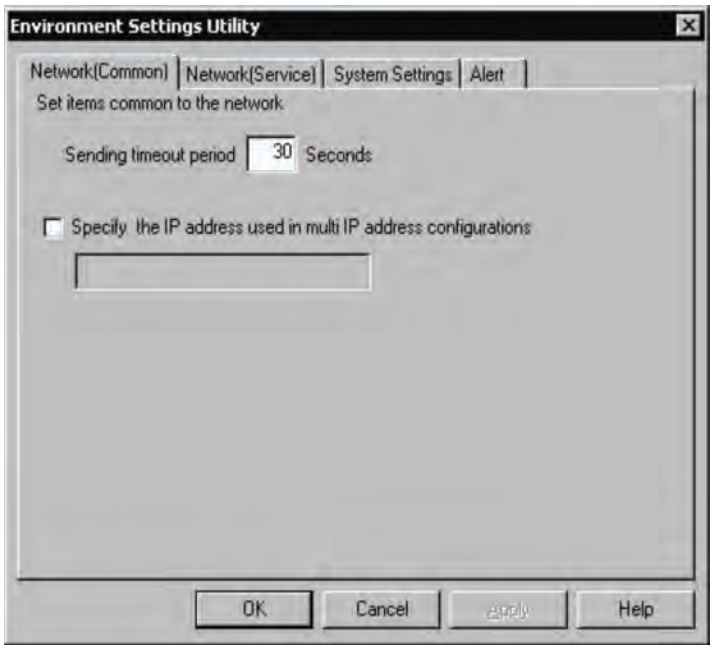
Setting Agent Service Details

You can set detailed information about the agent service. To do this, on the **Agent Service** page, click **Set Details**.

The following subsections describe the agent service detailed information that can be set.

Network(Common) information

You can set information common to the network. To do this, in the **Environment Settings Utility** dialog box, click the **Network(Common)** tab.



AF001320

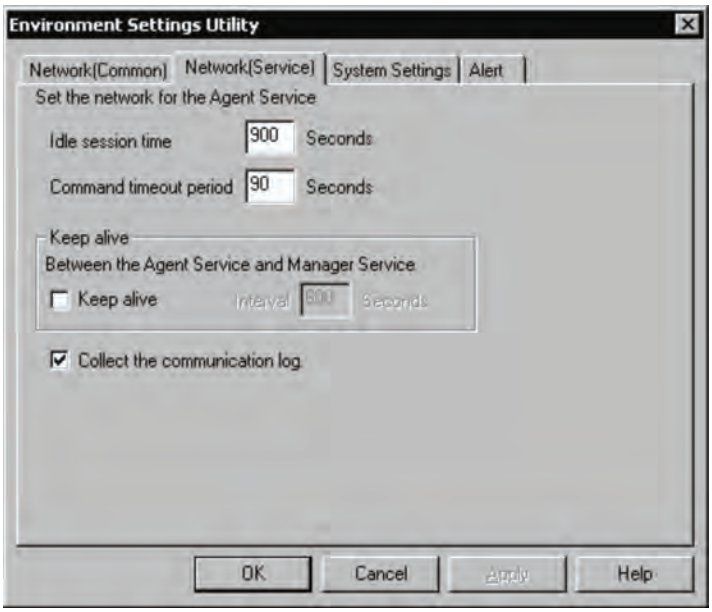
In this dialog box, set the following information:

Item	Setting
Sending timeout period	Set the sending timeout time in seconds. The permitted value range is from 1 to 600. The default is 30 seconds.
Specify the IP address used in multi IP address configurations	When multiple LAN boards have been installed, select this check box and set the IP address to be used.

For details about the sending timeout period, see "Setting the Console Service" on page 32.

Network(Service) information

You can set information about the network service. To do this, in the **Environment Settings Utility** dialog box, click the **Network(Service)** tab.



AF001321

In this dialog box, set the following information:

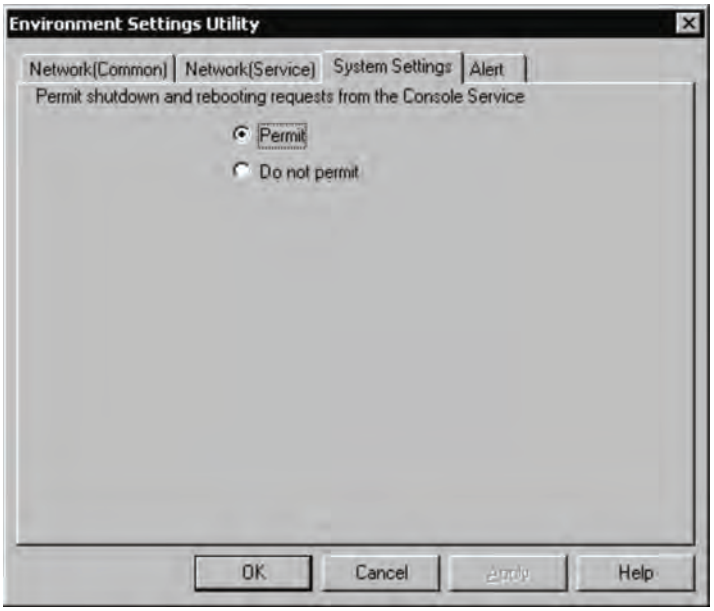
Item	Setting
Idle session time (agent service)	Set the amount of time before the session is to be closed when there is no communication between the console and manager services. The permitted value range is from 0 to 7,200 seconds. The default is 900 seconds. If there are no charges for the communication line with the manager service because of the network in use (such as a LAN), you can set the value 0. When 0 is set, the session will not be closed.
Command timeout period	Set the wait time in seconds for a response to a transmission from the agent service to the manager service. The permitted value range is from 1 to 600 seconds. The default is 90 seconds.
Keep alive	Set whether or not the connection between the agent and manager services is to be kept open. Once you select this check box, you can set a keep-alive interval in seconds. The permitted value range for the keep-alive interval is from 1 to 3,600. The default is that the keep-alive option is not selected. When the keep-alive option is selected, the default keep-alive interval is 600 seconds.
Collect communication log	Select this check box to collect a communication log.

For details about the keep-alive option, see “Setting the Console Service” on page 32.

Note: *When you use a line for which there are cost charges, such as a telephone line, you should not select the keep-alive option. When you set a keep-alive interval, make sure that the specified value is greater than the command timeout value.*

System Settings

You can specify whether or not power-on/off and reboot requests from the management console are to be accepted. In the **Environment Settings Utility** dialog box, click the **System Settings** tab.

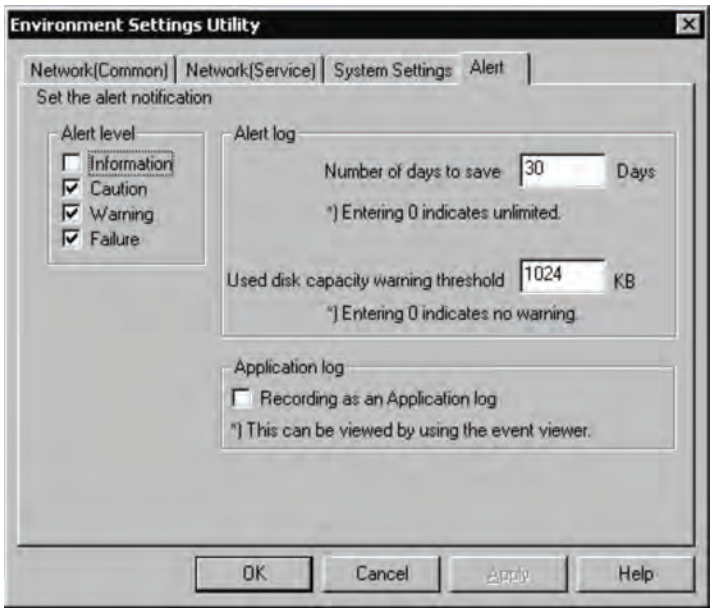


AF001322

To accept power shutdown and reboot requests from the management console, select **Permit**; otherwise, select **Do not permit**. **Permit** is selected by default.

Alert Information

You can set the alert information that is to be sent by the agent service. To set the alert information, in the **Environment Settings Utility** dialog box, click the **Alert** tab.



AF001323

In this dialog box, set the following information:

Item	Setting
Alert level	Select the levels of alerts that the agent service is to send. Select the check boxes for all applicable alert levels; you can select multiple boxes. The supported alerts are as follows: • Information: Information other than errors • Caution: Warning information • Warning: Normal error information • Failure: Errors that require immediate attention
Number of days to save	Set the number of days alert log files are to be retained. The permitted value range is from 0 to 90 days. The default is 30 days. When 0 is set, the alert log files will be retained until deleted by the user.
Used disk capacity warning threshold	Set the amount in kilobytes of alert log information that can be stored before a warning is sent to the management console (alert log information is saved as one file per day). The permitted value range is from 0 to 1,048,576 kilobytes. The default is 1,024 kilobytes. If 0 is set, no warning will be sent.
Application log	Set whether or not alerts sent by the agent service are to be recorded as application log information. The created application log information can be viewed by the Event Viewer.

An alert log file is saved with the date as the file name, with an extension of .log, in the log directory under the ServerConductor installation directory. For example, the log file created for December 1, 2006 is saved with the file name 20061201.log.

Setting the Linux* Server Agent Service

To use the agent service on a Linux server, the following settings are required:

- Environment settings by the environment setting command
- Startup of the agent service (when the agent service has just been installed)

This section describes how to use the environment setting command, the settings, and how to start and stop the agent service.

Using the Environment Setting Command

The command start format is as follows:

```
/usr/sbin/smhedit [-slevels-count] [-g[width][xheight]] [-agent|-misc]
/usr/sbin/smhedit -h
```

This command specifies the number of menu levels to be displayed. When this option is omitted, the number of menu levels is determined by the window size. The permitted values are 1 and 2.

```
-slevels-count
```

The command below specifies the window size in characters. The permitted value for the width (-g) is from 10 to 160 and for the height (x) is from 10 to 72. The default is -g80x24.

```
-g[width][xheight]
```

The command below specifies the **Environment Settings** menu to be edited. To edit agent settings, specify -agent, in which case the **Agent Settings** menu is displayed. To edit agent environment settings, specify -misc, in which case the **Agent Environment Settings** menu is displayed. If neither option is specified, the **Configuration Main Menu** is displayed, enabling the user to select one of the settings. -agent and -misc are mutually exclusive.

```
-agent, -misc
```

The command below provides information about how to use the environment setting command.

```
-h
```

Selections for Menus

Selections for menus include numeric values (1 to n) and character strings. At the menu prompt, the permitted value range or character strings are displayed. For character string selections, you can select upper case or lower case. You can also select only the upper-case letters in the displayed character string. The following shows an example:

```
Quit
```

This selection can be entered as any of the following: QUIT, quit, Q, or q.

Configuration Main Menu

When the smhedit command is started with neither the -agent nor the -misc option specified, the following **Configuration Main Menu** is displayed:

```
#### Configuration Main Menu ####
    1.Agent Configuration
    2.Agent Environment Configuration

   Command(1-2/Quit)>
```

The three permissible selections are **1**, **2**, and **Quit**.

- When **1** is selected, the **Agent Configuration** menu is displayed for editing the agent settings.
- When **2** is selected, the **Agent Environment Configuration** menu is displayed for editing the agent environment settings.
- When **Quit** is selected, the smhedit command is terminated.

Agent Settings Menu and Agent Environment Settings Menu

The agent settings menu is displayed when the smhedit is started with the -agent option specified or when 1 is selected from the **Configuration Main Menu**.

The following shows an example of the **Agent Configuration** menu:

```
#### Agent Configuration ####
    1.CommandTimeout     [90]
    2.Keepalive   [False]
   .............omitted.............

   Command(1-11/Menu/Quit)>
```

The **Agent Environment Configuration** menu is displayed when the smhedit is started with the -misc option specified or when 2 is selected from the **Configuration Main Menu**.

The following shows an example of the **Agent Environment Configuration** menu:

```
#### Agent Environment Configuration  ####
    1.ManagerAddress ->      18.AdministratorID    [KANRI-ID]
    2.SendTimeout    [80]    19. AdministratorInfo [KANRISH...]
   .............omitted.............

   Command(1-23/Menu/Quit)>
```

Permissible selections include item setting numbers, **Menu**, and **Quit**. The number of items that can be set depends on the agent service and operating system version.

- When **Menu** is chosen, the **Agent Configuration** menu or the **Agent Environment Configuration** menu is displayed.
- When **Quit** is chosen, the **Configuration Main Menu** is displayed again or the smhedit command is terminated. If you have changed the value of a setting item and then you choose **Quit**, the command asks if the new value is to be applied.
- When you choose the number of a setting item, the command enables the corresponding item to be set. The four types of setting entries are integers, logical values, IP addresses, and character strings. The following rules apply to these types of entries:
  - Integer: The entered value is regarded as being in octal if it begins with 0 and in hexadecimal if it begins with 0x. If only a line feed is entered, the setting remains unchanged.
  - Logical value: The value must be either **True** or **False**. A value must be set for such an item. The entered value is not case sensitive. If only a line feed is entered, the setting remains unchanged.
  - IP address: The value must be entered in decimal in the format xxx.yyy.zzz.aaa. If only a line feed is entered, the setting remains unchanged.
  - Character string: An entered character string cannot contain a double quotation mark ("). If only a line feed is entered, the setting remains unchanged. If only the **Ctrl** + **D** keys are pressed, the null character string is set.
  - Site information: Site information can contain neither the " nor the /. You can define a maximum of eight classes of site information and enter a value for each class. To skip all subsequent classes, press the Ctrl + D keys. If only a line feed is entered, the existing setting is used as is. If there is no existing value for a class, entering the line feed terminates the entry for that class.
  - Target system information: In the case of target system information, the command displays a list of the available target systems, the currently selected target system, and a prompt. The list of target systems consists of 20 systems per window.

— At the prompt, enter a numeric value (1 to n) or a character string. Available character string selections are **Previous**, **Next**, and **Quit**. To select the target system, select the corresponding number from the list.

— To display the previous window, choose **Previous**; to display the next window, choose **Next**. Note that when the beginning of the list is displayed, **Previous** cannot be chosen. Similarly, when the end of the list is displayed, **Next** cannot be chosen. When **Quit** is chosen, the command displays the **settings** menu again without changing the settings.

— Multiple settings: For some items, you can set multiple values. When you select an item that accepts multiple values, the command displays a list of the existing values and a prompt. To change an existing value, select it from the list. To delete an existing value, select it from the list and press the **Ctrl** + **D** keys only. To add a value, choose **New**. If the number of existing values has already reached the maximum, **New** cannot be chosen. Choosing **Quit** displays the **settings** menu again.

Environment Settings

Settings on the Agent Settings Menu

The **Agent Settings** menu is used to set information communication and alerts for the agent service. The table below describes the setting items on the **Agent Settings** menu. The setting items displayed on the menu depend on the version of the agent service and the operating system.

Table 19. Agent Settings Menu

Item	Default	Setting
CommandTimeout	90	Set the wait time in seconds for a response to a transmission from the manager service to the agent service. The permitted value range is from 1 to 600.
Keepalive	False	Set whether or not the keep-alive option between the agent service and the manager service is to be enabled. To enable the keep-alive option, set True.
KeepaliveInterval	600	When the keep-alive option is enabled, specify a keep-alive interval in seconds. The permitted value range is from 1 to 3,600. When you set a keep-alive interval, make sure that the specified value is greater than the command timeout value (setting item: CommandTimeout).
ShutdownDemand	True	Set whether or not a shutdown request from the console service is to be accepted. To accept such requests, set True.
InformationAlert	False	Set True to send information alerts (other than errors). In the server alert log, information about the alerts that have occurred is recorded whether this setting is True or False.

Table 19. Agent Settings Menu

Item	Default	Setting
CautionAlert	True	Set True to send caution alerts (warning level information). In the server alert log, information about the alerts that have occurred is recorded whether this setting is True or False.
WarningAlert	True	Set True to send warning alerts (normal error information). In the server alert log, information about the alerts that have occurred is recorded whether this setting is True or False.
ObstacleAlert	True	Set True to send failure alerts (error information requiring immediate attention) to the console service. In the server alert log, information about the alerts that have occurred is recorded whether this setting is **True** or **False**.
AlertKeepDays	30	Set the number of days alert log files are to be retained. The permitted value range is from 0 to 90 days. When 0 is set, the alert log files will be retained until deleted by the user.
AlertCapacity	1,024	Set the amount in kilobytes of alert log information that can be stored before a warning is to be sent to the management console. Alert log information is saved as one file per day. The permitted value range is from 0 to 1,048,576 kilobytes. The default is 1,024 kilobytes. If 0 is set, no warning will be sent. An alert log file is saved with the date as the file name and .log as the file extension, in the /var/opt/htcsma directory. For example, the log file created for December 1, 2004, is saved under file name 20041201.log.
SyslogOutput	False	Set True to send to syslog the alerts that are to be sent to the console service. Only the alerts that are reported to the console service are output.

Agent Environment Settings Menu

This menu is used to set the manager service at the connection destination as well as the hardware installation and asset information. The table below describes the setting items on the **Agent Environment Settings** menu. The setting items displayed on the menu depend on the version of the agent service and operating system.

Table 20. Agent Environment Settings Menu

Item	Default	Setting
Target Machine	None (mandatory)	Set the type of server on which Agent has been installed.
ManagerAddress	None (mandatory)	Set the IP address of the manager service at the connection destination. You can register a maximum of four manager services at the connection destination.
SendTimeout	80	Set the sending timeout period in seconds. The permitted value range is from 1 to 3,600.
SessionTimeout	900	Set the amount of time before the session is to be closed when there is no communication between the agent and manager services. The permitted value range is from 0 to 7,200 seconds. The default is 900 seconds. If there are no charges for the communication line with the manager service because of the network in use (such as a LAN), you can set the value 0. When 0 is set, the session will not be closed.
SITE		Set a maximum of eight classes of site information. The information items that can be specified are defined sequentially as class 1, class 2, class 3, and so on. Following SITE=, each class can be entered as a separate line, or all the classes can be entered continuously, delimited by the / character. Each class must consist of no more than 256 characters including the delimiter (/) and must satisfy the following condition: Total number of characters per $class + class - 1 \quad 256$ The recommendation is to set one class at a time, such as the city in class 1, the facility in class 2, and building name, floor, section name, and so on, in other classes. If erroneous site information is specified, the site may be classified incorrectly when it is displayed at the management console.

Table 20. Agent Environment Settings Menu

Item	Default	Setting
PropertyName		Set the name used to manage the server within the company or organization, or the server's product name.
PropertyID		Set the number associated with the asset name.
PostName		Set the name of the group where the server is installed.
PostID		Set the group number if there is one for the group.
AdministratorName		Set the name of the system administrator who manages the server.
AdministratorID		Set a number, such as the employee number, that is used to identify the system administrator.
AdministratorInfo		Set details about the manager or any information that is not included in the settings, such as the system administrator's group.
OperatorName		Set the name of the operation administrator in the group that handles the server.
OperatorID		Set a number, such as employee number, that is used to identify the operation administrator.
OperatorInfo		Set details about the operation administrator or any information that is not included in the settings, such as the operation administrator's group.
TelephoneNumber		Set the administrator's telephone number.
MailAddress		Set the administrator's email address.
LocationInfo		Set details about the server location.
Structure		Set information about the device configuration, such as the server's CPU and memory.
PurchaseDate		Set the date the server was purchased.
DescriptionDate		Set the depreciation period for the server.
Note		Enter any notes.
CompressCommand	None	Set the command line character string for starting the compression command. See Table 27 on page 136.

Starting and Stopping the Agent Service

A Linux server's agent service does not start automatically when Agent is installed. An agent service starts after you set its environment with the environment setting command and then execute the command.

Starting the Agent Service

To start an inactive agent service, enter the following command:

```
/etc/rc.d/init.d/hsysmgr start
```

From then on, starting the Linux server at run level 3 or higher automatically executes this command, thereby starting the agent service.

Stopping the Agent Service

To stop the active agent service, enter the following commands in this order:

```
/etc/rc.d/init.d/hsysmgr stop
/etc/rc.d/init.d/hsysmgr.mod stop
```

Setting the BMC Function

This section describes how to set the BMC function that is needed for server power control.

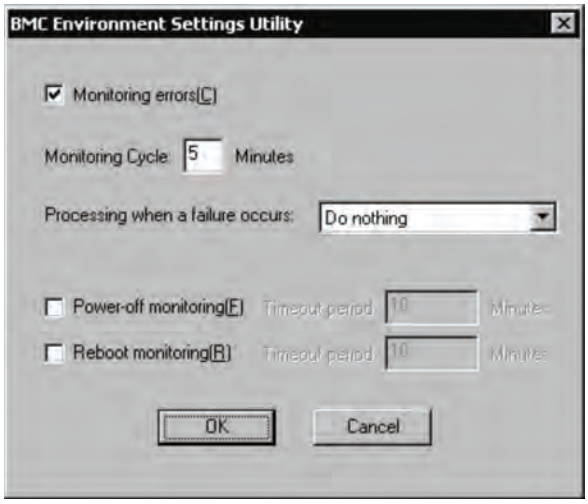
Setting the BMC when a Windows* Server is Managed

When a Windows* server is being managed, set the BMC according to the User's Guide provided with the server system. Only failure monitoring is set using the BMC Environment Settings Utility.

To set failure monitoring by using the BMC Environment Settings Utility:

1. From the **Start** menu, choose **Programs**.
2. Choose **ServerConductor**, Server Manager, and then the **BMC Environment Settings Utility**.

The BMC Environment Settings Utility starts.



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Item	Default	Setting
Monitoring errors	Monitor failures (selected)	Set if failures are to be monitored.
Monitoring cycle	5 minutes	Set the interval in minutes at which the server is to be monitored for fatal errors, such as a server hang-up or operating system shutdown. Failures are detected at the specified interval. The permitted value range is from 3 to 60.
Processing when a failure occurs	Do nothing	Set the processing to be executed automatically in the event of a server failure. You can set one of the following: • Do nothing Do nothing when a failure occurs. • Reset Perform the same processing as when the server's reset button is pressed. The server may not be reset successfully depending on the nature of the failure. • Power off Turn off the power when a failure occurs. • Power off and then on Turn off the power when a failure occurs and then immediately turn it back on.

Item	Default	Setting
Power-off monitoring	Do not monitor, 10 minutes	If power-off processing fails, use this item to set whether the power-off processing is to be retried within a specified time. To retry the power-off processing, select this check box. The permitted value range is from 10 to 60 minutes.
Reboot monitoring	Do not monitor, 10 minutes	If rebooting fails, use this item to set whether rebooting is to be retried within a specified time. To retry rebooting, select this check box. The permitted value range is from 10 to 60 minutes.

Setting the BMC when a Linux* Server is Managed

When a Linux server is being managed, use the environment setting command, smhaaedit, to set the BMC.

Setting by Using the Environment Setting Command (smhaaedit)

To set the BMC:

1. Execute the smhaaedit command. The **Configuration Main Menu** appears.
2. Select a desired item and then configure it.

smhaaedit Command Format

The command start format is as follows:

```
/usr/sbin/smhaaedit [-slevels-count] [-g[width][xheight]] [-bmc]
/usr/sbin/smhaaedit -h
```

The following command specifies the number of menu levels to be displayed. When this option is omitted, the number of menu levels is determined by the window size. The permitted value is 1 or 2.

```
-slevels-count
```

The following command specifies the window size in characters. The permitted value for the width (-g) is from 10 to 160 and for the height (x) is from 10 to 72. The default is -g80x24.

```
-g[width][xheight]
```

When the following option is specified, the failure monitoring settings menu is displayed.

```
-bmc
```

The following option provides usage information.

```
-h
```

Configuration Main Menu of the Environment Setting Command

The following shows the **Configuration Main Menu** of the environment setting command:

```
####      Configuration Main Menu       ####
  1. Agent Configuration
  2. SNMP Configuration
  3. BMC Configuration
Command (1-3/Quit)>
```

Four selections are available: **1**, **2**, **3**, and **Quit**.

- When **Quit** is chosen, the smhaaedit command terminates.
- When **1** is chosen, the **Agent Configuration** menu is displayed. This menu provides the following setting items:

Item	Default	Setting
SNMPTranslatorAgentService	Disabled	Set whether the SNMP function is to be enabled or disabled.
BMCAgentService	Enabled	Set whether the BMC function is to be enabled or disabled.

- When **2** is chosen, the **SNMP settings** menu is displayed for editing the SNMP settings.
- When **3** is chosen, the **failure monitoring settings** menu is displayed. This menu provides the following setting items:

Item	Default	Setting
ErrorWatching	Enabled	Set whether failures are to be monitored: • Enabled: Monitor for failures • Disabled: Do not monitor for failures
ErrorWatchingInterval	5	Set (in minutes) the interval at which the server is to be monitored for fatal errors, such as server hang-up or operating system shutdown. Failures are detected at the specified interval. The permitted value range is from 3 to 60.

Item	Default	Setting
ProcessAtError	0	Set the processing to be executed automatically in the event of a server failure. You can set one of the following: • 0: Do nothing when a failure occurs. • 1: Perform the same processing as when the server's reset button is pressed. Note that the server may not be reset successfully depending on the nature of the failure. • 2: Turn off the power when a failure occurs. • 3: Turn off the power when a failure occurs, and then immediately turn it back on.
PowerOffWatching	Disabled	If a power-off error occurs on the agent service in the event of an alert, use this item to set whether the power-off processing is to be retried within a specified time. To retry power-off processing, set this item to Enabled.
PowerOffWatchingTimeout	10	Set the retry timeout value for the power-off processing. This item is applicable only when PowerOffWatching is Enabled. The permitted value range is from 10 to 60 minutes.
RebootWatching	Disabled	If a reboot error occurs on the agent service in the event of an alert, use this item to set whether rebooting is to be retried within a specified time. To retry rebooting, set this item to Enabled.
RebootWatchingTimeout	10	Set the retry timeout value for rebooting. This item is applicable only when RebootWatching is Enabled. The permitted value range is from 10 to 60 minutes.

Uninstalling ServerConductor

Uninstalling ServerConductor Manager, Management Console, from a Windows* Server

A user with the Administrator permissions must perform the uninstall procedure.

To uninstall ServerConductor programs:

1. From the **Control Panel**, choose **Add or Remove Programs** | **ServerConductor**.

   The **Uninstall ServerConductor** dialog box appears. Follow the wizard's instructions to uninstall ServerConductor.

2. Restart the system.

Note: *If you have not restarted the system after uninstalling ServerConductor, an attempt to re-install ServerConductor may fail.*

Uninstalling ServerConductor from a Linux* Server

To uninstall the ServerConductor from a Linux server, use the RPM package and installation shell script. A superuser (root) must perform this procedure.

To uninstall ServerConductor programs:

1. Stop the agent service. For details about how to stop the agent service, see "Stopping the Agent Service" on page 62.
2. Enter the following command to start uninstall.sh:
   `/opt/hitachi/serverconductor/bin/uninstall.sh`
3. A confirmation message is displayed. Press **Y** and the uninstallation begins.

4 Console Service Operation

This chapter provides an overview of the console service and describes how to start and stop the console service. It also describes the console service's window configuration.

The console service functions that are available depend on the type of managed host. The table below lists the console service functions available to each type of host.

Table 21. Host Functions

Function		Windows* Server	Linux* Server
File	Output of inventory to a CSV file	Available	Available
	Printing	Available	Available
Host management	Inventory	Available	Available
	Power on/off schedule	Available	Available
	Alert log	Available	Available
	Draft view	Available, if the host supports the draft view function	Not available
	Host search	Available	Available
	Report schedule	Available	Available
	Updating the database to the newest status	Available	Available
Alert management	Viewing notification alerts	Available	Available
Host operation	Connection	Available	Available
	Power-on	Available	Available
	Power-off	Available	Available
	Forced power-off	Available	Available
	Reboot	Available	Available
	Shutdown	Not available	Not available
	Information acquisition	Available	Available
Group	Batch setting - schedule	Available	Available
	Batch setting - agent service	Available	Available
	Batch operation - power control	Available	Available

Table 21. Host Functions

Function		Windows* Server	Linux* Server
Connection management	Registration	Available	Available
	Deletion	Available	Available
	Confirmation of the manager service at the connection destination	Available	Available
Setting	Password settings	Available	Available
	Console service definitions	Available	Available
	Console service definitions (information acquisition)	Available	Available
	Agent service settings	Available	Available
	Manager service settings	Available	Available
	Manager service settings (email linkage)	Available	Available
	Manager service settings (report function)	Available	Available
External program	External program	Available	Available
View	Site view	Available	Available
	Domain view	Available	Available
	Service configuration view	Available	Available
	Updating to the newest information	Available	Available

Starting and Stopping Console Service

There is no need to start or stop the agent service or manager service because they start automatically when the server starts and stop automatically when the server terminates.

Starting Console Service

How to start:

1. From the **Start** menu, choose **Programs**.
2. Choose the **ServerConductor** group.
3. Choose **Console Service**. The **ServerConductor Console Service - Login** dialog box appears.
4. Select the manager service at the connection destination. You can select multiple manager services as connection targets.
5. Select the user type. Select either administrator or sub-administrator.
6. Click **OK**.

When login authentication is successful, the console service starts.

If multiple manager services were selected as connection targets for the console service, login authentication is attempted sequentially from the top of the list of manager services at the connection destination.

If an authentication fails, a message is displayed asking whether or not the login to that manager service is to be attempted again. An authentication failure may occur because a manager service requires a different password. Select **Log in again** to re-enter the password for the manager service that resulted in the authentication error. If you choose **Do not log in again**, the console service establishes connection with only those manager services at the connection destination where authentication was successful, and then starts.

Re-login and Additional Login after the Start

To log out from all the manager services and then log in to them again, in the **Host Management** window, from the **File** menu, choose **Log in again**.

To log in to a specific manager service while keeping alive the connections to the current manager services that have been logged onto, from the **File** menu, choose **Additional Login**.

Stopping Console Service

To stop the console service, from the **File** menu, choose **Ending the Console Service**.

Host Management Window

When the console service starts, the **Host Management** window is displayed.

Information	Description
Server Status Icon	 Normal  Alert notification exists  Inactive
Manager Status Icon	 Normal  Alert notification exists  Inactive
Site Status Icon	 Normal  Alert notification exists Inactive (no icon)
Domain Status Icon	 Normal  Alert notification exists Inactive (no icon)
Computer Name	Displays the computer name set in the operating system. For a Linux* server, the host name is displayed
Host Name	Displays the host name. For a non-host entity, the site name, domain name, or manager's computer name is displayed.
OS Name	Displays the host's operating system name.

Information	Description
Unconfirmed Alert	If there is an unconfirmed alert, Yes is displayed.
Power Control	For a Windows* or Linux* server that has a LAN adapter that is equipped with the power-on feature and whose power can be controlled, this column displays WOL.
Cluster Name	If the server belongs to a Microsoft Cluster Server* cluster, this column displays the cluster name.

Displaying a List of Hosts

This section describes how to manage the status of the servers that are displayed in the console service's **Host Management** window.

You can arrange the managed servers hierarchically in the **Host Management** window:

- **Site hierarchy**: Displays the hosts hierarchically by the site information that was set in the agent service's asset information.
- **Domain hierarchy**: Displays the hosts hierarchically by the Windows domain information.
- **Service configuration hierarchy**: Displays the hosts connected to the manager service by manager.

The following subsections describe how each status is displayed and the information that is displayed in the window.

Displaying by Site

To display servers by site, from the **View** menu, choose **Site View**. To display in this format, site information must have been set on the **Agent Service** page of the Environment Settings Utility. For details about setting site information, see "Setting the Windows* Server Agent Service" on page 44 or "Setting the Linux* Server Agent Service" on page 55.

Displaying by Domain

To display hosts by domain, from the **View** menu, choose **Domain View**. A server with no domain information is registered under SERVER (applicable to Linux servers).

Displaying by Service Organization

To display the hosts connected to the manager service by manager, from the **View** menu, choose **Service Configuration View**.

5 Asset Management

ServerConductor enables the user to view information required for asset management from the management console, such as the type of operating system used by hosts and the status of the DIMMs and processors. This information, which is required for asset management, is called inventory information.

This chapter describes the asset management procedures and the inventory information that can be managed.

Displaying Inventory Information

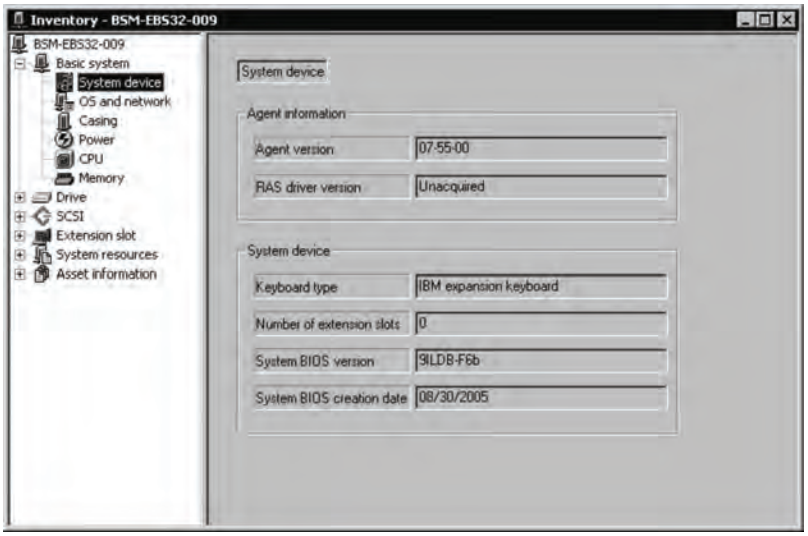
The management console can display the hardware status of hosts as well as host asset information. Such information constitutes inventory information. This section describes the inventory information that can be viewed from the management console.

Note: *The inventory information that can be acquired depends on the type and model of the managed server. For details about the inventory information that can be acquired, see Invent.xls, which is stored in the help folder at the console service installation target.*

Displaying a Host's Inventory Information

To display a host's inventory information:

1. In the **Host Management** window, select the host whose inventory information you wish to view.
2. From the **Host Management** menu, choose **Inventory**. The **Inventory** window appears. The left pane of the window displays the inventory information category tree. This is the inventory tree.



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3. From the inventory tree, choose the category of inventory information to display.

   The inventory information chosen from the inventory tree is displayed in the inventory area in the right pane. The inventory items that are displayed depend on the managed host. For details about the inventory items displayed for each type of host, see "Managable Inventory Information" on page 211.

Output of Inventory Information in CSV Format

You can output inventory information managed by ServerConductor to a file in CSV format. To output inventory information:

1. Select the hosts whose inventory information you wish to output. You can select multiple hosts. To output inventory information for all hosts, skip this step.
2. From the **File** menu, choose **Outputting Inventory to a CSV File**. The **Outputting Inventory to a CSV File** dialog box appears.

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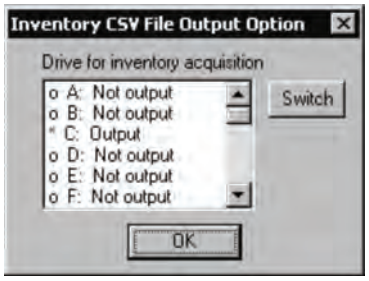
3. Select the hosts to which inventory information is to be output.
4. To change the output drive information, click **Option**. The **Inventory CSV File Output Option** dialog box appears.



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5. The default is for the information to be output for drive C. Therefore, if you wish to output information about drive C, you can skip this step. Select the drive whose information is to be output, and then click **OK**. The **CSV Output** dialog box appears.
6. Click **OK**.
7. When the **Save As** dialog box appears, specify a name for the file and save the file.

The inventory information has now been saved in a CSV file. The inventory information that is output depends on the type of managed system.

Table 22. Available Inventory Information

Windows* Server	Linux* Server
• Computer name • Host name • NT domain name • Operating system name • Processor name • Maximum speed of processor • Number of processors • Total memory size • Logical drive information items • Power control • Asset information items	• Computer name (host name) • Host name • Operating system name • Processor name • Maximum processor speed • Number of processors • Total memory size • Power control • Asset information items

Database Management of Inventory Information

The manager service collects inventory information about the managed hosts and retains it as database information (Microsoft Access* driver). This function enables the system administrator to perform the following management operations:

- Search the database for the hosts whose inventory information satisfies specified conditions (host search function)
- Search the database regularly on a scheduled basis for hosts whose inventory information satisfies specified conditions and send the search results as email (auto-report function)

These functions are applicable to the hosts of Windows* servers and Linux* servers that are being managed by the manager service.

For hosts managed by the manager service, these functions enable you to manage changes to or consistency in the asset information either on an as-needed basis or regularly on a scheduled basis. For example, you can search the hosts by group for management purposes, or you can search the hosts periodically to determine whether their operating system versions are up-to-date and then send email notifications.

The following figure shows the system configuration for database management.

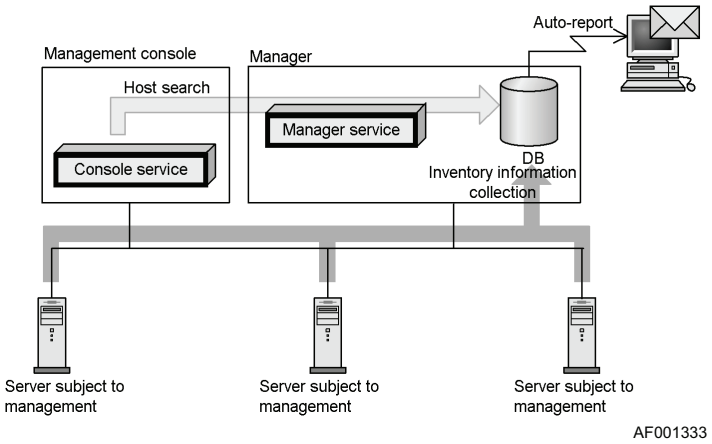


Figure 22. System Configuration for Database Management

Environment Settings (Database Management)

To perform database management, the following environment settings are required:

Settings for Windows (executed at the manager)

- Creation of ODBC data source

Settings for the ServerConductor console service (executed at the management console)

- Creation of the database
- Setting of email addresses to be used by the auto-report function (if necessary)
- Deletion of the database as necessary

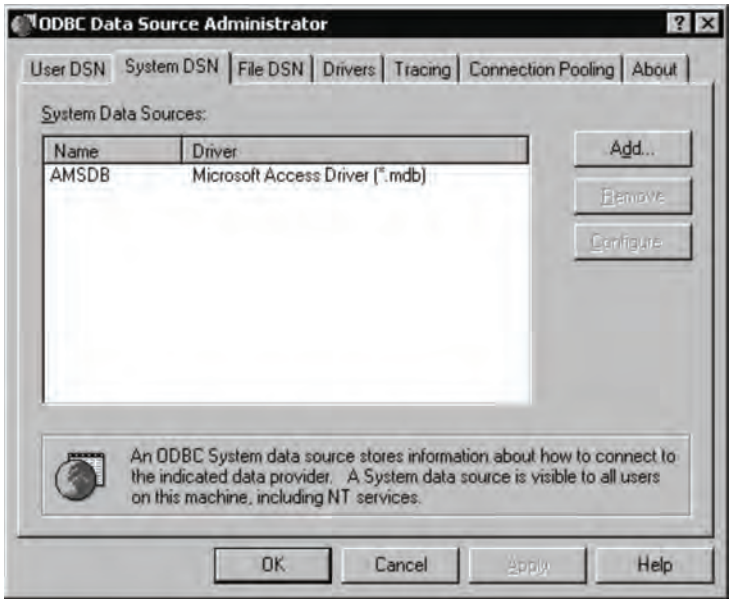
The following subsections describe these procedures.

Creating an ODBC Data Source

You must use the ODBC administrator on the Control Panel to create a system data source; this must be done in advance.

To create an ODBC data source in Windows Server 2003*:

1. From the Windows **Control Panel**, choose **Administrative Tools**, and then **Data Source (ODBC)**. The **ODBC Data Source Administrator** dialog box appears.
2. Choose the **System DSN** tab.



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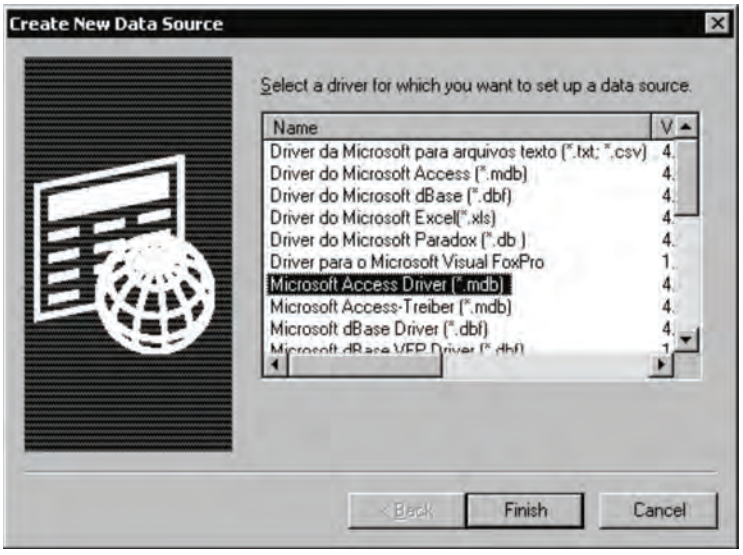
3. Click **Add**.The **Create New Data Source** dialog box appears.



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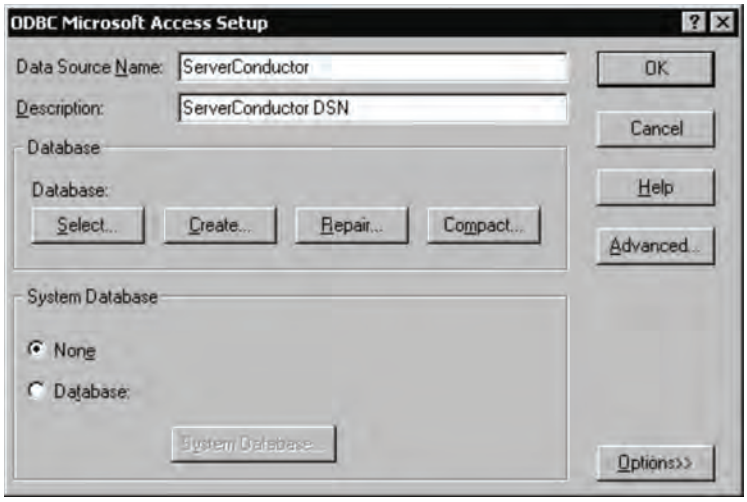
4. Select **Microsoft Access Driver (*.mdb)**, and then click **Finish**. The **ODBC Microsoft Access Setup** dialog box appears.



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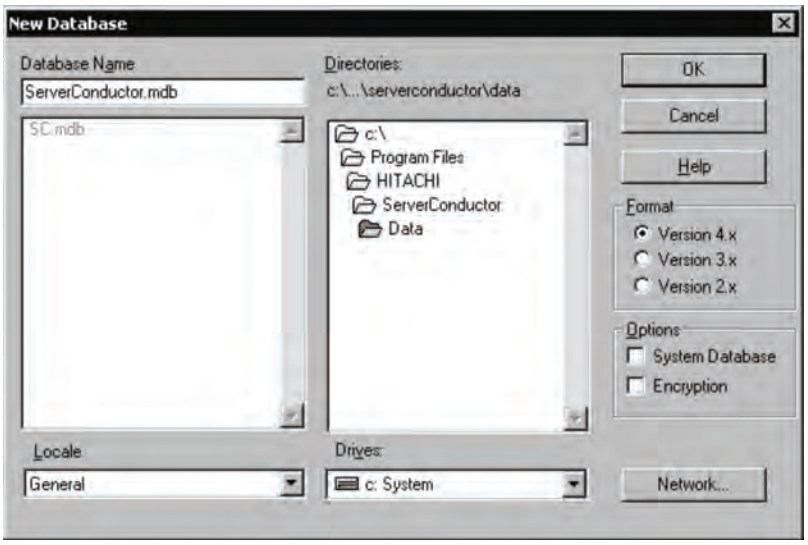
5. Enter a name and description for the data source, and then click the **Create** button.

   Example:

   - Data source name: ServerConductor
   - Description: ServerConductor DSN

The **New Database** dialog box appears:



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6. Enter a name for the database. The file can be stored at any location. Click **OK**.
7. When the **ODBC Microsoft Access Setup** dialog box appears again, click **OK**.

Creating a Database

To create a database:

1. In the **Host Management** window, from the **Setting** menu, choose **Manager Service Settings**. The **Manager Service Setup** dialog box appears.
2. Choose the **Report Function** tab.

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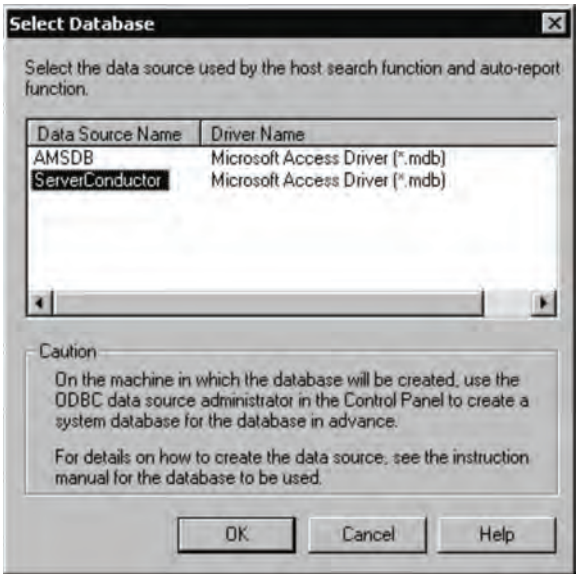
3. Select the **Using the host search function and auto-report function** check box. The **Select Database** dialog box appears.

This dialog box displays the names of only those data sources that are currently available These were created by the procedure in “Creating an ODBC Data Source” on page 80.



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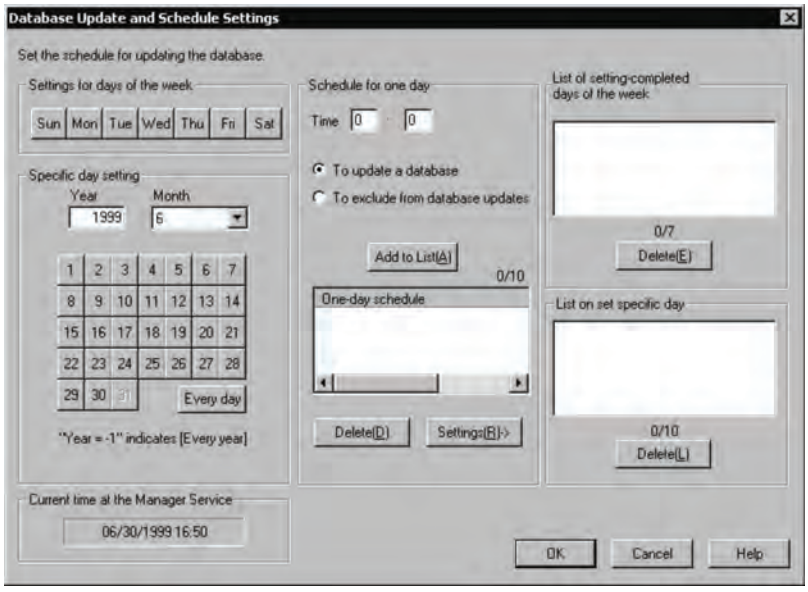
4. Select the name of the data source to be used. Click **OK**. The **Report Function** page is displayed.
5. Click **Settings** for the database update schedule. The **Database Update and Schedule Settings** dialog box appears.



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6. Select a day of the week or a date as the basis for setting a schedule.
   - For a daily schedule: Click **Every day** under **Specific day setting**.
   - For a weekly schedule: Select the desired day(s) of the week.
   - For a monthly schedule: Select **Every month** in the **Month** drop-down under **Specific day setting**.
   - For an annual schedule: Enter -1 in **Year** under **Specific day setting**.
7. Set schedule information.

Set the following information:

Item	Setting
Time	Set the time of day at which the database update schedule is to be executed. You can specify the time in increments of 30 minutes.
To update a database	Select this option to update the database at the specified time.
To exclude from database updates	Select this option to not update the database at the specified time.

Rules

- When **To update a database** is selected, the **Specific day setting** take effect. When **To update a database** is selected in conjunction with both **Specific day setting** and **Settings for days of the week**, the **Settings for days of the week** are ignored, regardless of the specified time.

  Example: If **Specific day setting** is 08/11/1999 9:00 (with **To update a database** selected) and **Settings for days of the week** is Wed 12:00 (with **To update a database** selected), then database updating on Wednesdays at 12:00 is ignored.
- When **To exclude from database updates** is selected, there is no precedence between the **Specific day setting** and the **Settings for days of the week**. If **To update a database** is selected in conjunction with **Specific day setting**, and if **To exclude from database updates** is selected in conjunction with **Settings for days of the week**, and the update time and exclusion time are the same, then the exclusion settings take precedence.

  Example: If **Specific day setting** is 08/11/1999 9:00 (with **To update a database** selected) and **Settings for days of the week** is Wed 9:00 (with **To exclude from database** updates selected), then exclusion is assumed.
- Make sure that the database update schedule time are before the report schedule time described in "Setting a Report Schedule (Auto-report Function)" on page 99. By setting the report schedule to be subsequent to database updating, the most recent information will always be reported. In such a case, you should provide an interval of at least one hour.

— When you select **To update a database**, allow at least one day before the update time.

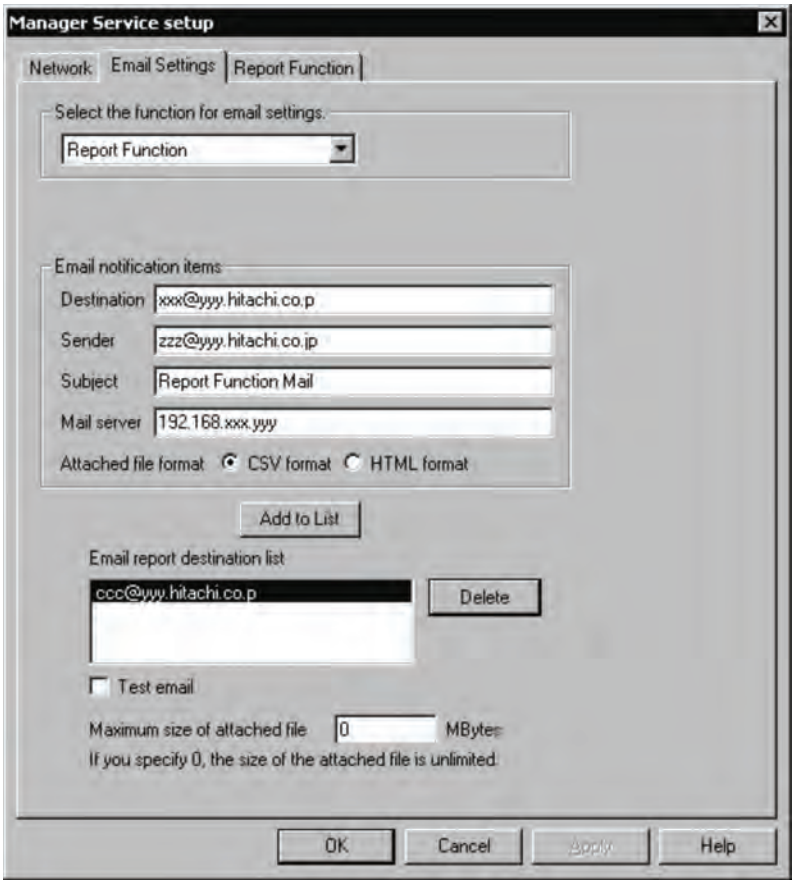
— If fewer than 30 minutes will elapse between scheduled update times as a result of setting **Every month** in **Month** or of clicking **Every day**, the **Every day** setting will be ignored.

8. Click **Add to List**. The set daily schedule is added to the **One-day schedule** list. If there is an error in the added schedule, select that schedule and click **Delete**.
9. Click **Settings (R) ->**. The specified settings are added to **List of setting-completed days of the week** or **List on set specific day**. To set multiple update schedules, repeat this procedure. You can set a maximum of 10 daily update schedules, in any combination of up to seven days of the week and up to 10 specific dates.
10. Click **OK**. The update schedule is registered and the **Report Function** page is displayed again.
11. On the **Report Function** page, click **OK**. Database creation begins.

Setting Email Addresses (Auto-report Function)

To set the email addresses that are to be used for reporting by the auto-report function:

1. In the **Host Management** window, from the **Setting** menu, choose **Manager Service Settings**. The **Manager Service Setup** dialog box appears.
2. Choose the **Email Settings** tab.
3. From the **Select the function for email settings** list, select **Report Function**. Setting items are displayed on the **Email Settings** page.



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In this dialog box, you can set the following information:

Item	Setting
Destination	Set an email address to which inventory information is to be sent.
Sender	Set the sender's email address.
Subject	Set a subject line for the email as a character string.
Mail server	Set the host name or IP address of the sender's mail server.
Attached file format	Set the format of the file attachment that is to be sent by the auto-report function. You can select CSV format or HTML format. The default is CSV format.

Item	Setting
Test email	Select if a test email is to be sent to all email addresses displayed in the Email report destination list. Test Mail is set as the subject line and as the message of the test email, and no file is attached.
Maximum size of attached file	Specify a maximum size for an attached file in megabytes. You cannot specify a value in excess of 32 megabytes; however, if you specify 0, this size limitation is eliminated and files larger than 32 megabytes can be sent as attachments. The default is 0.

4. Click **Add to List**. The destination specified in Email report destination list is added. You can set a maximum of four email destinations. To delete a destination that has been set, select it and click **Delete**.
5. Click **OK**. For details about the email message to be sent and the format of attached files, see "Setting a Report Schedule (Auto-report Function)" on page 99.

Deleting a Database

1. If you wish to re-create a database, you must first delete it. To delete a database.
2. From **Setting**, choose **Manager Service Settings**.
3. Choose the **Report Function** tab.
4. Clear the **Using the host search** function and auto-report function check box.
5. Click **OK**. A message is displayed asking you to confirm deletion of the database. To delete the database, click **Yes**.

When a database is deleted, the host search and auto-report functions are no longer available. To use these functions, see "Creating a Database" on page 83 and then re-create the database.

Operation

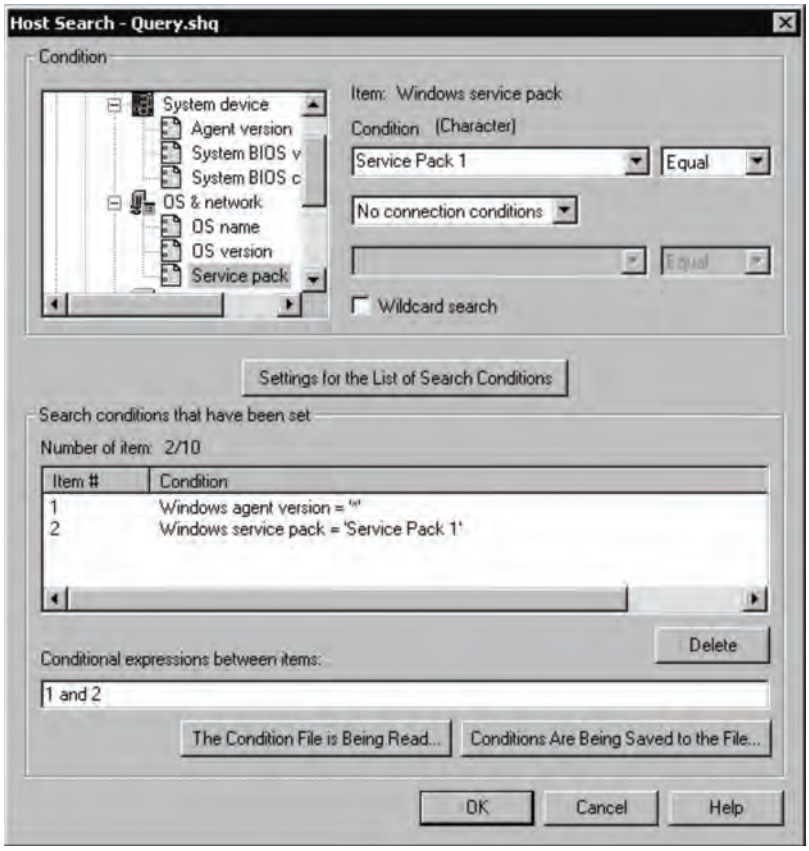
After a database has been created, the system administrator can use the console service to perform the following management operations:

- Search the database for the hosts that satisfy specified conditions (host search function).
- Report regularly on a scheduled basis by means of email the hosts that satisfy specified conditions (auto-report function).

Searching the Database for Hosts (Host Search Function)

To use the host search function:

1. From the **Host Management** menu, choose **Host Search**. The **Host Search** dialog box appears.



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2. From the condition tree view, select a search item.

   The search items are classified into Windows* items and Linux* items. When Windows items or Linux items is selected, the types of inventory items applicable to the selected server type are displayed in tree format.

   A search condition for the selected inventory item is displayed in the fields to the right of the tree view.

3. Specify an appropriate search condition.

   For a search condition, you can specify a maximum of 255 single-byte characters. For details about the search condition that is displayed, see "Searching the Database for Hosts (Host Search Function)" on page 89.

Note:

If you select the Wildcard search check box, you can use the following wildcard characters:

- *?: Any single character*
- **: Any character string*

When you use a wildcard search, you can specify only one search condition and the conditional operator will always be set to Equal. For example, if the Wildcard search check box were selected in the above window, the search condition would be the first search condition, which is 02-04-00 and Equal, and the other search condition (02-10-00 and Equal) would be disabled.

When only the asterisk (*) is specified as a condition, all host information is displayed.

4. Click **Settings for the List of Search Conditions**.

   The specified condition is displayed in the Search conditions that have been set list. You can specify a maximum of 10 search conditions. To delete an unneeded search condition, select it and click **Delete**.

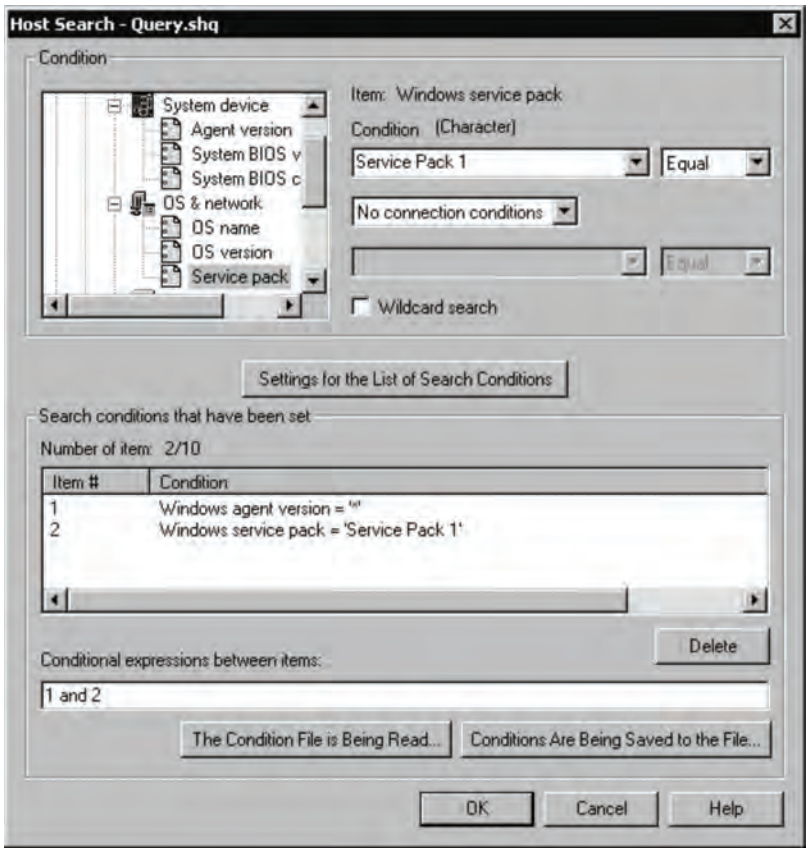
   When multiple search conditions are specified, specify a conditional expression for the items in Conditional expressions between items. The conditional expressions available to be set between items are and, or, and parentheses. For example, to specify a condition that matches item 1 and any of items 2 to 4, specify as follows:

   1 and (2 or 3 or 4)

   - ✧ Parentheses can be used to create a maximum of 10 nesting levels.
   - ✧ A maximum of 20 ands and ors can be specified.
   - ✧ A mixed a search of Windows* and Linux* items cannot be used.

5. Click **OK**.

The database search begins, and the hosts satisfying the specified conditions are displayed in the **Host Result** window.



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You can narrow the search results by executing another host search while the **Host Result** window is selected. The following options are available on the **Host Result** window:

- Changing the display format of the host search results
- Output of the host search results to a CSV file
- Grouping and registering the host search results

The following subsections describe these options.

Changing the Display Format of Host Search Results

While the **Host Result** window is selected, from the **View** menu, choose **Display Format**, and then **Display Details** or **Overview**.

The two display formats are as follows:

- Detail display format: Each line displays a single search result item. If the search results for one host consist of multiple items, multiple lines are used to display the items.
- Overview display format: Each line displays all the search result items for one host. A Windows drive name and Windows total drive capacity are also displayed in a single line. The Windows total drive capacities are displayed in the order of the Windows drive names.

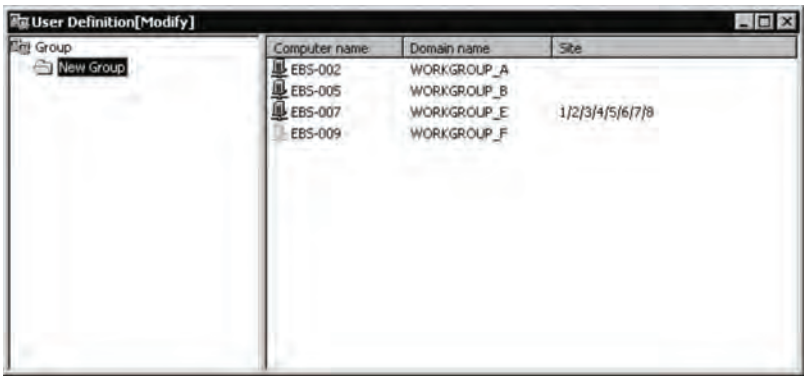
Output of the Host Search Results to a CSV File

While the **Host Result** window is selected, from the **File** menu, choose **Output the host search result to CSV file**. When the **Save As** dialog box appears, enter a name for the file and save the file.

Grouping the Host Search Results

To group the host search results:

1. While the **Host Result** window is selected, from the **Group** menu, choose **User Definition**. The **User Definition** window appears.



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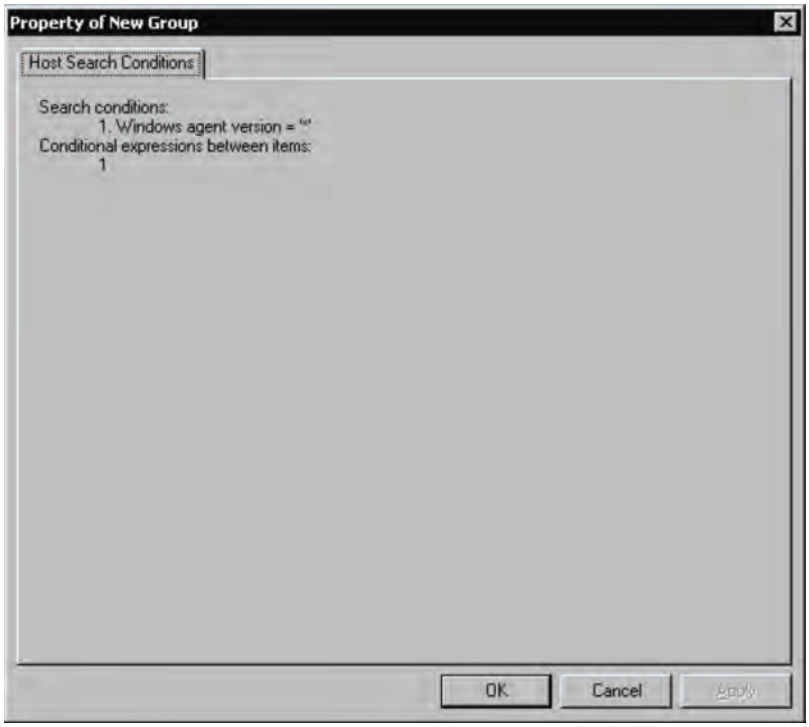
2. From the **Edit** menu, choose **Create New Group**. A new group is created in the group tree.
3. To register a host into a group, either drag it from the **Host Result** window and drop it in the **User Definition** window, or copy and paste it.

   By creating multiple groups and structuring them hierarchically, you can classify the groups for a desired purpose on the basis of the search results. You can also set a name for a group, so the group name can reflect the purpose of the grouping. You can set a maximum of eight hierarchical levels for groups.

4. After the group has been created, from the **File** menu, choose **Save**. The group information you have defined is saved.

To view the search conditions for a created group, right-click on that group, and then from the displayed menu choose **Properties**. The **Properties** dialog box for that group is displayed:



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Search Conditions for Host Search

The tables below list for each search item the search conditions that can be selected from the **Host Search** dialog box when the database is searched for hosts:

Table 23. Search Condition Selections for Windows Items

Category 1	Category 2	Search Item	Format	Operators
Basic system	System device	Agent version	Character	Equal, Other than, Above, Below, <, >
		System BIOS version	Character	Equal, Other than
		System BIOS creation date	Character	Equal, Other than, Above, Below, <, >
	OS & network	OS name	Character	Equal, Other than
		OS version	Character	Equal, Other than, Above, Below, <, >
		Service pack	Character	Equal, Other than, Above, Below, <, >
	CPU	Processor name	Character	Equal, Other than
		Maximum speed	Numeric (MHz)	Equal, Other than, Above, Below, <, >
		Number of processors	Numeric	Equal, Other than, Above, Below, <, >
		Slot number	Numeric	Equal, Other than, Above, Below, <, >
		Attachment status	Character	Equal, Other than
		System cache size	Numeric (KB)	Equal, Other than, Above, Below, <, >
	Memory	Total memory size	Numeric (MB)	Equal, Other than, Above, Below, <, >
		Maximum size of paging file	Numeric (KB)	Equal, Other than, Above, Below, <, >
Drive	--	Drive name	Character	Equal, Other than, Above, Below, <, >
		Drive assortment	Character	Equal, Other than
		Total drive capacity	Numeric (KB)	Equal, Other than, Above, Below, <, >
		Free drive space	Numeric (KB)	Equal, Other than, Above, Below, <, >

Table 23. Search Condition Selections for Windows Items

Category 1	Category 2	Search Item	Format	Operators
Extension slot	PCI	Slot number	Numeric	Equal, Other than, Above, Below, <, >
		Board installation status	Character	Equal, Other than
		Board name	Character	Equal, Other than
		Vendor name	Character	Equal, Other than
Asset information	Device information	Product name	Character	Equal, Other than
		Serial number	Character	Equal, Other than, Above, Below, <, >
	Asset information	Asset name	Character	Equal, Other than, Above, Below, <, >
		Asset number	Character	Equal, Other than, Above, Below, <, >
		Device configuration	Character	Equal, Other than, Above, Below, <, >
		Purchase date	Character	Equal, Other than, Above, Below, <, >
		Depreciation period	Character	Equal, Other than, Above, Below, <, >
		Managing section name	Character	Equal, Other than, Above, Below, <, >
		Managing section number	Character	Equal, Other than, Above, Below, <, >
		Administrator's name	Character	Equal, Other than, Above, Below, <, >
		Administrator's number	Character	Equal, Other than, Above, Below, <, >
		Administrator's details	Character	Equal, Other than, Above, Below, <, >

Table 23. Search Condition Selections for Windows Items

Category 1	Category 2	Search Item	Format	Operators
Asset information (continued)	Administrator information	Operation administrator's name	Character	Equal, Other than, Above, Below, <, >
		Operation administrator's number	Character	Equal, Other than, Above, Below, <, >
		Operation administrator's details	Character	Equal, Other than, Above, Below, <, >
		Contact point phone number	Character	Equal, Other than, Above, Below, <, >
		Contact point email address	Character	Equal, Other than, Above, Below, <, >
	Installation site/ other	Site information	Character	Equal, Other than, Above, Below, <, >
		Installation site details	Character	Equal, Other than, Above, Below, <, >
		Note	Character	Equal, Other than, Above, Below, <, >

Table 24. Search Condition Selections for Linux Items

Category 1	Category 2	Search Item	Format	Operators
Basic system	System device	Agent version	Character	Equal, Other than, Above, Below, <, >
		System BIOS version	Character	Equal, Other than
		System BIOS creation date	Character	Equal, Other than, Above, Below, <, >
	OS & network	OS name	Character	Equal, Other than
		OS version	Character	Equal, Other than, Above, Below, <, >
Basic system (continued)	CPU	Processor name	Character	Equal, Other than
		Maximum speed	Numeric (MHz)	Equal, Other than, Above, Below, <, >
		Number of processors	Numeric	Equal, Other than, Above, Below, <, >
		Slot number	Numeric	Equal, Other than, Above, Below, <, >
		Attachment status	Character	Equal, Other than
		System cache size	Numeric (KB)	Equal, Other than, Above, Below, <, >
	Memory	Total memory size	Numeric (MB)	Equal, Other than, Above, Below, <, >
		Maximum size of paging file	Numeric (KB)	Equal, Other than, Above, Below, <, >
File system	--	File system number	Numeric	Equal, Other than, Above, Below, <, >
		Mount point	Character	Equal, Other than
		Total capacity	Numeric (KB)	Equal, Other than, Above, Below, <, >
		Free space	Numeric (KB)	Equal, Other than, Above, Below, <, >
Extension slot	PCI	Slot number	Numeric	Equal, Other than, Above, Below, <, >
		Board installation status	Character	Equal, Other than
		Board name	Character	Equal, Other than
		Vendor name	Character	Equal, Other than

Table 24. Search Condition Selections for Linux Items

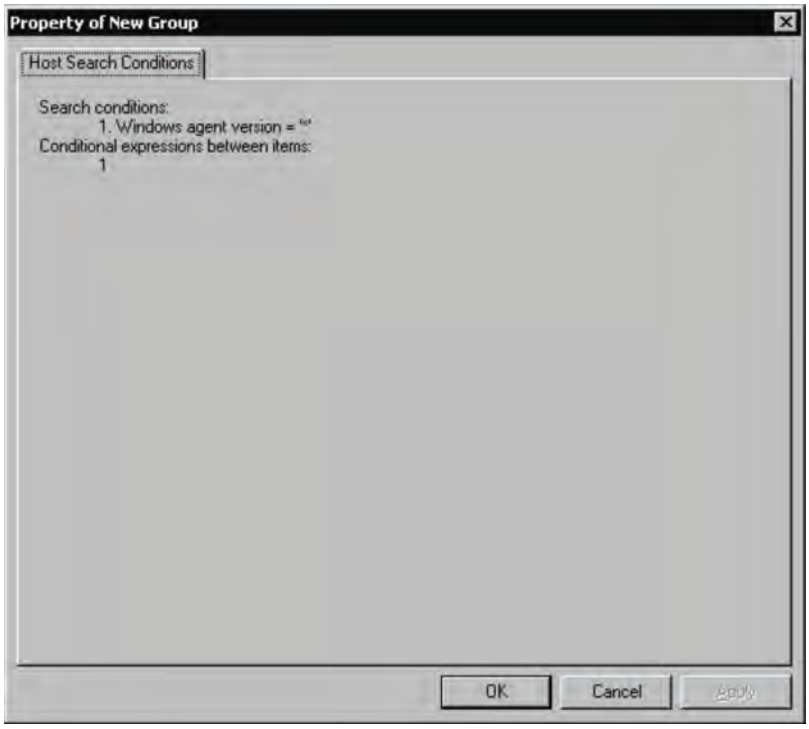
Category 1	Category 2	Search Item	Format	Operators
Asset information	Device information	Product name	Character	Equal, Other than
		Serial number	Character	Equal, Other than, Above, Below, <, >
	Assets information	Asset name	Character	Equal, Other than, Above, Below, <, >
		Asset number	Character	Equal, Other than, Above, Below, <, >
		Device configuration	Character	Equal, Other than, Above, Below, <, >
		Purchase date	Character	Equal, Other than, Above, Below, <, >
		Depreciation period	Character	Equal, Other than, Above, Below, <, >
		Managing section name	Character	Equal, Other than, Above, Below, <, >
		Managing section number	Character	Equal, Other than, Above, Below, <, >
		Administrator's name	Character	Equal, Other than, Above, Below, <, >
		Administrator's number	Character	Equal, Other than, Above, Below, <, >
		Administrator's details	Character	Equal, Other than, Above, Below, <, >
	Administrator information	Operation administrator's name	Character	Equal, Other than, Above, Below, <, >
		Operation administrator's number	Character	Equal, Other than, Above, Below, <, >
		Operation administrator's details	Character	Equal, Other than, Above, Below, <, >
		Contact point phone number	Character	Equal, Other than, Above, Below, <, >
		Contact point email address	Character	Equal, Other than, Above, Below, <, >
	Installation site/ other	Site information	Character	Equal, Other than, Above, Below, <, >
		Installation site details	Character	Equal, Other than, Above, Below, <, >
		Note	Character	Equal, Other than, Above, Below, <, >

Setting a Report Schedule (Auto-report Function)

The auto-report function enables you to send inventory information managed by the manager service to the system administrator by email at a specified time.

To use the auto-report function:

1. From the **Host Management** menu, choose **Report Schedule**. The **Report Schedule Setting** dialog box appears.



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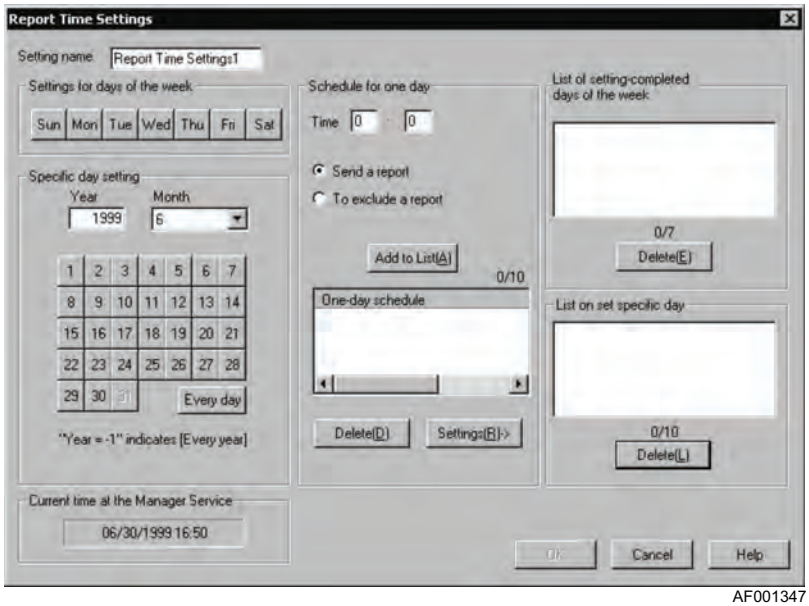
2. Select the **Auto-Report Notification** check box. The auto-report function is enabled, allowing you to set a reporting time, conditions, and method.
3. In **Report time**, click **Add to List**. The **Report Time Settings** dialog box appears.



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4. Set a report time. Click **OK**.

   — For **Setting name**, enter a name for the schedule that is to be set. The default is **Report time settingsn** (n: sequential number of this set of report time settings).

   — For the other items, set the day of the week or date and the time for sending the report in the same manner as in "Creating a Database" on page 83.

Rules

- When **Send a report** is selected, the **Specific day setting** takes effect. When **Send a report** is selected in conjunction with both **Specific day setting** and **Settings for days of the week**, the **Settings for days of the week is ignored**, regardless of the specified time.

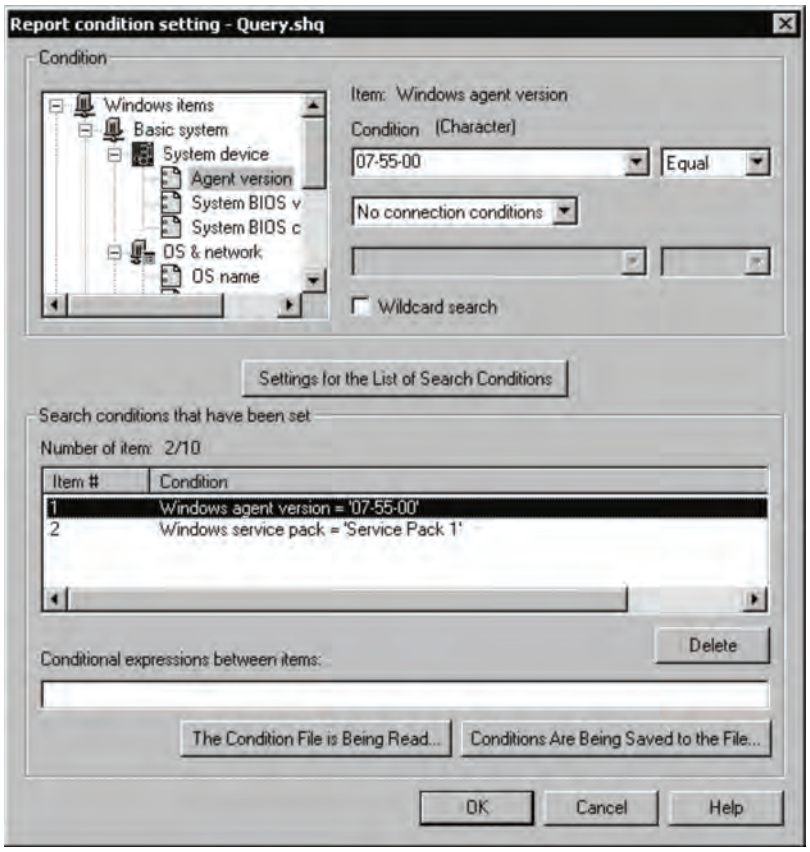
  Example: If **Specific day setting** is 08/11/1999 9:00 (with **Send a report** selected) and **Settings for days of the week** is Wed 12:00 (with **Send a report** selected), then reporting on Wednesdays at 12:00 is ignored.

- When **To exclude a report** is selected, there is no precedence between the **Specific day setting** and the **Settings for days of the week**. If **Send a report** is selected in conjunction with **Specific day setting** and **To exclude a report** is selected in conjunction with the **Settings for days of the week**, and the report time and exclusion time are the same, the exclusion settings take precedence.

  Example: If **Specific day setting** is 08/11/1999 9:00 (with **Send a report** selected) and **Settings for days of the week** is Wed 9:00 (with **To exclude a report** selected), then exclusion is assumed.

- Make sure that the report schedule time will be subsequent to the database update schedule time described in "Creating a Database" on page 83. By setting the report schedule to be after database updating, the most recent information will always be reported. In such a case, you should provide an interval of at least one hour.
- If fewer than 30 minutes will elapse between scheduled report times when **Send a report** is selected, the latter setting will result in an error.
- If fewer than 30 minutes will elapse between scheduled report times as a result of setting **Every month in Month** or of clicking **Every day**, the **Every day** setting will be ignored.

5. In the **Report Schedule Setting** dialog box, click **Add to List(A)**. The **Report condition setting** dialog box appears.



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Set report conditions in the same manner as in "Searching the Database for Hosts (Host Search Function)" on page 89, and then click **OK**.

6. In the **Report Schedule Setting** dialog box, select a report time, set of conditions, and method to be used.
   - If you have set multiple report times or report conditions, the report will be sent in accordance with the report time and set of conditions you select here.
   - If you select **To exclude a report** for the report time, no reports will be sent.
7. In the **Report Schedule Setting** dialog box, click **OK**.

   Reports are sent in the following format:

   - Email message text. The following shows the email message text.

```
A host report created on YYYY-MM-DD at hh:mm is being sent.
Report conditions:
      1. Windows maximum CPU speed (MHz) = *
      2. Windows OS name = 'Windows Server (TM) 2003'
Conditional expression between items:
      1 and 2

System Manager
```

AF001396

   - File attachment: The file selected on the **Email Settings** page of the **Manager Service** dialog box will be attached. The following describes file attachments in CSV format and in HTML format:
     - CSV format: A CSV file with the following contents is attached; the name of the file is YYYYMMDDhhmmInv.csv:

<System Manager Host Report YYYY-MM-DD at hh:mm>

Report conditions:
1. Windows maximum CPU speed (MHz) = *
2. Windows OS name = 'Windows Server (TM) 2003'
Conditional expression between items:
1 and 2

Computer name	Database last update time	Windows maximum CPU speed (MHz)	Windows OS name
HA8K_1	2001-06-04 16:30:00	733	Windows Server (TM) 2003
HA8K_2	2001-06-04 16:30:00	400	Windows Server (TM) 2003

No more information is included because the file size exceeds the specified value.

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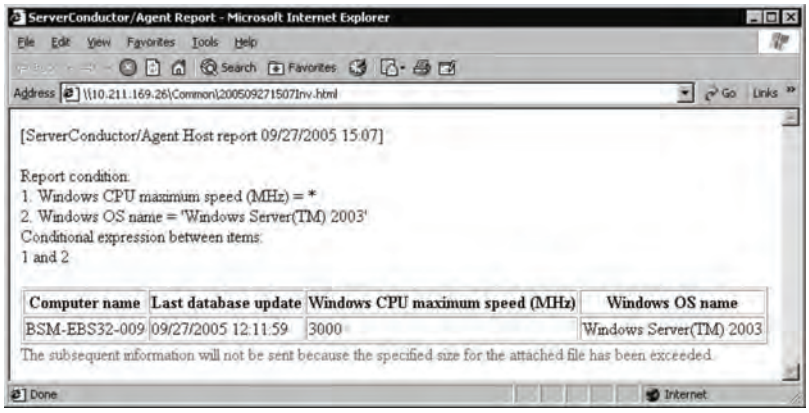
✧ HTML format: An HTML file with the following contents is attached. The name of the file is YYYYMMDDhhmmInv.html.



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Note: *If the size of the CSV or HTML file exceeds the specified maximum size for an attached file, as described in "Setting Email Addresses (Auto-report Function)" on page 86. The following message is added to the file: "The subsequent information will not be sent because the specified size for the attached file has been exceeded." Only as much information as fits in the specified size is included in the file attachment.*

Synchronizing a Database

To maintain consistency between hosts' inventory information and the manager service's database information, you must use one of the methods described below to synchronize the database.

- Manual synchronization: From the **Host Management** menu, choose **Update the Database to the Latest Status** to update all hosts' database information managed by the manager service.
- Scheduled synchronization: In the **Manager Service Setup** dialog box, choose the **Report Function** tab and then click **Settings for the database update schedule** to display the **Database Update and Schedule Settings** dialog box. This dialog box enables you to set a time at which the database will be synchronized automatically. For details, see "Creating a Database" on page 83.

Checking the Hardware Configuration

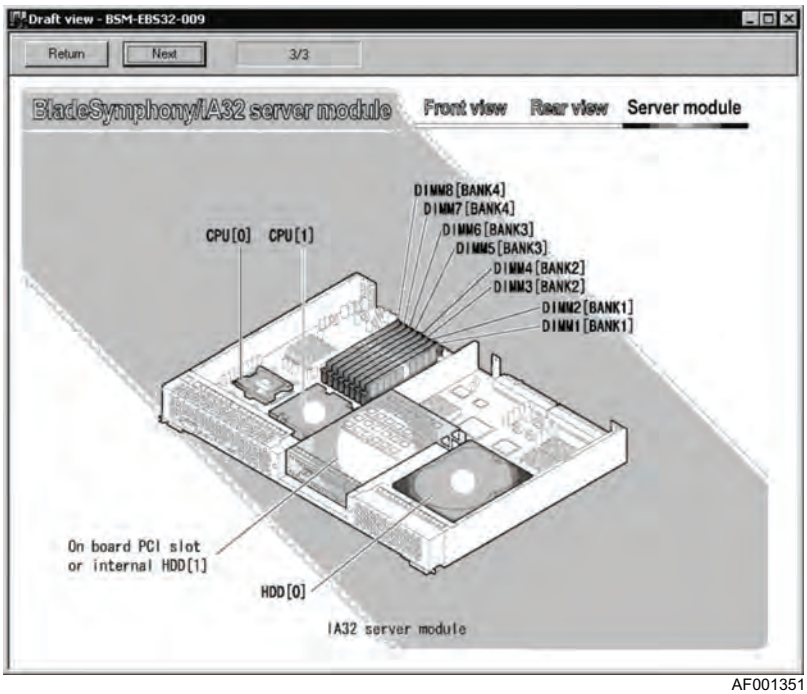
ServerConductor can use the console service to display hardware configuration diagrams for any managed host. You can use such a hardware configuration diagram to check for such things as the locations of a host's processor and power supply unit.

Notes:

- *The agent service installed on the managed host must support the hardware configuration diagram display function.*
- *The managed host must support the hardware configuration diagram display function.*

To display a hardware configuration diagram:

1. In the **Host Management** window, select the host whose hardware configuration diagram you wish to display.
2. From the **Host Management** menu, choose **Draft View**. The **Draft view** window appears:



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The dialog bar provides the following controls:

Control Name	Function
Return button	If there are multiple hardware configuration diagrams for the host, clicking this button displays the previous diagram. While the first diagram is being displayed, clicking this button displays the last diagram.
Next button	If there are multiple hardware configuration diagrams for the host, clicking this button displays the next diagram. While the last diagram is being displayed, clicking this button displays the first diagram.
Diagram-number text box	Displays the sequential number of the diagram that is being displayed currently in the window, in the following format: current-diagram-number#/total-number-of-diagrams.

6 Failure Management

When a failure occurs on a host, the details of the failure are sent as an alert to the manager service. Alerts can be viewed from the console service, sent to the system administrator by email or pager, and sent to the SNMP manager. This chapter describes these failure management functions.

ServerConductor can detect failures (alerts) that occur on managed hosts and employ various methods for reporting them to system administrators. This section describes the reporting methods available to the console service.

Note: *The 0x3801 Alert ID is not sent to the alert action service. This alert occurs when the console service or manager service is not connected (%s-%s).*

Failure Management Using the Console Service

The following figure provides an overview of using the console service for failure management.

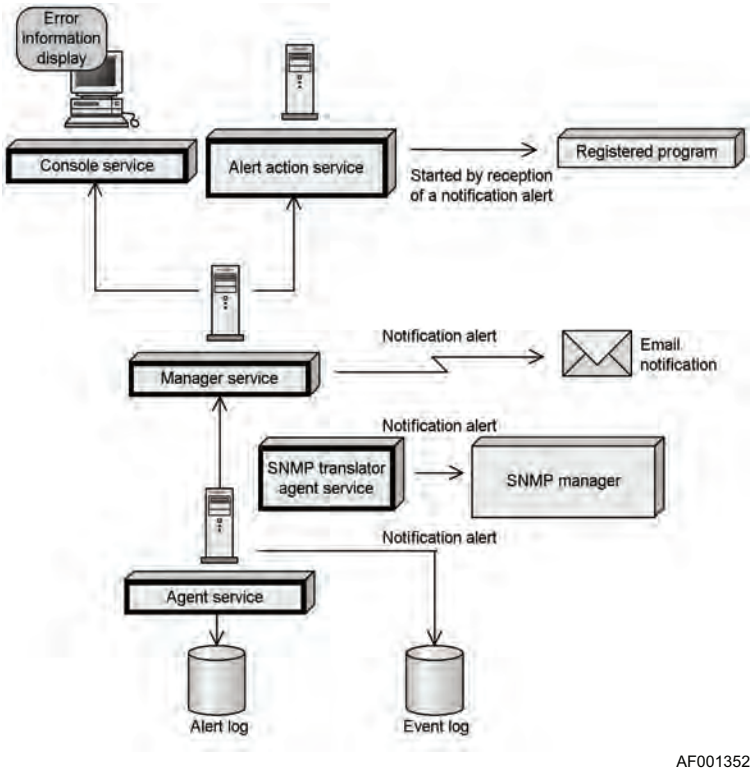


Figure 23. Failure Management (Console Service)

The console service enables you to perform the following failure management actions:

- Display error information: You can display the alert information reported to the console service. You can also display the alert log information that has been recorded at managed hosts.
- Send alerts by email: The console service can report alerts to the system administrator by email.
- Start programs automatically when alerts are received: You can have registered programs start automatically when alerts are received. You can also send alert information to registered programs.
- Report alerts to other programs: You can convert alerts to SNMP traps and then send them to the SNMP manager.
- Record alerts in the event log: For a Windows* server, you can record alerts in the system's event log. For a Linux* server, you can record alerts in the syslog file.
- Set actions at the server in the event of an alert: You can use alerts to trigger automatic system actions at a managed server (such as turning the power off and rebooting).
- Filter alerts for notification: You can filter the alerts to be subject to notification (suppress notification) by alert or by alert level. This enables you to instruct that only important alerts will be reported to the system administrator.

Displaying Error Information

ServerConductor enables you to view the following error information:

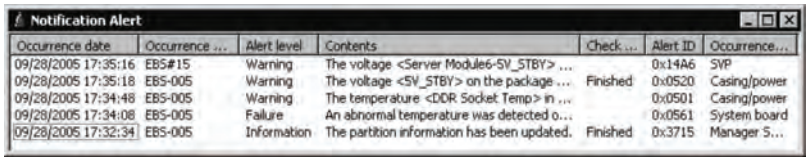
- Notification alerts
- Alert log

Note: *The error information that can be detected depends on the managed system. For details about the detectable error information, see Invent.xls in the help folder at the console service installation target.*

Displaying Notification Alerts

To display notification alerts received from managed hosts:

1. From the **Alert Management** menu, choose **Notification Alerts View.** The **Notification Alert** window appears.



AF001353

The **Notification Alert** window displays the following information:

Item	Description
Occurrence Date	Date and time the alert occurred
Issued server	Name of the host where the alert occurred
Alert Level	Level of the alert
Contents	Details of the alert
Check status	Whether or not examination and checking have been conducted on the alert. For details about checking alerts, see Checking Notification Alerts, below.
Alert ID	Alert ID
Occurrence Location	Location where the alert occurred (such as agent)

Checking Notification Alerts

Sometimes it may be difficult to distinguish alerts that have been handled from alerts that have not been handled, or to identify the types of alerts that require actions. To distinguish between confirmed alerts and unconfirmed alerts:

1. In the **Notification Alert** window, select the alerts that you with to have shown as confirmed. You can select multiple alerts.
2. From the **Check** menu, choose **Check**. The confirmation status of each selected alert changes to **Finished**.

   If you have confirmed all notification alerts (or if you wish to set all notification alerts to confirmed status), you can choose **Check all** from the **Check** menu. To delete a selected alert, choose **Delete** from the **Check** menu. You can delete an alert only if its confirmation status is **Finished**.

Setting the Alerts to be Notified

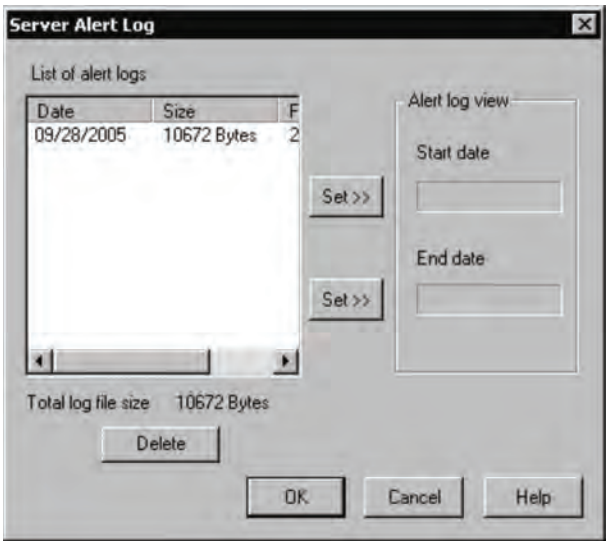
If all alerts that occur at all servers are sent to the management console, the handling of serious alerts may be delayed. The console service enables you to set an action to be taken automatically at the source server in the event of an alert. You can also filter notification alerts so that only specified alerts are reported. For details about specifying these settings, see "Setting an Action at a Server in the Event of an Alert" on page 123 or "Filtering Alert Notifications" on page 124.

Displaying Alert Logs

Server Alert Log Dialog Box

To display an alert log:

1. From the **Host Management** window, select the server whose alert log is to be displayed. Only one server can be selected.
2. From the **Host Management** menu, choose **Alert Log**. The **Server Alert Log** dialog box appears.

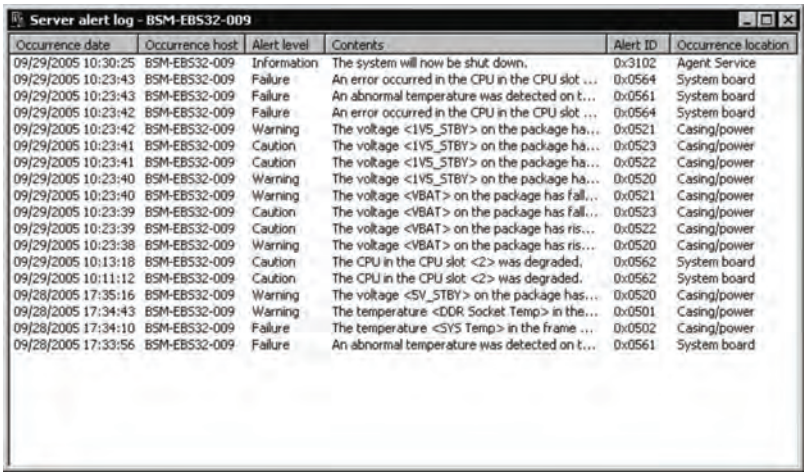


AF001354

To select the alert log information to be displayed in this dialog box:

1. From the **List of alert logs**, select the start date of the alert log information to be displayed, and then click **Set >>**. The selected date is displayed under **Start date**.
2. From the **List of alert logs**, select the end date of the alert log information to be displayed and then click **Set >>**. The selected date is displayed under **End date**.
3. Click **OK**. The specified range of alert log information is displayed in the **Server Alert Log** window.

Server Alert Log Window



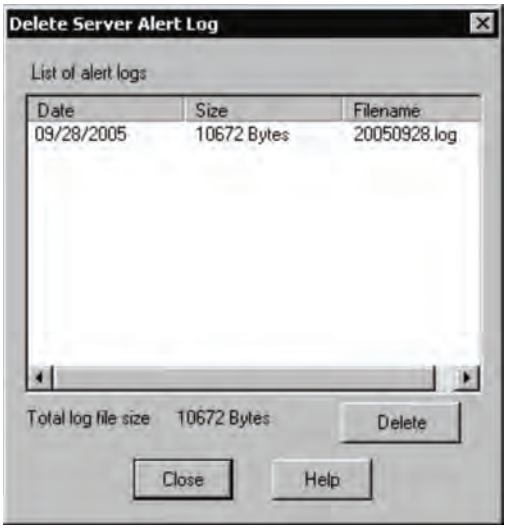
AF001355

The **Server Alert Log** window displays the following information for each displayed alert.

Item	Description
Occurrence date	Date and time the alert occurred
Occurrence host	Host where the alert occurred
Alert level	Level of the alert
Contents	Details of the alert
Alert ID	Alert ID
Occurrence location	Location where the alert occurred (such as agent)

To display alert log information for a different range of dates, from the **Log Management** menu, choose **Change Log Display Range**. The **Server Alert Log** dialog box is displayed.

To delete a server alert log, from the **Log Management** menu, choose **Delete**. The **Delete Server Alert Log** dialog box appears. Click the alert log to be deleted, and then click **Delete**. When you are done deleting server alert logs, click **Close**.



Sending Alerts by Email

The email linkage function makes it possible for an alert email to be sent to the system administrator's email address or for a message to be sent to the system administrator's pocket beeper.

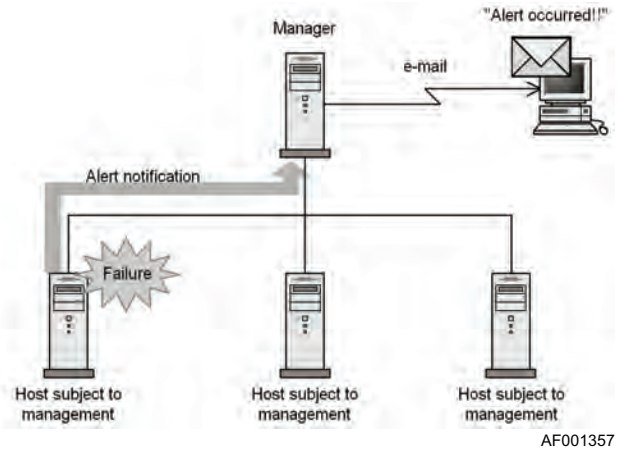
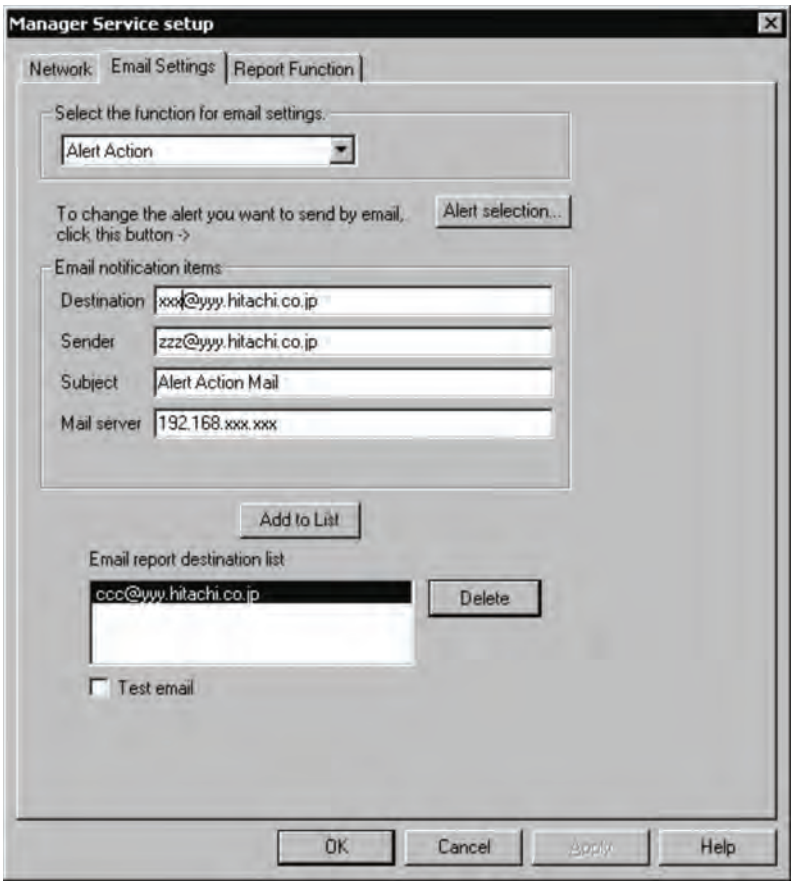


Figure 24. Alert Notification Using Email Linkage

Email Alert Notification

Settings for Email as the Alert Action

To use email for sending alert notifications, from the **Setting** menu, choose **Manager Service Settings** to display the **Manager Service Settings** dialog box. In this dialog box, choose the **Email Settings** tab, and then from the **Select the function for email settings** drop-down list, select **Alert action**.



AF001358

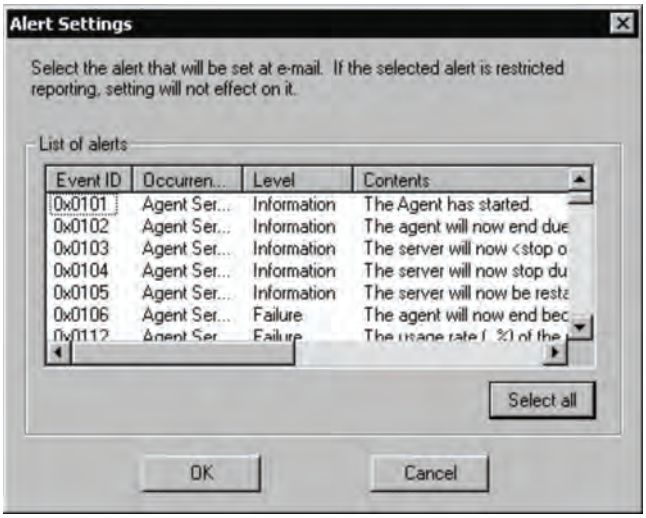
In this dialog box, set the following information.

Item	Setting
Destination	Set the email address to which alerts are to be sent.
Sender	Set the sender's email address.
Subject	Set the subject line for the email messages (as a character string).
Mail server	Set the host name of the sender's mail server.
Test email	Select if a test email is to be sent to all email addresses displayed in the Email report destination list. Test Mail is set as the subject line and as the message of the test email, and no file is attached.

When you have set all items, choose **Add to List**. The email address you have set is added to the Email report destination list. You can set a maximum of four email addresses. To delete an email address from the Email report destination list, select the email address, and then click **Delete**.

Selecting an Alert to be Notified by Email

To select an alert to be notified by email, click **Alert selection**. The **Alert Settings** dialog box appears.



AF001359

Select an alert that is to be notified by email. To select all alerts for notification, click **Select All**. After selecting alerts, click **OK** to display the **Email Settings** page.

Information that is Sent by Email

Item to be Sent	Description
Destination	Email address set for the destination in Email notification items
Sender	Sender's email address set for the sender in Email notification items
Subject	Subject line of the email set in Email notification items
Occurrence date	Date and time the alert occurred
Issued server	Host name of the server where the alert occurred
Alert Level	Level of the alert that occurred
Alert ID	ID of the alert that occurred
Contents	Description of the alert that occurred
Occurrence Location	Location where the alert occurred

Starting a Program Automatically when an Alert is Received

To use this function:

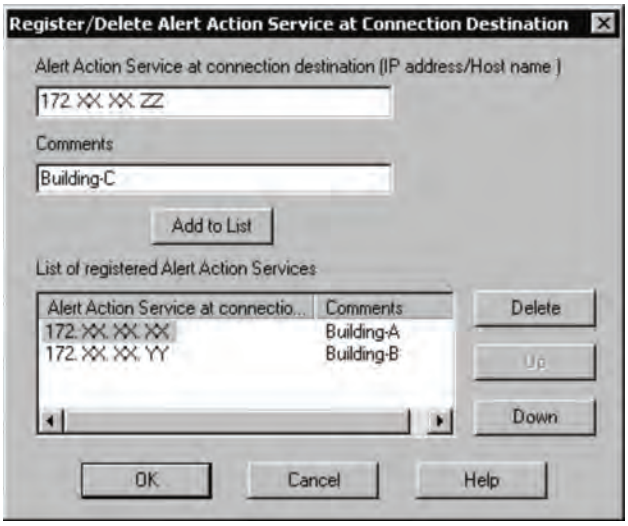
1. Install the alert action service in the environment in which a program is to be started automatically when alerts occur.
2. Set the manager service. For details, see "Setting the Alert Action Service at the Connection Destination" on page 116.
3. Set the alert action service. For details, see "Setting a Program to be Started Automatically" on page 117.

Note: *Some alerts are not sent to the alert action service; for a list of such alerts, see "Sending Alerts to SNMP Managers" on page 118.*

Setting the Alert Action Service at the Connection Destination

To use this function:

1. Run the Environment Settings Utility at the server where the manager service is installed. For details about how to start the Environment Settings Utility, see "Setting an Environment" on page 30.
2. Click the **Manager Service** tab, and then click **Set Details**.
3. When the **Environment Settings Utility** dialog box appears, click the **Alert Action Service** tab.
4. To register a new alert action service at a connection destination or to delete an existing alert action service at a connection destination, click **Register/Delete** The following **Register/Delete Alert Action Service at Connection Destination** dialog box appears:



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Specify the settings using the following information as guidelines.

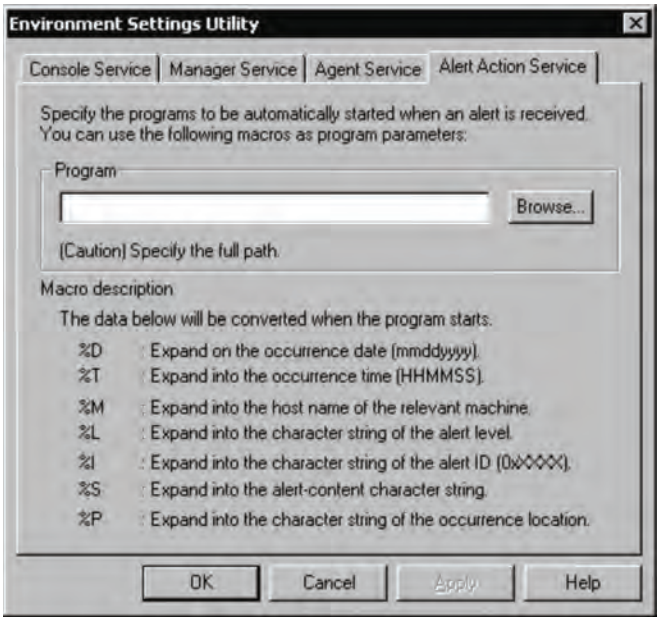
Item	Operation Method
Registering a new alert action service at a connection destination	In the Alert action service at connection destination text box, enter the IP address or host name of the alert action service at the intended connection destination, and then click **Add to List**. You can enter a comment (optional). You can register a maximum of four alert action services at a connection destination.
Deleting an alert action service at a connection destination	From the list of registered alert action services, select the alert action service to be deleted, and then click **Delete**.

Item	Operation Method
Changing the connection order	When connection is to be established with multiple alert action services, attempts are made to establish connection with the alert action services in the order they are registered. To change this priority (connection order), select a desired alert action service at a connection destination and click **Up** and **Down** to move it. The priority is higher as the service is moved up.

Setting a Program to be Started Automatically

To set startup of a program when alerts occur:

1. Run the Environment Settings Utility at the server where the alert action service has been installed. For details about how to start the Environment Settings Utility, see "Setting an Environment" on page 30.
2. Click the **Alert Action Service** tab.



AF001362

In this dialog box, set the following information.

Item	Setting
Program	Set the program to be started when alerts are notified (specify an absolute path). You can specify only one program. To start multiple programs, create a batch program and specify the batch program's name.
Macro	Specify data to be used by the program when the program starts. The available macros are described below. When a macro is specified, the applicable information concerning the alert is expanded so that it can be used by the program. • %D: Expands to the alert occurrence date (in the format mmddyyyy) • %T: Expands to the alert occurrence time (in the format HHMMSS) • %M: Expands to the name of the host where the alert occurred • %L: Expands to the character string indicating the alert level • %I: Expands to the ID of the alert (in the format 0Xxxxx) • %S: Expands to the character string indicating the details of the alert • %P: Expands to the character string indicating the location of the alert

Check the settings and change anything necessary, and then click **OK**. The program will be started the next time notification is received of an applicable alert.

Example: A batch file is to be run:

Program to be registered

```
c:\alert.bat %I
```

This example specifies that %I (alert ID) is to be added as a parameter when the program starts.

Contents of alert.bat

```
echo off
if %1==0x13B0 alert.wav
```

This program activates a tone whenever notification is received of an alert whose ID is 0x13B0 (detection of OS hang-up).

Sending Alerts to SNMP Managers

You can use the translator agent service to send alerts to the SNMP manager. The SNMP manager converts alerts received from a managed server to MIB, which is a network management database, and then sends them using SNMP. The alerts sent by SNMP are reported as events to the SNMP manager where the alerts become viewable. For details about the linkage with the SNMP manager, see "SNMP Translator" on page 165.

Note: *The SNMP translator cannot convert alerts issued by the agent service to SNMP for transmission. For details about the alerts that can be sent by the SNMP translator, see Invent.xls in the Help folder at the ServerConductor installation target.*

Recording Alerts in Log Files

The alerts that occur at managed hosts can be logged. ServerConductor uses the following log files:

- Alert log
- Event log

This section describes how to log alerts.

Recording Alerts in the Alert Log

The alerts detected by the agent service are recorded in the alert log. The location of a server's alert log is as follows.

Server	Alert Log Storage
Windows* server	Log folder in the ServerConductor installation folder
Linux* server	log directory in the log file and temporary file storage directory (/var/opt/hitachi/system_manager)

Note: *When a new alert occurs, the system deletes any alert log information that has been stored for more than the number of retention days set on the **Alert** page of the **Agent Service Settings** dialog box. This means that outdated alert log information will remain in the log file as long as no new alerts are received.*

Recording Alerts in the Event Log

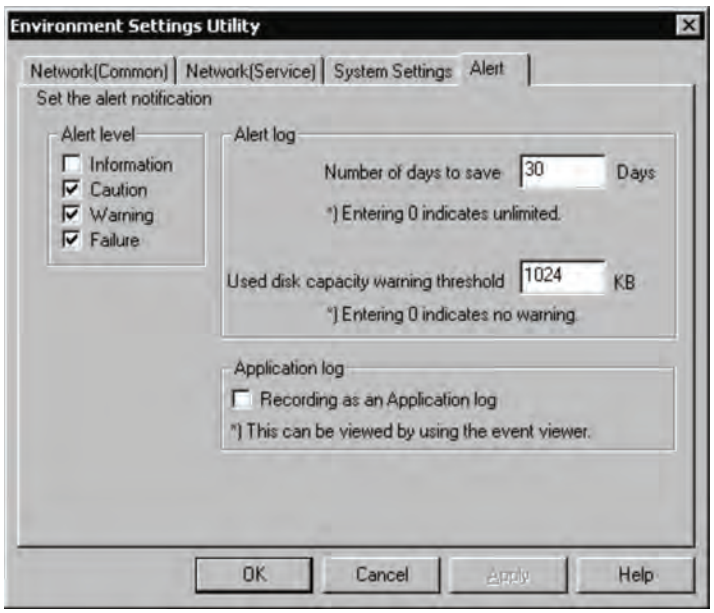
The alerts that occur at a Windows* server can be recorded as application log information. The recorded application log can also be used by other applications. The application log contains information about the notification alerts that have been set within the constraints set in "Filtering in Units of Alerts" on page 125.

Note: *If you have recorded alerts as application log information, you may use a program such as Event Viewer to view them. ServerConductor cannot display application logs. Alerts can be recorded as application log information only for Windows* servers.*

Recording Application Log Information

To record alerts as application log information:

1. From the console service's **Setting** menu, choose **Agent Service Settings**.
2. Choose the **Alert** tab.



AF001363

3. In **Alert level**, select the alert levels to be recorded as application log information.
4. Select the **Record as an application log** option.
5. Click **OK**.

Information Recorded in an Application Log

- User: Records N/A (not applicable).
- Event ID: Records ServerConductor's alert ID (as a decimal number).
- Source: Records the program name SM_AgtSvc. This value is fixed.
- Kind (alert level): Records the alert level. The recorded alert levels are displayed differently from as follows.

Recorded Alert Level	ServerConductor's Alert Level
Information	Information
Warning	Caution
	Warning
Error	Failure

- Type: Event Viewer contains this item, but ServerConductor does not record this information.
- Description: Records the alert occurrence date and time, alert level, occurrence location, and alert message.
- Data: Event Viewer contains this item, but ServerConductor does not record this information.

The following shows an example of a display by Event Viewer.

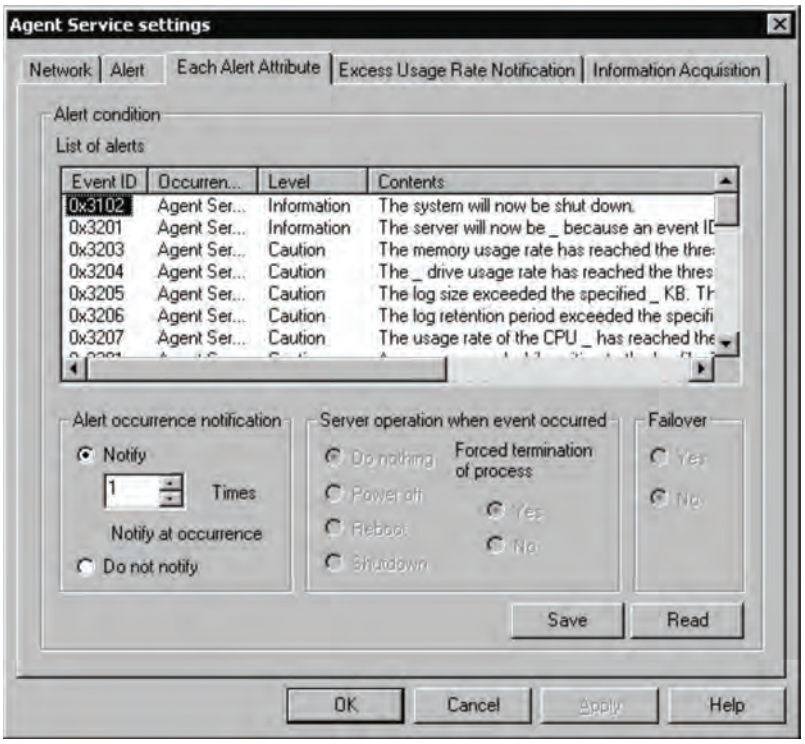
AF001364

Setting an Action at a Server in the Event of an Alert

You can set that an action to be taken at a server when an alert occurs, such as powering down or rebooting the server. If this action is saved in the alert attribute file, the file can be read by other servers.

To set an action to be performed at a server in the event of an alert:

1. From the **Host Management** window, select a server for which notification of alerts has been set. Select only one server; you cannot select multiple servers.
2. From the **Setting** menu, choose **Agent Service Settings**.
3. Click the **Each Alert Attribute** tab. The **Alert Attributes** dialog box appears.



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4. Read the settings from the alert attribute file. To read the settings from the alert attribute file before setting the server action, click **Read**. For details, see "Reading and Saving Alert Attribute Settings" on page 128.
5. From List of alerts, select the alert for which an action at the server is to be set. The List of alerts displays only those alerts that can be sent by the selected server.
6. Set Server operation when event occurs. Select the power control option at the server and whether or not the active process is to be forcibly terminated when the event occurs.

Forced termination of process is enabled only when Power off, Reboot, or Shutdown is selected. Forced process termination means that a forced termination instruction is to be sent to each process that is running at the server during shutdown processing that is performed as part of the server action (such as Power off, Reboot, or Shutdown).

7. Select whether or not failover is to occur.
8. Save the settings in the alert attribute file. To save the settings that you have specified so far, click **Save** to save them in the alert attribute file. For details, see "Reading and Saving Alert Attribute Settings" on page 128.
9. Click **OK**. The settings take effect immediately after **OK** is clicked.

Note: *These settings are reset following an alert action. If you want the action to be executed the next time the same alert occurs, you must specify the settings after each action.*

Filtering Alert Notifications

You can filter alerts so that only selected alerts are sent to the management console instead of sending all alerts that occur at the hosts. For Windows* and Linux* servers, you can set filtering as shown in the following figure:

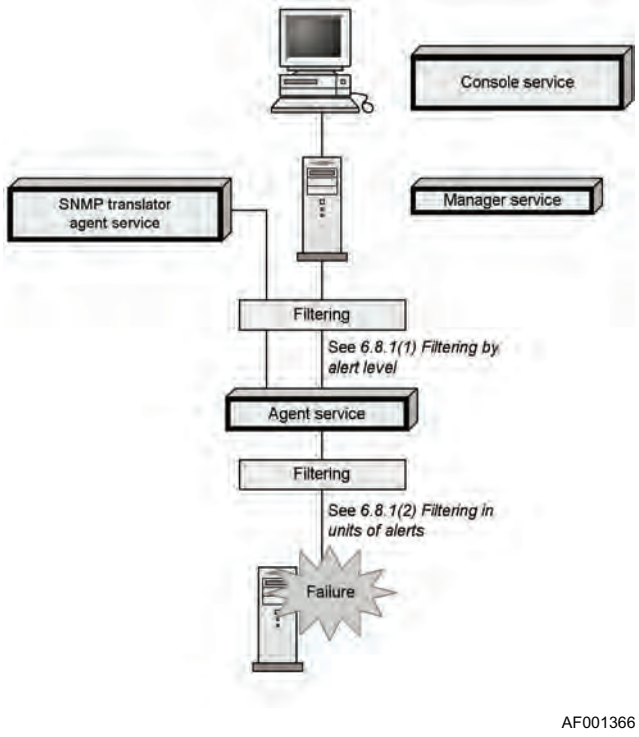


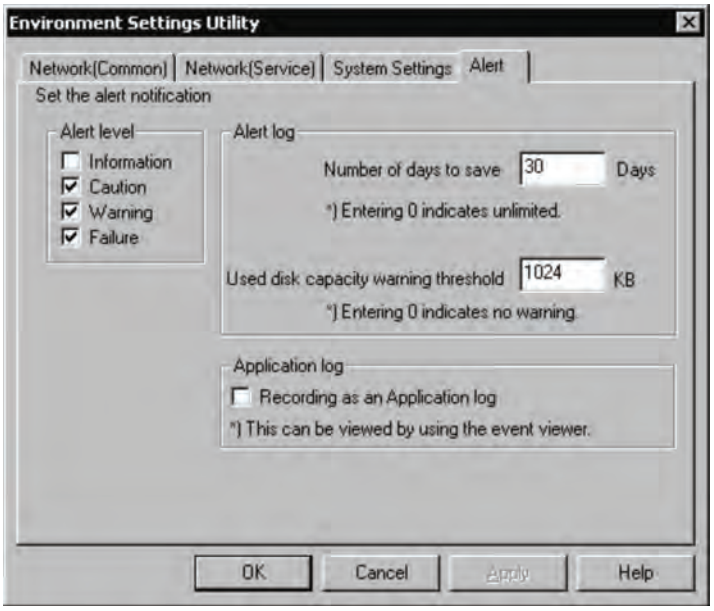
Figure 25. Setting Alert Filtering

Filtering by Alert Level

You can classify the alerts that occur at a server and set the levels of alerts to be sent to the management console.

To filter alerts by alert level:

1. From the **Host Management** window, select the server for which alert settings are to be specified. Select only one server; you cannot select multiple servers.
2. From the **Setting** menu, choose **Agent Service Settings**.
3. Click the **Alert** tab. The **Alert** dialog box appears.



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4. From **Alert level**, select the levels of alerts to be notified.
5. Click **OK**. Immediately after **OK** is clicked, only the set levels of alerts will be subject to notification.

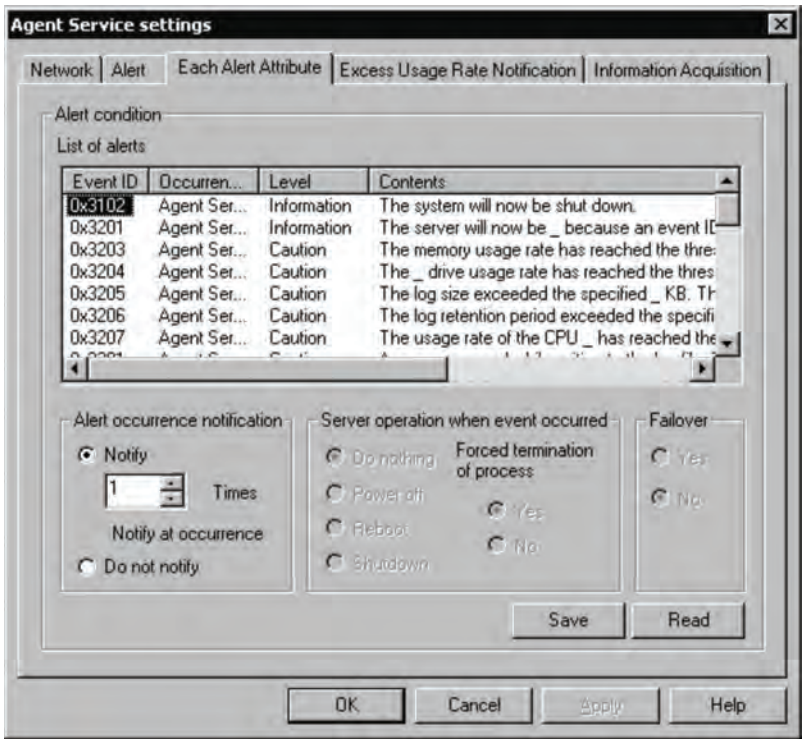
Filtering in Units of Alerts

You can set the individual alerts to be sent to the console service. You can also save the settings you make here in the alert attribute file so that they can be read by other servers.

To filter alerts in units of alerts:

1. From the **Host Management** window, select the server for which notification alert settings are to be specified. Select only one server; you cannot select multiple servers.
2. From the **Setting** menu, choose **Agent Service Settings**.

3. Click the **Each Alert Attribute** tab. The **Alert Attributes** dialog box appears.



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4. Read settings from the alert attribute file. If you wish to read settings from the alert attribute file before specifying filtering in units of alerts, click **Read** to read the alert attribute file. For details, see "Reading and Saving Alert Attribute Settings" on page 128.
5. From **List of alerts**, select an alert to be notified. The **List of alerts** displays only those alerts that can be sent by the selected server.
6. In **Alert occurrence notification**, set whether or not occurrence of the alert is to be notified. To notify when the selected alert occurs, select **Notify**; to not notify when the selected alert occurs, select **Do not notify**. When alert occurrence is to be notified, you may also set a number of times the alert must occur before it is notified.
7. Save the settings in the alert attribute file. To save all the settings that you have specified so far, click **Save** to save them in the alert attribute file. For details, see "Reading and Saving Alert Attribute Settings" on page 128.
8. Click **OK**. Immediately after **OK** is clicked, only the set alerts will be subject to notification.

Note: *A count of alert occurrences for purposes of determining notification is not reset at the time of rebooting, turning the power on, or turning the power off.*

Result of Notifying Filtered Alerts

If you selected **Do not notify** for selected alerts (in units of alerts), the applicable alerts are ignored by all alert-related functions. They are not recorded in any log files, such as the alert and event logs.

If you selected **Do not notify** when the setting was by alert level, the applicable alerts are not sent to the console service or other programs nor are they sent by email, but they are recorded in log files, such as the alert and event logs. Alert notification by pager is disabled. The server action settings for alerts are in effect. The following table describes the applicability of failure management functions depending on the setting (in units of alerts or by alert level).

Table 25. Applicability of Failure Management Functions

Program	Failure Management Function	Setting for "in units of alerts"	Setting for "by alert level"	Applicability of Function
--	Notification to console service			
	Notify	Notify	Applicable	
			Do not notify	Not applicable
		Do not notify	--	Not applicable
Manager service	email linkage	Notify	Notify	Applicable
			Do not notify	Not applicable
		Do not notify	--	Not applicable
Agent service	Recording in log files			
Server action setting	Notify	Notify	Applicable	
			Do not notify	Applicable
		Do not notify	--	Not applicable
SNMP translator agent service	Notification to SNMP manager			
	Notify	Notify	Applicable	
			Do not notify	Not applicable
		Do not notify	--	Not applicable

Reading and Saving Alert Attribute Settings

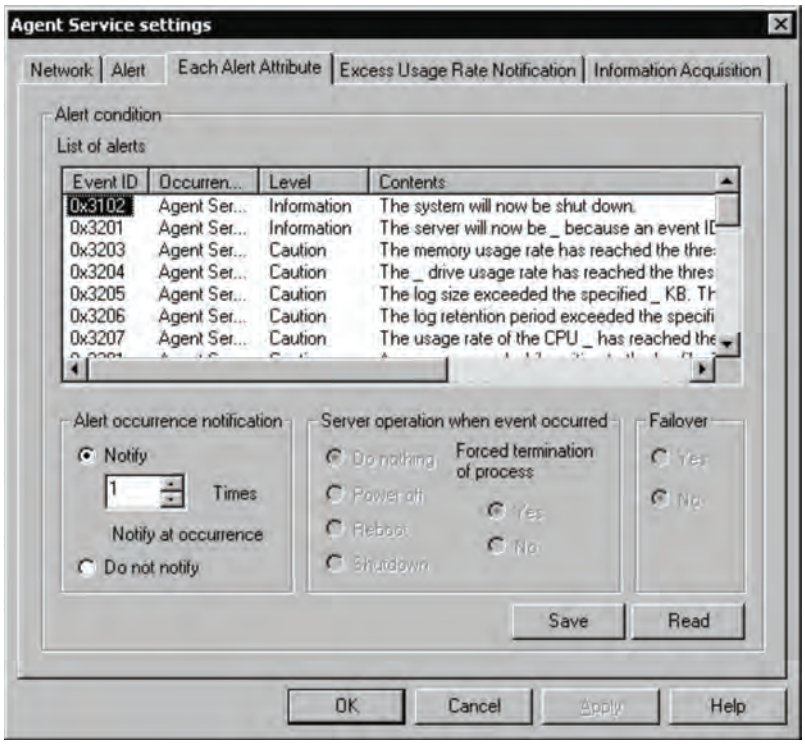
You can read in batch mode from an alert attribute file the alert attributes to be set for a server, or you can save specified settings in an alert attribute file. For example, such a file is useful when you wish to restore previous alert attributes that had been saved or apply the same alert attributes to another server.

Note: *The alert attributes described here include server action settings and filtering settings in units of alerts.*

Reading Settings from the Alert Attribute File

To read in batch mode the alert attributes to be set for a server:

1. From the **Host Management** window, select a server for which alert attributes are to be set. Select only one server; you cannot select multiple servers.
2. From the **Setting** menu, choose **Agent Service Settings**.
3. Click the **Each Alert Attribute** tab. The **Alert Attributes** dialog box appears.



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4. Read settings from the alert attribute file. To read alert attributes from the alert attribute file, click **Read**. When the **Open** dialog box appears, select the alert attribute file and click **Open**. The current settings are overwritten by the contents of the alert attribute file.
5. Click **OK**. These settings are applied to the agent service immediately after **OK** is clicked.

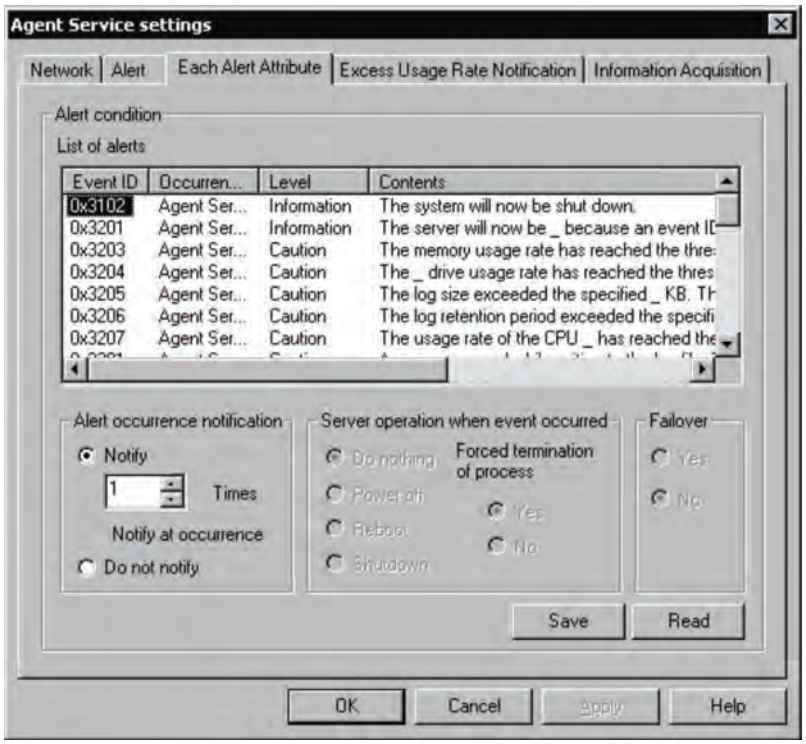
Note: *If the alert ID setting as to whether or not alert IDs are used does not match between the alert attribute file that is read and the List of alerts in the* ***Each Alert Attribute*** *dialog box, the alert attributes read from the file will not be set correctly. For example, if such inconsistency occurs on alert ID A, the attributes of alert A are set as follows:*

Alert ID (A) Set in Alert Attribute File	Alert ID (A) Set in Alert List	Attribute of Alert ID (A) After the File is Read
Alert ID A	Alert ID A	The alert attribute in the alert attribute file takes effect.
Alert ID A	There is no alert ID A	Alert attribute is not read
There is no alert ID A	Alert ID A	Alert attribute is not changed
There is no alert ID A	There is no alert ID A	Alert attribute is not read

Saving Settings in the Alert Attribute File

To save all the alert attributes set for a server:

1. From the **Host Management** window, select a server for which notification alert settings have been specified. Select only one server; you cannot select multiple servers.
2. From the **Setting** menu, choose **Agent Service Settings**.
3. Click the **Each Alert Attribute** tab. The **Alert Attributes** dialog box appears.



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4. Save the settings in the alert attribute file. To save the alert attribute settings, click **Save**. When the **Save As** dialog box appears, enter a file name and click **Save** to save the alert attribute file in a desired folder. All the alert attributes displayed in **List of alerts** in the **Each Alert Attribute** dialog box are saved in this alert attribute file.
5. Click **OK** to close the **Agent Service Settings** dialog box.

7 Power Control

Power control enables you to perform host power operations remotely, such as performing host power-on, power-off, forced power-on, reboot, shutdown, and forced reset from a remote location.

Controlling Hosts' Power Supply

ServerConductor enables you to perform power-on, power-off, forced power-off, reboot, and forced reset of hosts from the management console. The available power control functions depend on the type of host being managed. The following table shows the power control functions that are available to each type of managed host.

Table 26. Power Control Functions

Power Control	Windows* Server	Linux* Server
Power-on	Available	Available
Power-off	Available	Available
Forced power-off	Available	Available
Reboot	Available	Available
Shutdown	Not available	Not available
Forced reset	Available	Available

Note: *If multiple processors are installed on a Linux* server, the operating system-provided apm function is not available. Therefore, complete powering down may not be achieved by the power-off operation.*

Controlling the Power Supply

Turning On the Power

Performing the power-on operation at a host involves the operation in the **Host Management** window described below. You can execute this operation only when you have logged on as administrator.

To turn on the power:

1. From the **Host Management** window, select the host whose power is to be turned on. You can select multiple hosts.
2. From the **Host Operation** menu, choose **Power on**. A confirmation message is displayed.
3. Check the message, and then click **OK**. Power to the selected hosts is turned on.

Notes:

- *If anything other than a host is selected in the **Host Management** window (such as a site, domain, or manager), the power-on operation cannot be performed.*
- *The server power-on operation is applicable only to hosts that support power control.*

Turning Off the Power

Turning off the power after shutting down a host involves the operation in the **Host Management** window described below. You can execute this operation only when you have logged on as administrator.

Notes:

- *If you have selected anything other than a host in the **Host Management** window (such as a site, domain, or manager), the power-off operation cannot be performed.*
- *If the power-off operation is performed but no reply is sent from the host, a command timeout error may be displayed after a while. In such a case, from the **Host Operation** menu, choose **Connect** for the host at which the power-off operation was executed. If a command timeout error is displayed again, power to the host has been turned off successfully.*
- *The power-off operation may not be possible due to the hardware configuration or the platform in use. For details, see the Readme file.*

Turning Off the Power to a Windows Server

1. From the **Host Management** window, select the server whose power is to be turned off.
2. From the **Host Operation** menu, choose **Power off**. A confirmation message is displayed.
3. Check the message, and then click **OK**. Power to the server is turned off.

Turning Off the Power to a Linux Server

You can perform this operation only when you have logged on as administrator.

1. From the **Host Management** window, select the server whose power is to be turned off. Make sure that you select at least one server.
2. From the **Host Operation** menu, choose **Power off**. A confirmation message is displayed.
3. Check the message, and then click **OK**. Power to the server is turned off.

Turning Off the Power Forcibly

In the event of a fatal error, the normal power-off operation may not be able to power down a server. In such a case, power to the server can be turned off forcibly with the procedure described below. You can execute this operation only when you have logged on as administrator. The forced power-off operation does not include shutdown processing.

To turn off the power forcibly:

1. From the **Host Management** window, select the server whose power is to be turned off forcibly.
2. From the **Host Operation** menu, choose **Forced power-off**. A confirmation message is displayed.
3. Confirm the server whose power is to be turned off forcibly, and then click **OK**. Power to the server is turned off forcibly.

Rebooting a Host

You can execute this operation only when you have logged on as administrator.

Rebooting a Server

To reboot a server:

1. From the **Host Management** window, select the server that is to be rebooted. Make sure that you select at least one server.
2. Form the **Host Operation** menu, choose **Reboot**. A confirmation message is displayed.
3. Check the server that is to be rebooted, and then click **OK**. The server is rebooted.

Forcibly Resetting a Host Operating System

You can perform this procedure only when you have logged on as administrator. The forced reset operation does not include shutdown processing. To forcibly reset a host operating system:

1. From the **Host Management** window, select the host whose operating system is to be forcibly reset.
2. From the **Host Operation** menu, select **Forced Reset**. A confirmation message is displayed. If you selected more than one host, a confirmation message is displayed for each host.
3. Confirm the host or hosts to be forcibly reset, and then click either **OK** or **All OK**. By clicking **All OK**, you can accept all of the selected hosts at once.

Each selected host operating system is forcibly reset.

8 Remote Control

ServerConductor enables the user to collect maintenance information, such as operating system and hardware information and ServerConductor log information, to send such information by email, and to check the information for details.

This chapter describes the settings needed in order to perform remote control operations and explains how to use the remote control functions.

Acquiring Maintenance Information

When a problem occurs at a managed server, you can acquire for maintenance purposes information about that server, such as information about its operating system, the ServerConductor log information, and hardware information.

Information acquisition is the function for acquiring from the management console information about a managed server, such as its operating system information, ServerConductor log information, and hardware information (computer devices), and for transferring the acquired information to the administrator. The information can be transferred as a file to the management console or as an attachment to email. This function enables the administrator to acquire maintenance information needed for determining the cause of an error that has occurred at a remote location.

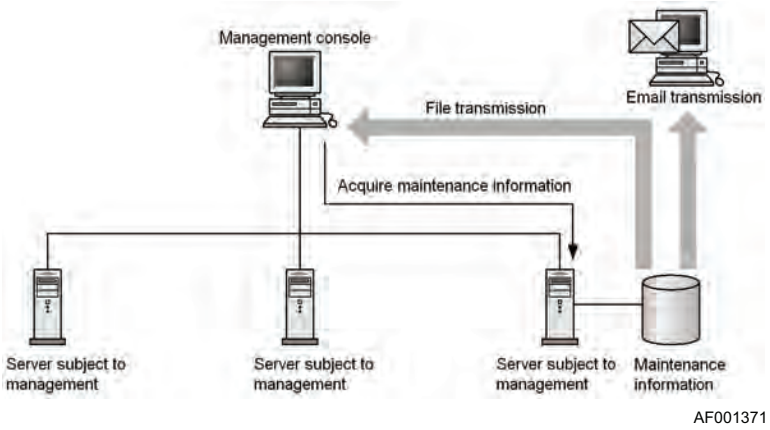


Figure 26. Concept of Information Acquisition

Information acquisition can be executed only for managed Windows* and Linux* servers. Maintenance information includes the following for Windows* servers:

- Operating system information
  - Cluster information (output result of cluster.exe, and cluster.log)
  - Load balancing information (output result of wlbs.exe)
  - Network log information (output result of netStat.exe and NbtStat.exe)
  - Program diagnostics information (output result of WinMsd.exe)
  - Directory listing (output result of the Dir command)
  - Event log collection (EVT file that can be read by the event viewer EventVwr.exe, and CSV file containing the details)
  - Registry information (text file containing the registry information, including the last update date)
  - Hardcopy information
  - System dump information (if there are dump files and dumpchk.exe, the result of dumpchk.exe and the path to Memory.dmp; otherwise, Memory.dmp is not acquired)
  - User dump information (if Drwtsn32.log is available, then Drwtsn32.log; if User.dmp is available, then the path to User.dmp (User.dmp is not acquired))
- ServerConductor log information
- Hardware information (computer device)
  - Hardware log information (such as shared memory area)
  - Firmware information
  - Driver information (such as driver name, driver status, and sys file information)
- Information acquired by user-defined tools: The user can define information acquisition tools to acquire specific maintenance information other than the operating system and ServerConductor log information.

For Linux* servers, you can acquire the information listed in the Menu column in the table below as well as the maintenance information that can be acquired by the user-defined tools.

Table 27. Maintenance Information that can be Acquired for a Linux* Server

Menu	Tool Name
Log information	agtget_log
ServerConductor log information	agtget_sysmgrlog
System settings information	agtget_sysconf
Network information	agtget_net
Package information	agtget_rpminfo

Table 27. Maintenance Information that can be Acquired for a Linux* Server

Menu	Tool Name
Kernel information	agtget_kernel
File system information	agtget_filesys
Machine configuration information	agtget_machineinfo
Process information	agtget_pid

If **CompressCommand** is specified for information acquisition in the **Agent Environment Settings** menu, each menu's file will be compressed. The name of a compressed file is host-name_tool-name_menu-type_YYMMDDhhmmss.ext (where YYMMDD is the date, hhmmss is the time, and ext is an extension added by the specified command). The menu type is **H** for a default menu provided by ServerConductor and the menu type is **U** for a menu added by the user.

Example: When Log information and System settings information are executed and the data is compressed by LHA, the following files are obtained:

- 270g2_agtget_log_H_001225230101.lzh
- 270g2_agtget_sysconf_H_001225230101.lzh

For **CompressCommand** in the **Agent Environment Settings** menu, set the command line character string used to start the compression command. In this case, you can use the macros described below. When a macro is used, it is expanded and executed during command execution. For details about CompressCommand in the **Agent Environment Settings** menu, see "Settings on the Agent Settings Menu" on page 58.

Macro	Description
%archive%	Replaced with the output archive file name (file extension is not included).
%directory%	Replaced with the temporary directory for information acquisition (directory for each /var/opt/hitachi/system_manager/collect/ console).
%file%	Replaced with the file name (full path) obtained by the menu execution. If this macro is specified and multiple files have been obtained, the command is executed as many times as there are files.

Example of using LHA as the compression tool

```
lha m %archive%.lzh %directory%
```

or

```
lha a %archive%.lzh %file% ; rm -f %file%
```

When such a setting is specified, all acquired files are compressed by LHA and the original files are deleted. Any file remaining in the temporary directory will also be transferred. Therefore, when you execute the compression command, make sure that the command is specified as shown in the above example so that no file will remain in the temporary directory.

Setting an Environment (Information Acquisition)

To acquire information, the following environment settings are required:

- Creating user menus: User menus are required in order to acquire maintenance information using user-defined tools.
- Setting the transfer method: This is required in order to transfer acquired maintenance information. Two transfer methods are available:
- File transmission to the management console: Set the directory for storing the maintenance information.
- Email transmission: Set information required for transmitting maintenance information as an attachment to email, such as the destination of the email.

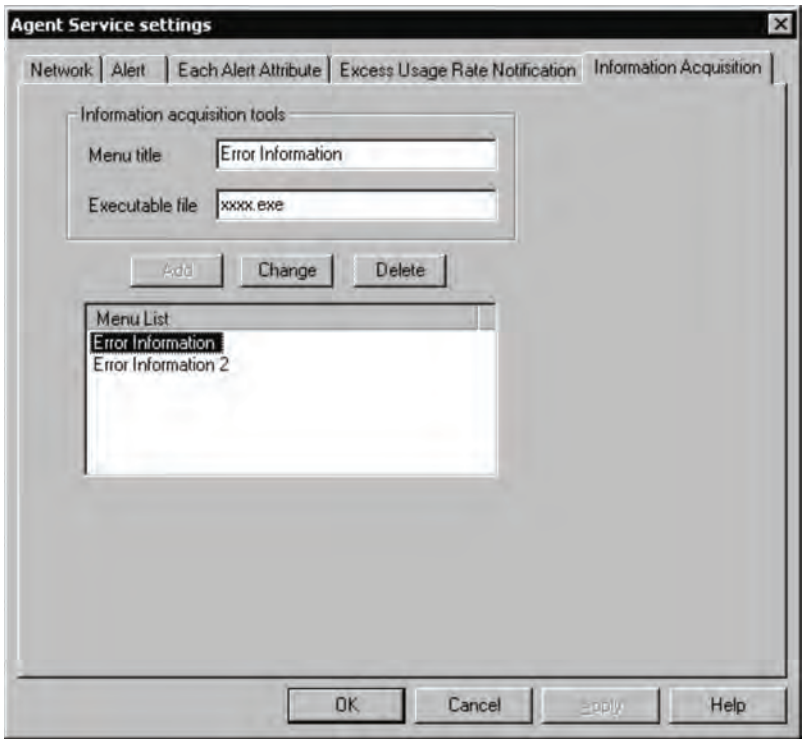
The following subsections describe these methods.

Creating User Menus

Three information acquisition menus are provided by default. They are for acquisition of operating system information, ServerConductor log information, and hardware information (computer devices). To acquire other maintenance information, you must use agent service settings to add the necessary information acquisition menus. The added menus are displayed in the **Information Acquisition** dialog box described in "Acquiring Maintenance Information" on page 142 and can be selected when maintenance information is to be acquired.

To add a menu:

1. In the **Host Management** window, from the **Setting** menu, choose **Agent Service Settings**. The **Agent Service Settings** dialog box appears.
2. Choose the **Information Acquisition** tab. The **Information Acquisition** dialog box appears.



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In this dialog box, set the following information.

Item	Settings
Menu title	Specify a menu name to be displayed in the menu list. You can register a maximum of 100 menus.
Executable file	Specify the name of a file that is to be executed and execution options. • For Windows* servers The executable file must have been stored in advance in the ServerConductor-installation-directory\Tool\UsrBin folder of the managed server. The execution results of the executable file are output to the directory defined in the %SmToolOutput% environment variable. Do not change this environment variable because it is for referencing purposes only. • For Linux* servers The executable file must have been stored in advance in the /var/opt/hitachi/system_manager/tmp directory of the managed server. The execution results of the executable file are output to the /var/opt/hitachi/system_manager/collect directory. Note that the executable file stored in /var/opt/hitachi/system_manager/tmp is deleted when Agent (Linux) is uninstalled.

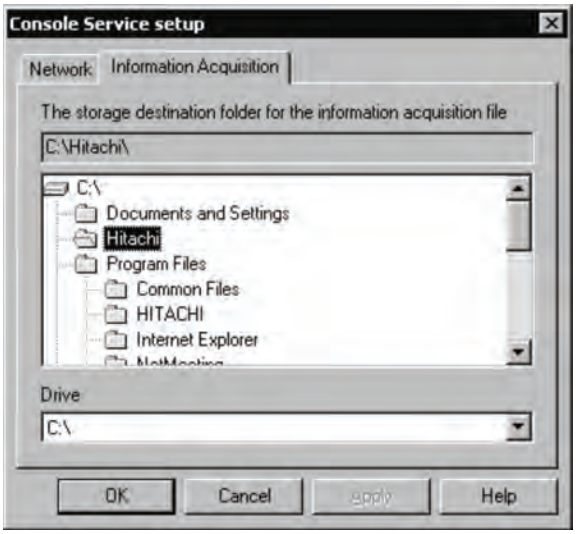
3. Click **Add**. The specified menu title is displayed in the menu list. To delete a menu, select the menu, and then click **Delete**. To change a menu's settings, select the desired menu, change its menu title and executable file information, and then click **Change**.
4. Click **OK**.

Setting the Transmission Method

Setting File Transmission

To set the file storage when maintenance information is to be transmitted as a file to the management console:

1. In the **Host Management** window, from the **Setting** menu, choose **Console Service Settings**. The **Console Service Settings** dialog box appears.
2. Choose the **Information Acquisition** tab. The **Information Acquisition** dialog box appears.



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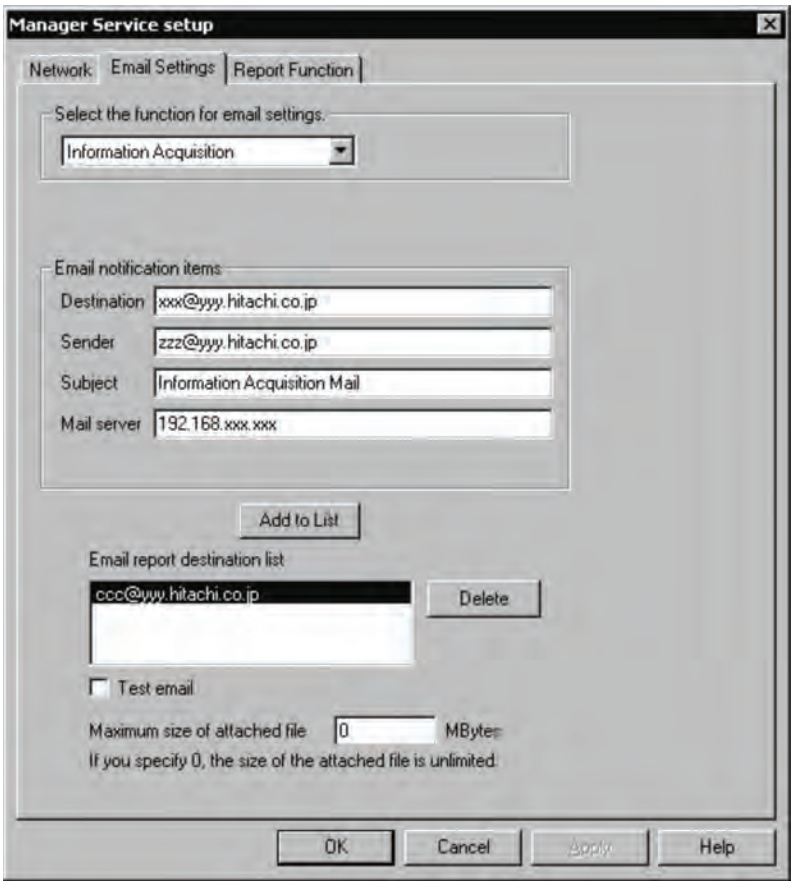
3. Specify the storage location for the acquired information. You must specify a directory that can be recognized by the operating system running on the host where the console service is installed.
4. Click **OK**.

Setting Email (Maintenance Information)

To transmit maintenance information as an attachment to email:

1. In the **Host Management** window, from the **Setting** menu, choose **Manager Service Settings**. The **Manager Service Settings** dialog box appears.
2. Choose the **Email Settings** tab.
3. From the **Select the function for email settings** drop-down list, select **Information Acquisition**. The settings for information acquisition are displayed:



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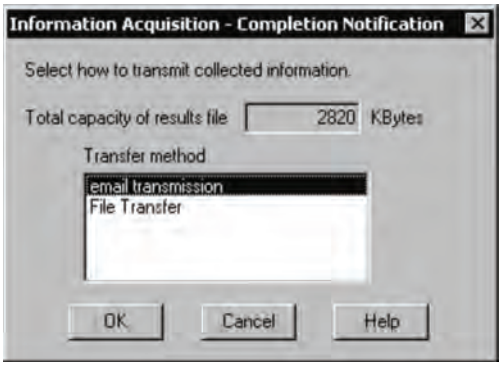
Item	Setting
Destination	Set the email address to which maintenance information is to be sent.
Sender	Set the sender's email address.
Subject	Set a character string for the subject line of the email.
Mail server	Set the host name or IP address of the sender's mail server.
Test email	Select if a test email is to be sent to all email addresses displayed in the Email report destination list. Test Mail is set as the subject line and as the message of the test email, and no file is attached.
Maximum size of attached file	Specify a maximum size for the file attachment (in megabytes). You cannot specify a value in excess of 32 megabytes; however, if you specify 0, this size limitation is eliminated and files larger than 32 megabytes can be sent as attachments. The default is 0.

4. Click **Add to List**. The destination specified in Email report destination list is added. You can set a maximum of four email destinations. To delete an added destination, select it, and then click **Delete**.
5. Click **OK**.

Acquiring Maintenance Information

To acquire maintenance information:

1. In the **Host Management** window, select a server from which you wish to acquire maintenance information.
2. From the **Host Operation** menu, choose **Information Acquisition**. The **Information Acquisition** dialog box appears.
3. Select from the list of menus the information to be acquired. The default menus displayed in the list are operating system information acquisition, ServerConductor/Agent log acquisition, and Hardware information acquisition (machine body). For details about creating additional menus, see “Creating User Menus” on page 138.
4. Click **Execution**. Acquisition of the specified information begins. When information acquisition is completed, the **Information Acquisition - Completion Notification** dialog box appears.



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5. Select either **Email transmission** or **File Transfer** as the transmission method.
6. Click **OK**.

Note: *For email transmission, an error results if the total size of the file to be attached exceeds the maximum email attachment size specified in the manager service settings.*

9 Group Management

ServerConductor is capable of managing managed hosts in groups. For example, if you group managed hosts by department, you can perform operations in groups, such as specifying agent service settings and turning the power on and off on a scheduled basis.

Classifying Hosts into Groups

By registering multiple hosts as a group, you can perform the same operations and settings on all of them all at once in batch mode. This function is called grouping of hosts. Grouping of hosts involves registering hosts displayed in the **Host Management** window (site, domain, service configuration) into a window for grouping so that the same operations and settings can be performed on all of them in batch mode.

The following operations and settings can be performed in the batch mode on a group of hosts:

- Setting the agent service
- Performing power control

Grouping Method

To create a group, you must log on as administrator. If you have logged on as sub-administrator, you can only reference created groups.

To group hosts or server chassis:

1. From the **Host Management** window, choose **Groups**. **Batch Setting** and **Batch Operation** are displayed as pull-down menus.
2. Select a menu appropriate to the group that is to be created. Select the menu according to purpose, as described below:
   - For batch setting of power on/off schedules: From the **Batch Setting** menu, choose **Schedule**.
   - For batch setting of agent service settings: From the **Batch Setting** menu, choose **Agent Service Setting**.
   - For batch operation of power control: From the **Batch Operation** menu, choose **Power Control**.

   The corresponding **grouping** window is displayed. A group created for a specific purpose cannot be used for any other purpose. For example, a group created for scheduling cannot be used for power control.
3. From the **Edit** menu, choose **Create New Group**. A new group is created in the group tree.

4. From the **Host Management** window, drag a host that you wish to register into the group and drop it in the grouping window.

   You can register as many hosts as you wish to include in the group by repeating this step. Because you can create multiple groups in a hierarchical structure, the created groups can be classified by purpose and by types of hosts. You can also assign any desired names to the groups. You should use group names that are indicative of the group's purpose. Groups can be arranged into a maximum of eight hierarchical levels.

5. After creating groups, from the **File** menu, choose **Save** to save the grouping information.

Batch Setting of a Group of Servers

Using server grouping, you can set the same information for all the servers registered in the group. To perform this batch operation, log on as administrator. If you log on as sub-administrator, you can only view the current information that has been set.

To use the batch mode to set agent service settings for a group of servers:

1. In the **Host Management** window, from the **Groups** menu, choose **Batch Setting**, and then **Agent Service Setting**. The **grouping** window for agent service is displayed.
2. From the **grouping** window, select the group for which the agent service information is to be set.
3. From the **Group Operation** menu, choose **Agent Service Setting**. The **Agent Service Settings** dialog box appears. For details about how to use the **Agent Service Settings** dialog box and the settings, see “Setting the Agent Service” on page 155. When you finish making the settings, from the **File** menu, choose **Save** to save the grouping information.

Agent service settings have now been set in the batch mode for all the servers in the group.

Batch Operation of Hosts

This section describes how to perform operations in the batch mode on a group of hosts, such as turning the power on and off for all of them at once. To perform a batch operation, log on as administrator. You cannot perform batch operations when you have logged on as sub-administrator.

To perform a batch operation on a group of hosts or server chassis:

1. In the **Host Management** window, from the **Groups** menu, choose **Batch Operation**, and then **Power Control**. The grouping window for power control is displayed.
2. From the grouping window, select the group on which power control is to be performed.
3. From the **Group Operation** menu, select the operation that you wish to perform. Available operations are **Power on**, **Power off**, **Forced power-off**, and **Reboot**.

Note: *Power on is available for a Windows* server or Linux* server only if it has a LAN adapter equipped with the power-on feature.*

   When you select an item, a configuration message is displayed.

4. To continue with the operation, click **OK**.

Power control can now be performed in the batch mode for all the servers in the group. For example, if you select Reboot, all the servers in the group will be rebooted. When you finish making the settings, from the **File** menu, choose **Save** to save the grouping information.

A group created in one grouping window cannot be used in any other grouping window. For example, a group created for schedule setting cannot be used in a batch operation. To use the same group in a different grouping window, use **Copy** and **Paste** in the **Edit** menu to copy the group between grouping windows.

10 Connection Management

Once system operation starts, system connection management becomes one of the important tasks of the system administrator. For example, as existing machines are removed and new machines are installed, the administrator must delete the affected hosts as management objects and register new hosts. If many hosts are managed, the system administrator must know about the manager that is managing each host. This chapter describes how to perform connection management.

Changing the Hosts to be Managed

Deleting Hosts Being Managed

Use this method when hosts have been removed. You can perform this operation only when you have logged on as administrator.

To delete a host being managed:

1. In the **Host Management** window, select the host to be deleted.
2. From the **Connection Management** menu, choose **Delete**. A message is displayed.
3. Click **OK** or **All OK**. The host is deleted. If you selected multiple hosts, a configuration message is displayed. To delete all the selected hosts, click **All OK**.

The selected hosts are deleted from the management target.

Reconnecting an Unmanaged Host

An unconnected host, such as a host that has just been restarted, is displayed with the Unconnected icon in the **Host Management** window. To reconnect an unconnected host:

1. In the **Host Management** window, select the host to be connected. Select a host that is displayed with the Unconnected icon.
2. From the **Host Operation** menu, choose **Connect**. The selected host is reconnected and becomes a management object again.

Registering Hosts

This subsection describes how to register hosts and display them in the **Host Management** window, such as when an active host is not displayed in the **Host Management** window, the service startup sequence was flawed, or a host was deleted by mistake.

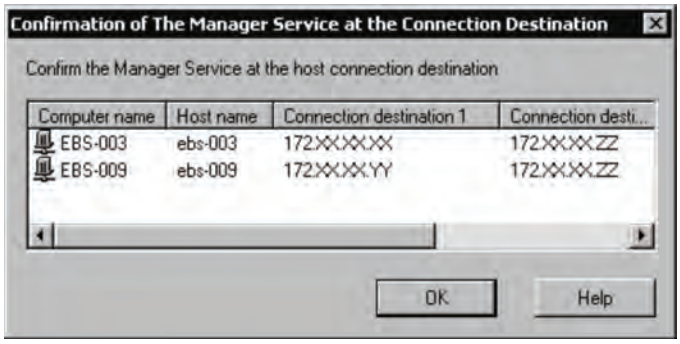
To register hosts:

1. In the **Host Management** window, select the manager to which the host is to be registered.
2. From the **Connection Management** menu, choose **Registration**. The **Register Host** dialog box appears.
3. Enter the IP address or the name of the host to be registered.
4. From **Type**, select **Agent Service**. A message is displayed. If the agent service is running at the server, this message is displayed in the **Host Management** window.

Checking the Manager Service at a Connection Destination

To check the manager service to which a managed host is connected:

1. In the **Host Management** window, select the host, manager, site, or domain for which the manager service at the connection destination is to be checked.
   - When a host is selected, this checking is performed for that host.
   - When a manager, site, or domain is selected, this checking is performed for all the hosts under it.
2. From the **Connection Management** menu, choose **Confirmation of the Manager Service at the Connection Destination**. The **Confirm Manager Service at Connection Destination** dialog box appears.



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11 Setup from the Console Service

Information set by the Environment Settings Utility during system creation can be viewed and changed. This enables the user to change passwords periodically from the management console and change settings from a remote location without having to go to the server installation site.

Setting Passwords

To set a password, you must have logged on as administrator. To set a password from the console service for logging on to the manager service:

1. In the **Host Management** window, from the **Setting** menu, choose **Change Password**. The following **Change Password** dialog box appears:

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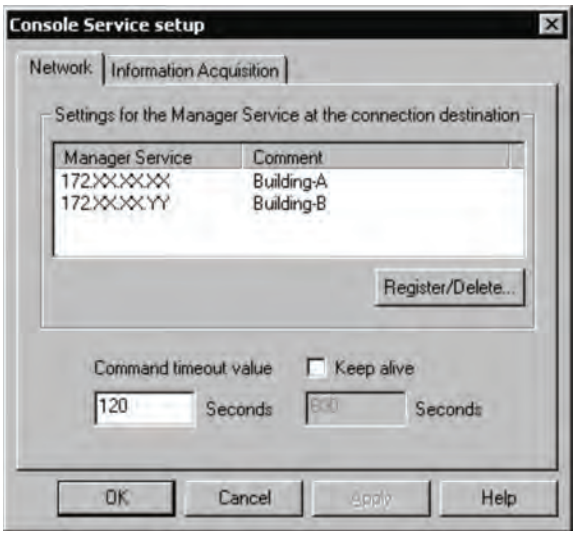
2. Select the type of user whose password is to be changed.
3. In the **Current password** text box, type the current password of the selected user type.
4. In the **New password** text box, type a new password. A password must consist of 1-16 characters; the permissible characters are single-byte alphanumeric characters, the single-byte space, and single-byte symbols.
5. In the **Re-enter new password** text box, re-type the new password.
6. Click **OK**. If the password is valid, the password is changed.

Setting the Console Service

To change or view console service settings:

1. In the **Host Management** window, from the **Setting** menu, choose **Console Service Setting**. The following **Console Service Setup** dialog box appears.



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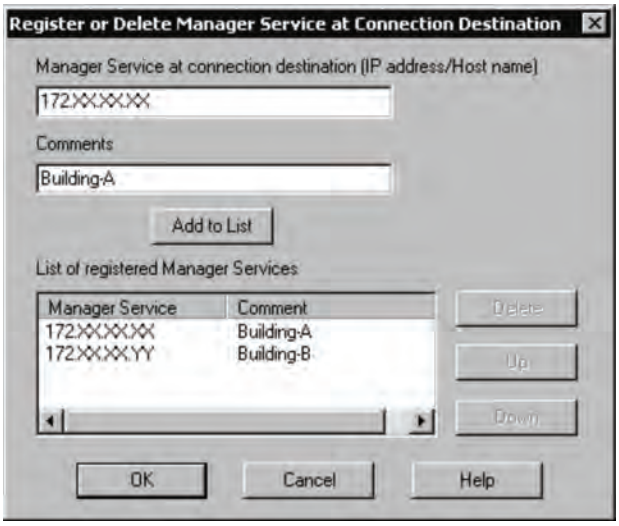
In this dialog box, you can change or view console service information. To set information, you must have logged on as administrator. The sub-administrator can only view the information. For details about acquiring information in the **Console Service Setup** dialog box, see "Acquiring Maintenance Information" on page 135.

You can set the network information needed to communicate with the manager service. On this page, set the following information:

Item	Setting
Settings for the Manager Service at the connection destination	Select the manager to which connection is to be made. You can select multiple managers. To register a new manager service at a connection destination or to delete an existing manager service, click **Register/Delete**.
Command timeout value	Specify a command timeout value (in seconds) for when commands are transferred with the manager service. The permitted value range is from 1 to 600. The default is 180 seconds.
Keep alive and its interval	Check this box if the keep alive function is to be used during transfer operations with the manager service. This check box is not selected by default. When you check this box, also set a keep alive interval in seconds. The permitted value range is from 1 to 3,600. The default is 600 seconds.

Clicking **Register/Delete** displays the **Register or Delete Manager Service at Connection Destination** dialog box.



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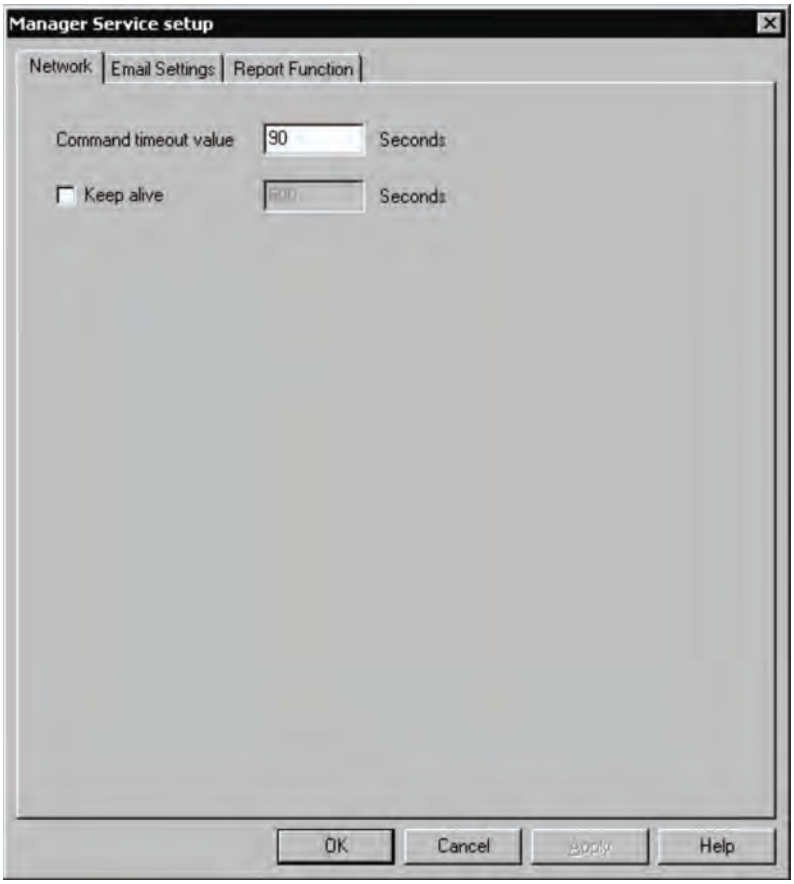
In the **Register or Delete Manager Service at Connection Destination** dialog box, set the following information.

Item	Setting
Manager Service at connection destination (IP address/Host name)	Set the IP address or host name of the manager service to be connected. If the connection target is a network, specify the IP address or host name used by the source system from which connection is established.
Comments	Set any optional comment about the manager service at the connection destination (such as for identification purposes).
List of registered Manager Services	Clicking **Add to List** registers the manager service at the connection destination in the list. You can register a maximum of 128 manager services. To delete a manager service from the list, select it, and then click **Delete**. When connection is to be established with multiple manager services, connection attempts are made sequentially from the top of this list. To change the priority for establishing connection among multiple managers, select a manager and change its location in the list by clicking **Up** and **Down**.

Setting the Manager Service

To change or view manager service settings:

1. In the **Host Management** window, select the manager for which manager service information is to be changed or viewed.
2. From the **Setting** menu, choose **Manager Service Settings**. The following **Manager Service setup** dialog box appears:



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From this dialog box, you can change or view manager service information. If you have logged on as sub-administrator, you can only view the information.

For details about the email settings in the **Manager Service setup** dialog box, see "Sending Alerts by Email" on page 112. For details about the report function, see "Database Management of Inventory Information" on page 78.

You can set the network information used for communicating with the console service and agent service. Click the **Network** tab.

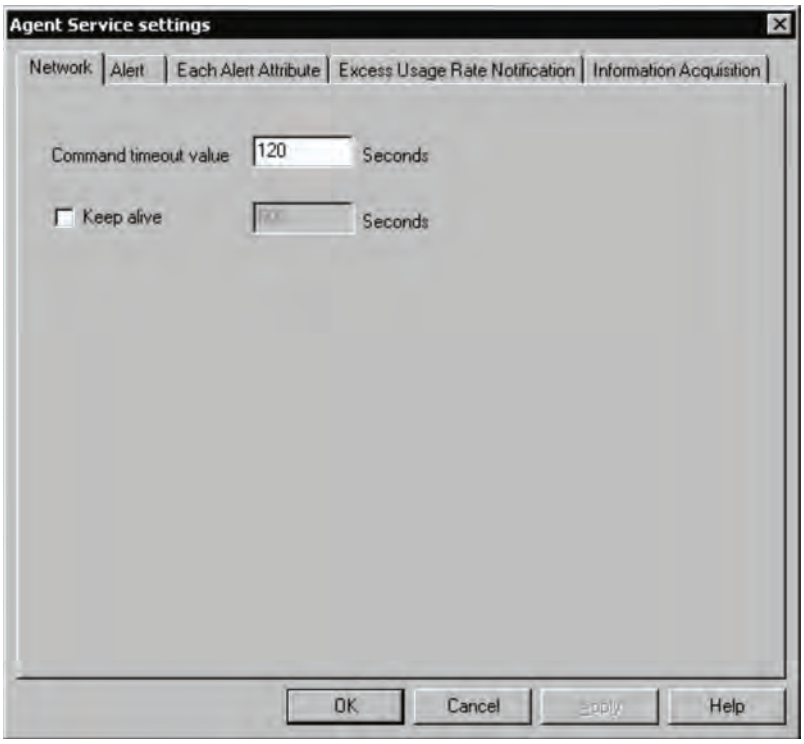
On this page, set the following information.

Item	Setting
Command timeout value	Specify a command timeout value (in seconds) for when commands are transferred with the console service. The permitted value range is from 1 to 600. The default is 90 seconds.
Keep alive and its interval	For the manager service, keep alive settings that are specified are ignored. For details, see "Setting the Console Service" on page 32.

Setting the Agent Service

To change or view agent service settings:

1. In the **Host Management** window, select the server for which agent service information is to be changed or viewed.
2. From the **Setting** menu, choose **Agent Service Setting**. The following **Agent Service settings** dialog box appears:



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In this dialog box, you can change or view agent service information. The sub-administrator can only view the information.

For details about the dialog box that is displayed when the Information Acquisition tab is chosen in the **Agent Service settings** dialog box, see "Setting an Environment (Information Acquisition)" on page 138.

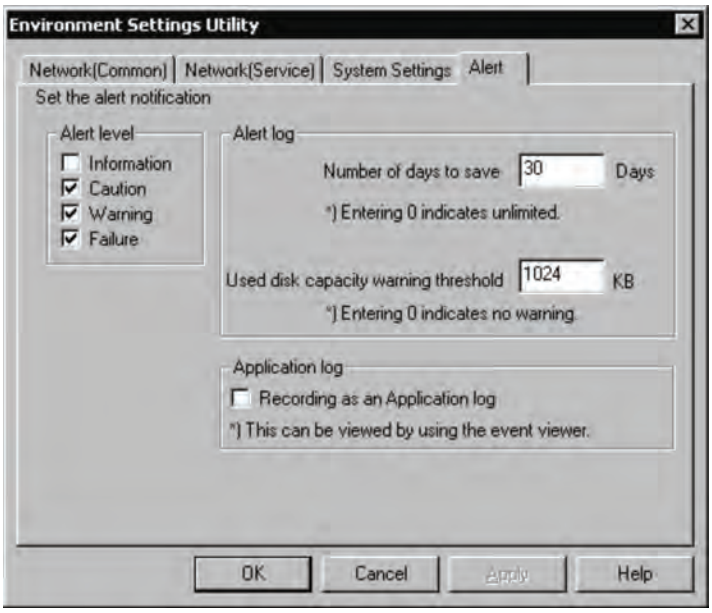
Network Information

You can set and view the network information. To set or view network information, choose the **Network** tab. The **Network** dialog box appears. On the **Network** page, you can set and view the following information.

Item	Setting
Command timeout value	Specify a command timeout in seconds for value when commands are transferred with the management console. The permitted value range is from 1 to 600. The default is 90 seconds.
Keep alive and its interval	Check this box if the keep alive function is to be used during transfer operations with the manager service. This check box is not selected by default. When you check this box, also set a keep alive interval in seconds. The permitted value range is from 1 to 3,600. The default is 600 seconds.

Alert Information

You can set and view information about alerts that are detected by the agent service. To set alert information, choose the **Alert** tab. The **Alert** page appears.



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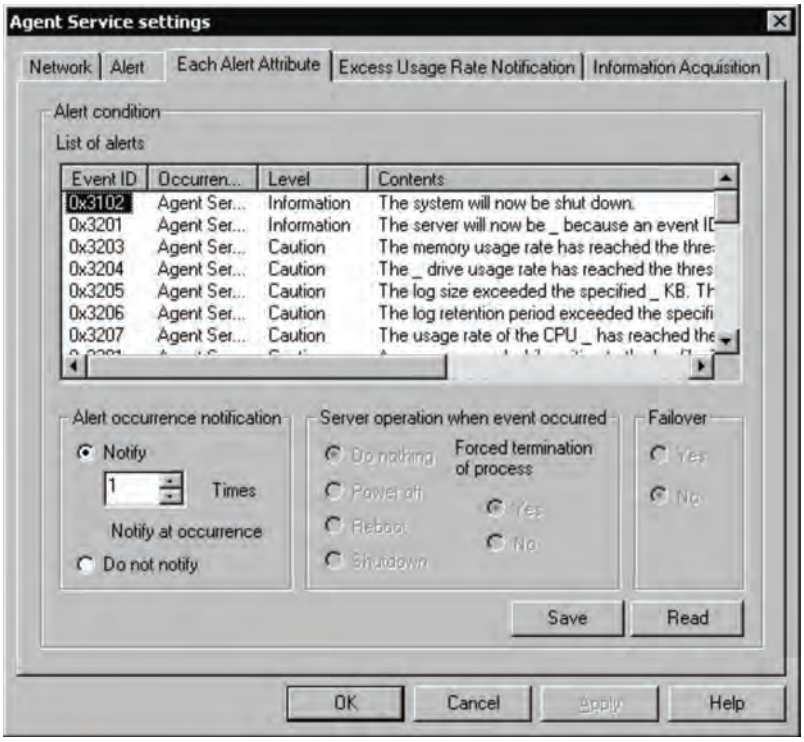
On the **Alert** page, you can set and view the following information:

Item	Setting
Alert level	Select the levels of alerts that are to be sent to the manager service (select the applicable check boxes).
Number of days to save	Specify a retention period (number of days) for the alert log file. When this number of days is reached, a notification is sent to the management console. The permitted value range is from 0 to 90. The default is 30 days. When 0 is set, the alert log file will be retained indefinitely (until the user deletes it).
Used disk capacity warning threshold	Specify a warning size for the alert log (in kilobytes). When the total size of alert log information exceeds this value, a warning is sent to the management console (alert log information is saved as one file per day). The permitted value range is from 0 to 1,048,576. The default is 1,024 kilobytes. If 0 is set, no warning will be sent.
Application log	Check this box if alerts sent by the agent service are to be recorded as application log information. The created application log information can be viewed by the Event Viewer. **NOTE:** Alerts for Linux servers cannot be recorded as application log information.

You can set whether or not each alert is to be reported. For details, see “Attribute Information for Each Alert”.

Attribute Information for Each Alert

You can set the alerts for which the console service is to be notified. You can also set an action to be taken at the server when a particular alert occurs, such as rebooting or turning off the power. To set attribute information for an alert, choose the **Each Alert Attribute** tab.



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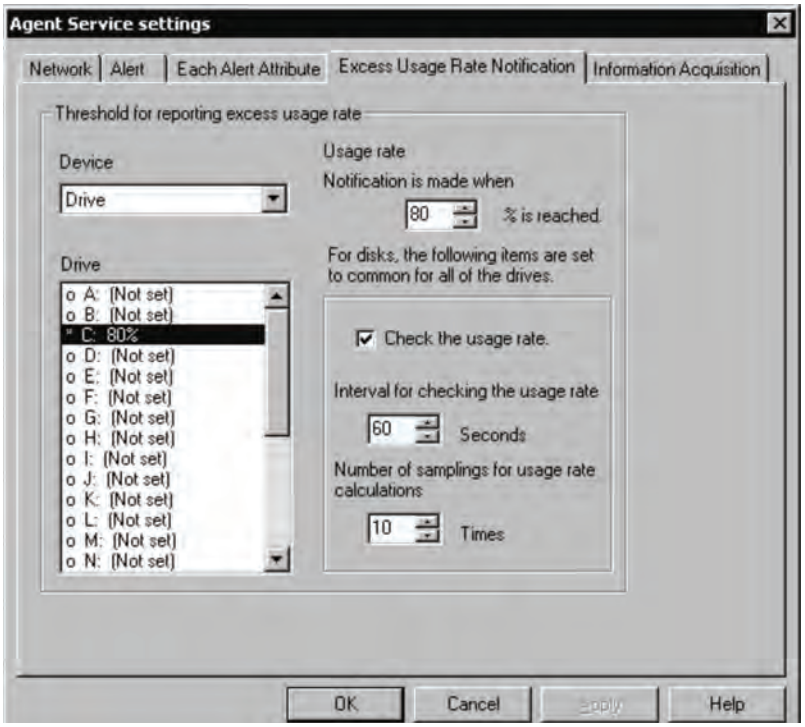
On the **Each Alert Attribute** page, you can set and view the following information:

Item	Setting
List of alerts	Displays information about all alerts. From this list, select an alert to be reported to the console service or an alert for which a server action is to be set.
Alert occurrence notification	Set the number of times the alert selected in **List of alerts** must occur before notification is sent to the management console. The permitted value range is from 1 to 65,534. The default depends on the type of server being managed. If no notification is to be sent, select **Do not notify**. For an alert whose level has been defined for non-notification on the **Alert** page of the **Agent Service Settings** dialog box, notifications will not be sent even if you set a count here. For details about the setting method, see "Filtering in Units of Alerts" on page 125.

Item	Setting
Server operation when event occurs	Select a power control operation to be performed at the server when the event occurs. Also set whether or not processes that had started at the time the event occurred are to be terminated forcibly. Select the desired check boxes. The defaults are that **Do nothing** and **No** (for forced termination of processes) are selected. **NOTE:** Once the server action is executed as a result of the event, the setting is reset to **Do nothing**. To execute this action the next time the event occurs, the server action must be set again.
Failover	Select whether or not failover is to occur. The default is **No**. **NOTE:** The failover setting is applicable to Microsoft Cluster Server* clusters only.
Save button	Click to save all alert attributes displayed in the **List of alerts** in the alert attribute file.
Read button	Click to read the alert attribute file and set attributes of alerts in the batch mode.

Excess Usage Rate Notification

You can set excess usage rates (percentages) for the processor, memory, drives, and file systems. When usage of any resource for which a threshold has been set reaches the specified rate, a notification is sent to the manager service. To set excess usage rate notifications, choose the **Excess Usage Rate Notification** tab.



On the **Excess Usage Rate Notification** page, you can set and view the following information:

Item	Setting
Device	Select the type of device to be checked for excess usage rate notification. The devices that can be checked depend on the type of server. The following devices are supported for each server type: • Windows* server: processor, memory, drives • Linux* server: processor, memory, file systems
Drives or File systems	Lists the drives or file systems, depending on the selected server type, and for each shows its current usage rate (percentage). From this list, select the drive or file system for which excess usage rate notification is to be set.
Check the usage rate	Select this check box to instruct that usage rates are to be checked. The default is that this check box is cleared. To change excess usage rate notification settings, you must first select this box. When you do so, the other settings become enabled.
Usage rate	Set an excess usage rate percentage for the CPU, memory, drive, or file system. When this usage is reached, a notification will be sent. For the processor, the permitted value range is from 10 to 100 percent, and the default is 30%. For memory, drive, or file system, the permitted value range is from 40 to 100 percent, and the default is 80%.
Interval for checking the usage rate	Set the interval in seconds at which the processor, memory, drive, or file system usage rate is to be checked. The permitted value range is from 1 to 86,400 seconds. The default is 10 seconds for the processor or memory and 60 seconds for a drive or file system. This checking interval applies to all drives or all file systems; different values cannot be set for individual drives or file systems, such as 3 seconds for drive C and 5 seconds for drive D.
Number of samplings for usage rate calculations	An excess usage rate notification is sent to the manager when the average of multiple values obtained from checking reaches the specified Usage value. Set in this item the number of times checking is to be performed to obtain the average value. The permitted value range is from 1 to 1,000 times. The default is 10 times. This sampling count applies to all drives or to all file systems; different values cannot be set for individual drives or file systems, such as 10 times for drive C and 20 times for drive D.

To set excess usage rate notification:

1. Select the **Check the usage rate** check box.
2. For a Windows* server, **select CPU**, **Memory**, or **Drive**. For a Linux* server, select **CPU**, **Memory**, or **File system**.
3. If you selected **Drive or File system**, double-click on the name of the drive or file system whose usage rate is to be checked.

   The items displayed as file systems correspond to the file system information in the inventory information. Check these items beforehand. Especially when file systems are grouped, correspondence between a file system's index number and the actual file system varies from one server to another.
4. Set the checking items.

   Set the usage rate, checking interval, and sample count. When you specify settings for drives or file systems, you can set a different usage rate for each drive or file system, but the same checking interval and sampling count apply to all drives or to all file systems.

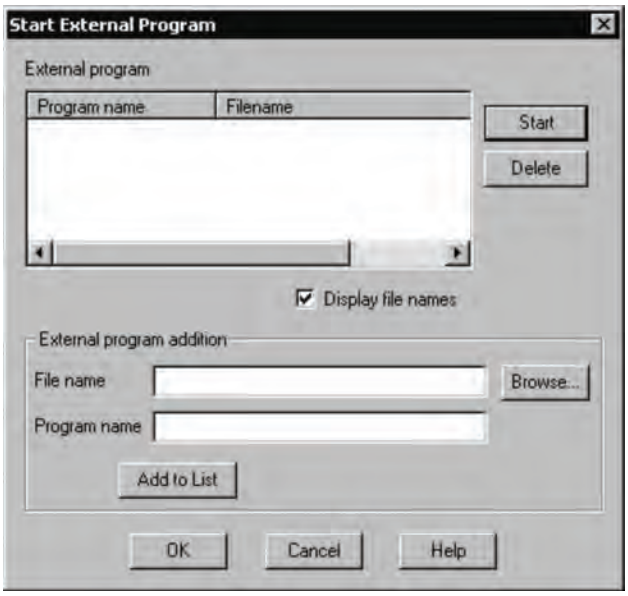
12 Program Linkage

ServerConductor supports linkage to other programs for purposes of system management. This chapter describes how to register external programs and how to start linked programs from the console service.

Registering External Programs

To start an external program from the console service, you must have registered the program in advance. To register external programs, you must have logged on as administrator. The sub-administrator can execute registered external programs, but cannot register them.

To register an external program, in the **Host Management** window, from the **External Program** menu, choose **External Program**. The **Start External Program** dialog box appears:



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To register external programs:

1. In the File name text box, enter the file name of the external program to be started (absolute path name). Alternatively, click **Browse** and select the file name of the external program to be started.
2. In the **Program name** text box, type the program name for the specified file.
3. Click **Add to List**. The added program name and file name are displayed in the list of external programs.

If you wish to register multiple external programs, repeat this procedure.

To delete a registered external program, select the program, and then click **Delete**.

Starting External Programs

This subsection describes how to start the program registered according to "Registering External Programs" on page 163. For starting external programs, there are no restrictions on the user permissions.

To start an external program:

1. In the **Host Management** window, from the **External Program** menu, choose **External Program**. The **Start External Program** dialog box appears.
2. From the list of external programs, select the name of the program that you wish to start.
3. Click **Start**. The selected external program is started.

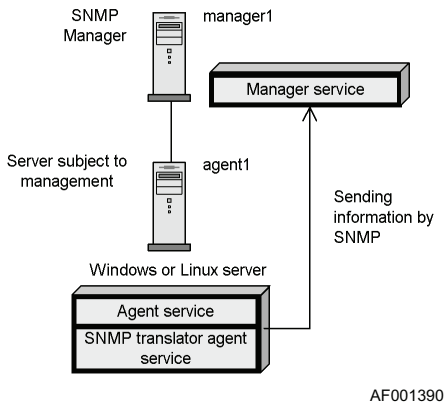
13 SNMP Translator

The server information managed by ServerConductor can be viewed by an SNMP manager. This chapter describes the SNMP translator function provided by the SNMP translator agent service.

About the SNMP Translator

The SNMP translator is a function that converts alert information managed by ServerConductor's agent service to MIB, which is a network management database, and sends it by SNMP.

You can use an SNMP manager to view information sent by SNMP.



Notes:

- *The SNMP translator cannot convert alerts issued by the agent service to SNMP for transmission.*
- *The Linux* version supports only the event notification function; only the Windows* version can view machine management information.*

SNMP Translator Environment for Windows* Server Management

For details about the Windows* SNMP service, see your Windows documentation.

Perform the following steps at the managed server:

1. Set up the Windows* SNMP service.
2. Install the SNMP translator.

Perform the following steps at the SNMP manager:

1. Install the SNMP manager on the machine to be used to view information.
2. Set up an environment for the SNMP manager.

About Traps for the SNMP Translator (Windows* Server)

The SNMP translator issues traps for alerts that are supported by ServerConductor and for other events that are reported by DMI-supported hardware components.

Traps for Alerts Supported by ServerConductor

The SNMP translator issues the traps listed in the table below according to the classification and importance of the alerts sent by ServerConductor. Trap issuance control based on the importance of alerts and each alert's count depends on the ServerConductor's agent service settings. For details about the alerts sent by ServerConductor, see Invent.xls in the help folder at the console service installation target.

Table 28. Trap Alerts

Error Type	Information	Caution	Warning	Failure
Driver-related	driverTrapInformation (102)	driverTrapNon-Critical (104)	driverTrapCritical (105)	driverTrapNon-Recoverable (106)
CI-related	ciTrapInformation (202)	ciTrapNon-Critical (204)	ciTrapCritical (205)	ciTrapNon-Recoverable (206)
OS-related	osTrapInformation (402)	osTrapNon-Critical (404)	osTrapCritical (405)	osTrapNon-Recoverable (406)
Casing-related	bodyTrapInformation (502)	bodyTrapNon-Critical (504)	bodyTrapCritical (505)	bodyTrapNon-Recoverable (506)
UPS-related	powerUpsTrapInformation (602)	powerUpsTrapNon-Critical (604)	powerUpsTrapCritical (605)	powerUpsTrapNon-Recoverable (606)

Table 28. Trap Alerts

Error Type	Information	Caution	Warning	Failure
System board-related	systemBoardTrapInformation (702)	systemBoardTrapNon-Critical (704)	systemBoardTrapCritical (705)	systemBoardTrapNon-Recoverable (706)
Extension slot-related	extendedSlotTrapInformation (802)	extendedSlotTrapNon-Critical (804)	extendedSlotTrapCritical (805)	extendedSlotTrapNon-Recoverable (806)
SCSI-related	scsiTrapInformation(902)	scsiTrapNon-Critical (904)	scsiTrapCritical (905)	scsiTrapNon-Recoverable (906)
Network-related	networkTrapInformation (1302)	networkTrapNon-Critical (1304)	networkTrapCritical (1305)	networkTrapNon-Recoverable (1306)

The following information is stored in each variable binding:

- Variable 1 binding: Event ID (alert ID in decimal)
- Variable 2 binding: Event type
- Variable 3 binding: Importance of the event
- Variable 4 binding: System generating the event
- Variable 5 binding: Subsystem generating the event
- Variable 7 binding: Location where event occurred
- Variable 8 binding: Event generation time
- Variable 9 binding: Message related to the event (event contents)

No information may be stored in some binding variables. When there is no information for the variable 2, 4, or 5 binding, 0 is stored; when there is no information for the variable 7 binding, the null character string is stored.

Traps for Events sent by other DMI-supported Hardware Components

When the SNMP translator detects DMI-supported hardware component events, it issues the following traps:

- generalTrapInformation(2)
- generalTrapNon-Critical(4)
- generalTrapCritical(5)
- generalTrapNon-Recoverable(6)

The importance levels of these events are information, caution, warning, and failure. The following information is stored in each variable binding:

- Variable 1 binding: Component generating the event
- Variable 2 binding: Event type
- Variable 3 binding: Importance of the event
- Variable 4 binding: System generating the event
- Variable 5 binding: Subsystem generating the event
- Variable 7 binding: Location where event occurred
- Variable 8 binding: Event generation time
- Variable 9 binding: Message related to the event (event contents)
- Variable 10 binding: Message related to the event (solution method)
- Variable 11 binding: Message related to the event (hexadecimal data)

No information may be stored in some binding variables. When there is no information for the variable 2, 4, 5, or 10 binding, 0 is stored; when there is no information for the variable 1, 7, 9, or 11 binding, the null character string is stored.

To receive traps with the SNMP manager, the Set Event command must be used for setup. We recommend that you set Error Category, Error Event, and Importance in the SNMP manager as follows.

Table 29. Event Priorities

Number	Importance in ServerConductor	Importance in SNMP Manager
1	Information	Normal region
2	Caution	Caution region
3	Warning	Caution region
4	Failure	Dangerous region and important caution region

Note: *Depending on the server environment or network status, the requested information may not be acquired for viewing because of a response timeout.*

SNMP Translator Environment for Linux* Server Management

To use the SNMP translator to view Linux* server information perform the following steps:

1. Install Agent (Linux).
2. Execute the smhaaedit command with the -snmp option specified. The **SNMP Configuration File** menu is displayed. For details about the smhaaedit command's format, see "smhaaedit Command Format" on page 170.

   The following shows an example of the **SNMP Configuration File** menu:

```
#### ServerConductor/Agent ####
 ####          SNMP Configuration File          ####
  1.Community1                        [public]
  2.SNMPManagerAddress1               ->
 .............omitted.............

 Command(1-8/Menu/Quit)>
```

3. Set required items with the **SNMP Configuration File** menu.

   With the **SNMP Configuration File** menu, set the community name used for trap notification and the IP address of the target SNMP manager to which traps are to be sent. The following table describes the settings with the **SNMP Configuration File** menu.

Item	Default	Setting
CommunityX (X: 1 to 4)	Public for Community1, "" for other	Set the community name used for trap notification, as 1-127 alphanumeric characters. None of the following characters can be used: " # & ' ( ) \ | ; * < > `
SNMPManagerAddressX (X: 1 to 4)	None	Set the IP address of the SNMP manager to which trap notifications are to be sent. This item is set for each community.

Note: *The default value public has been set as the community name for Community1; however, we recommend that you change this default value for security reasons.*

4. Execute the smhaaedit command with the -adagent option specified. The **Advanced Agent Settings** menu is displayed.

Perform the following steps at the SNMP manager:

1. To enable the SNMP function, set **SNMPTranslatorAgentService** to **Enabled**.
2. Install the SNMP manager on the machine to be used to view information.
3. Set an environment for the SNMP manager.

smhaaedit Command Format

The command start format is as follows:

```
/usr/sbin/smhaaedit [-slevels-count] [-g[width][xheight]] [-snmp]
/usr/sbin/smhaaedit -h
```

The following command specifies the number of menu levels to be displayed. When this option is omitted, the number of menu levels is determined by the window size. The permitted values are 1 and 2.

```
-slevels-count
```

The following command specifies the window size in characters. The permitted value for the width (-g) is from 10 to 160 and for the height (x) is from 10 to 72. The default is -g80x24.

```
-g[width][xheight]
```

When the following option is specified, the **SNMP Configuration File** menu is displayed.

```
-snmp
```

The following option displays command usage information.

```
-h
```

About Traps for the SNMP Translator (Linux Server)

The SNMP translator issues traps for alerts that are supported by ServerConductor.

Traps for Alerts Supported by ServerConductor

The SNMP translator issues the traps listed in the table below according to the classification and importance of the alerts sent by ServerConductor. Trap issuance control based on the importance of alerts and each alert's count depends on the ServerConductor's agent service settings. For details about the alerts sent by ServerConductor, see Invent.xls that is stored in the help folder at the console service installation target.

Error Type	Information	Caution	Warning	Failure
Casing-related	bodyTrapInformation (502)	bodyTrapNon-Critical (504)	bodyTrapCritical (505)	bodyTrapNon-Recoverable (506)
System board-related	systemBoardTrapInformation (702)	systemBoardTrapNon-Critical (704)	systemBoardTrapCritical (705)	systemBoardTrapNon-Recoverable (706)
Extension slot-related	extendedSlotTrapInformation (802)	extendedSlotTrapNon-Critical (804)	extendedSlotTrapCritical (805)	extendedSlotTrapNon-Recoverable (806)

The following information is stored in each variable binding:

- Variable 1 binding: Event ID
- Variable 2 binding: Event type
- Variable 3 binding: Importance of the event
- Variable 4 binding: System generating the event
- Variable 5 binding: Subsystem generating the event
- Variable 7 binding: Location where event occurred
- Variable 8 binding: Event generation time
- Variable 9 binding: Message related to the event (event contents)

No information may be stored in some binding variables. When there is no information for the variable 2, 4, or 5 binding, 0 is stored; when there is no information for the variable 7 binding, the null character string is stored.

14 Usage Notes

Console Service Notes

Alerts

- When a list of alerts is printed, the entire list may not print if the message width is wider than the paper. If this happens, output the list of alerts using the **Output of a File in CSV Format** menu, and then print it with a program that supports files in CSV format.
- While a pull-down menu is open in the **Host Management** window's subwindow, if an alert notification is received and a pop-up dialog box is displayed, mouse operations are disabled. If this happens, press either the **Enter** key to display the notification alert or the **ESC** key to close the pop-up window.
- Receipt of an alert notification while a server icon is disabled does not enable the server icon. Instead, you must use the connection function to connect to the server. When connection with the server is established, the server icon becomes enabled and an abnormality mark (red X) appears. In such a case, use **Notification Alerts View** to check the details of the alert.
- Each time an alert is sent to the management console, the console service's memory usage increases. For this reason, you should save in a file only that alert information that may become needed, and delete information that you will never have any need for.

Inventory

- When you have removed a CD-ROM after checking in the SCSI information its total physical capacity, the capacity display remains unchanged. The display does not change until you insert a different medium.
- If a session is closed due to an idle-session timeout while inventory is displayed and you then log on again, clicking the item selected in the inventory tree will not display information about that item. You must click another item once, and then you can click that item or refresh the displayed information.
- The number of ECC 1-bit error corrections displayed in the basis system's memory information is reset to 0 when the count reaches 255. For this reason, the number of corrections may appear to be less than what the console service shows.

Server Operation

- If no response message is sent from a managed server when its power is turned off or it is rebooted, a command timeout error may be displayed after a short while. If

this happens, establish connection with the server that was turned off or rebooted. If the command timeout error is displayed again, the server has been turned off or rebooted successfully.

Connection Management

- When a manager icon shows a question mark (?) in the service configuration view, managed servers cannot be deleted and servers cannot be registered. Check the status of the manager. When the manager icon returns to the normal status, server registration and deletion can be performed.

Settings

- To initially set a password, you must use the Environment Settings Utility. Once you have set a password, you can use the **Change Password** dialog box to change the password.
- The **Apply** button is disabled in the **Agent Service Settings** dialog box. To apply the settings, click **OK**.
- In the **Agent Service Settings** dialog box, on the **Each Alert Attribute** page, you can set the **Server operation when event occurs** option. This setting is cleared once it is executed. Therefore, when an event has occurred, check the cause of the event, and then set this option again.
- In the **Agent Service Settings** dialog box, on the **Each Alert Attribute** page, in **Server operation when event occurs**, if you select **No** for **Forced termination of process** and there is a process that does not respond to process termination at the managed server, the termination processing will be cancelled. If this happens, the agent service is terminated and it can no longer be manipulated from the management console. To avoid this, when you specify power-off, rebooting, or shutdown of a managed server from the management console, make sure that **Yes** is selected for **Forced termination of process**.
- For a host name of the console service, manager service, or agent service, set a character string whose length does not exceed 31 characters.

Multi-connection Configuration

The console service or an agent service can be connected to multiple manager services.

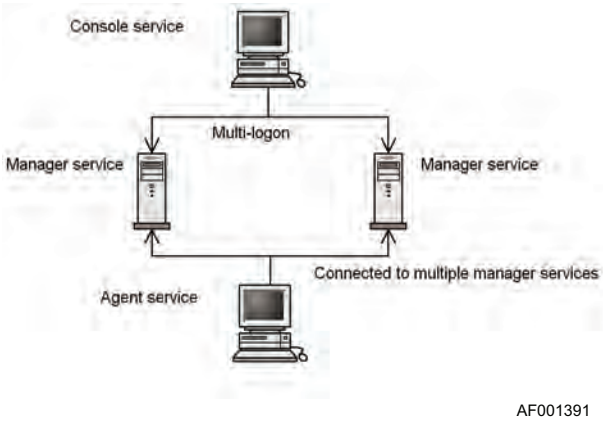


Figure 27. Example of Multi-connection Configuration

If the same host is connected to different manager services, the host is displayed for each manager in the service configuration view. In any other views, this host is displayed as a single host.

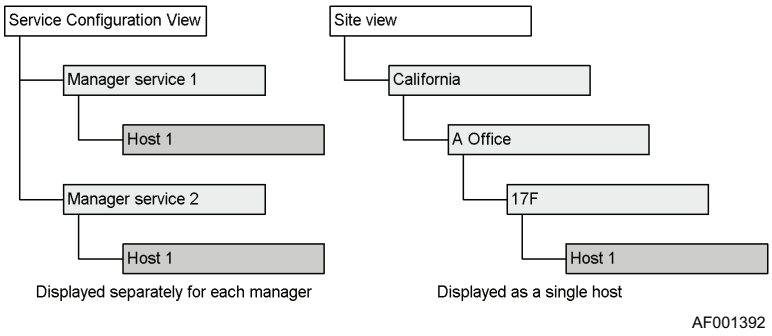


Figure 28. Display for Multi-connection Configuration

Manager Service Connection Error

If an attempt to establish connection with the manager service results in an error during host access, the manager icon in the **Host Management** window is placed in unconnected status (inactive state).

However, if another target manager service is available for the host, choosing Refresh triggers an attempt to establish connection with another manager service at the connection destination. If this connection establishment is successful, the manager icon returns to normal status (active state).

Alert Notification

If multiple identical alerts occur at the same host at the same time, the alert is sent to the console service only once (duplicate alerts are not sent).

Inventory CSV File Output

When **All hosts** is selected in the **Inventory CSV File Output** dialog box, information about the same host is output only once.

Grouping

In a single grouping window, the same host can be registered only once. Because the hosts with different parent managers are still treated as the same host, any host registered in one group cannot be registered in another group.

Deleting Hosts

When a host is deleted in the service configuration view, the host is deleted only from under the manager service at the connection destination.

When a host is deleted in any other view, the host is deleted from under all service managers.

Host Search

During a host search, the database managed by each manager service is queried, and then the search result is displayed.

If both manager services have created databases in the configuration shown in Figure 27 on page 175, check the **Host Result** window's **Manager Service** column to identify the manager service from which the search result was obtained.

Other Notes

- If you restart the manager service while the machine is running, you must log on again to use the console. This is because the same status as at the time of disconnection occurs due to an idle-session timeout. This event occurs even when the idle-session timeout is set to 0. In such a case, log on again as instructed in the displayed message. If possible, try not to restart the machine on which the manager service is installed.
- When the console service's window is inactive, an attempt to display error and information messages sends control to the background of other application windows.
- Depending on the status of the communication line, operation from the management console may be executed normally even if a command-sending timeout error has occurred.

  Example: Power-off operation was executed on a managed server, but a command timeout error occurred. The server's power has actually been turned off.
- ServerConductor does not support the Dynamic Host Configuration Protocol (DHCP). You must not set up DHCP on a machine where ServerConductor is installed.
- Do not change the access permissions and service accounts in the files provided by ServerConductor. Changes to this information may have adverse effects on ServerConductor operations.

Appendix A: Getting Help

Table 30. Management Console Error Messages (KASM2nnnn, SASM3nnnn, KASM6nnnn)

Message ID	Message Text	Action
KASM20002	The Time Setting list is empty. Register at least one schedule, and then specify a setting.	Register a schedule in the list of time settings, and then set.
KASM20003	The list of specific dates that have been set is full. Delete one of the dates, and then specify a setting.	Delete an unneeded specific day schedule, and then set.
KASM20004	The date to be set has not been specified. Use the [Day] button or [Specific Date] button to specify the date to be set.	Specify the date for which the schedules in the list of time settings are to be set.
KASM20005	The **Host Management** window cannot be closed.	No action is required.
KASM20006	The manager service address is invalid.	Use the Environment Settings Utility to set the manager service at the connection destination again.
KASM20007	The password is incorrect.	You attempted to change a password, but no new password was entered or the re-entered password did not match the specified password. Set the password again.
KASM20008	The external program list is full.	Delete an unneeded external program, and then register.
KASM2000C	[No node transfer] and [No state change] cannot be simultaneously selected.	Select either **No node transfer** or **No state change**.
KASM2000D	A schedule for a non-existent group is included.	Delete the schedules for nonexistent groups.
KASM2000E	A schedule for a non-existent node is included.	Delete the schedules for nonexistent nodes.
KASM2000F	The specified start date for displaying the alert log is invalid.	The start date must precede the end date.
KASM20010	The specified end date for displaying the alert log is invalid.	The end date must be subsequent to the start date.
KASM20011	A start date has not been specified for displaying the alert log.	Specify the start day for displaying alert logs.

Table 30. Management Console Error Messages (KASM2nnnn, SASM3nnnn, KASM6nnnn)

Message ID	Message Text	Action
KASM20012	An end date has not been specified for displaying the alert log.	Specify the end day for displaying alert logs.
KASM20013	A program name has not been set.	Set the name of the external program.
KASM20014	A file name has not been set.	Set the file name of the external program.
KASM20015	The root manager service cannot be deleted.	No action is required.
KASM20016	A host on which the management window is open cannot be deleted. Close the window, and then delete the host.	Close all windows related to the host, and then re-execute.
KASM20017	A group has not been selected. Select at least one group, and then add an entry to the schedule.	Select a group, and then re-execute.
KASM20018	A copy or move cannot be performed. The destination and source groups are the same.	Check the receiving group.
KASM20019	A copy or move cannot be performed. The destination group is a subgroup of the source group.	Check the receiving group.
KASM2001A	A copy or move cannot be performed. The same group or host already exists in the destination group.	Check the receiving group.
KASM2001B	A copy or move cannot be performed. The object you attempted to copy or move is not a group or registerable host, or it contains a host that connot be registered to group.	Check the object to be copied or moved.
KASM2001C	The group name cannot be changed. A group with the same name already exists.	Enter another name.
KASM2001D	A settable host does not exist in the group.	Start a host in the group. Also, copy a host that can be set in batch mode for the group.
KASM2001E	An operable host does not exist in the group.	Start a host in the group. Also, copy a host that can be connected to the group.
KASM2001F	A copy or move cannot be performed. The same host already exists in the group tree.	Delete an existing host, and then re-execute.

Table 30. Management Console Error Messages (KASM2nnnn, SASM3nnnn, KASM6nnnn)

Message ID	Message Text	Action
KASM20020	No subgroups at a deeper level can be created.	Create subgroups using no more than eight hierarchical levels.
KASM20021	A copy or move cannot be performed. The host or group of the copy source has been deleted.	No action is required.
KASM20022	The tree cannot be displayed properly because the grouping data is invalid.	Re-create the grouping data.
KASM20023	MANAGER agent cannot be registered by using the IP address. Enter the host name.	Enter the host name, and then register the agent.
KASM20024	The host cannot be copied or moved to directly below the root of a group tree.	No action is required.
KASM20025	The notification destination list is full. Delete one of the notification destinations, and then add an entry to the list.	Delete an unneeded notification destination, and then add.
KASM20026	A required item has not been entered.	Check the settings, and then enter an item that has not been set.
KASM2002A	The same service name already exists. Enter a different service name.	Rename the service.
KASM2002B	The number of user-defined services exceeds the settable limit. Delete one of the user-defined services, and then select a new service.	To set a new service, delete the service that has already been defined.
KASM2002C	An invalid character is included. Recheck the contents of the settings.	Re-enter the settings.
KASM2002D	The IP address or name of the host to be registered has not been entered.	Enter an IP address or host name, and then re-execute.
KASM2002E	The number of schedules that can be set per day exceeds 10.	Delete an unneeded schedule from the list of time settings, and then add.
KASM2002F	A schedule has already been set at less than 30 minutes before or after the time that an attempt was made to set.	Allow at least 30 minutes between the schedules for updating or sending auto-report notification.
KASM20030	The reporting time list is full. Delete one of the reporting times, and then add an entry to the list.	Delete an unneeded report time, and then add.

Table 30. Management Console Error Messages (KASM2nnnn, SASM3nnnn, KASM6nnnn)

Message ID	Message Text	Action
KASM20031	The reporting conditions list is full. Delete one of the reporting conditions, and then add an entry to the list.	Delete an unneeded report condition, and then add.
KASM20032	The number of settable search condition lists exceeds 10.	Delete an unneeded search conditions list, and then add.
KASM20033	An error occurred while reading the file for host search data.	Use Explorer to check the disk for errors.
KASM20034	An error occurred while writing to the file for host search data.	(1) Save data to a disk that has sufficient free space. (2) Use Explorer to check the disk for errors.
KASM20035	A schedule has already been set for the time that an attempt was made to set.	Set the schedule to be excluded at a different time.
KASM20036	The specified drive or folder cannot be accessed.	Use Explorer* to check the folder, and then re-execute. If the same event recurs, restart the system.
KASM20037	No more can be added to the menu.	The maximum number of information acquisition menus that can be registered was exceeded. Delete an unneeded menu, and then register.
KASM20038	A non-numeric character has been entered in the search condition. Only numeric values can be entered in the selected item.	Enter a numeric value in the search condition.
KASM20039	The conditional expression between the items is invalid.	An invalid conditional expression was specified linking the search items. Check the following: Use “and” or “or” to set the value in the range from 1 to 10 that was specified in the set search condition. A maximum of 20 ands or ors can be specified in conditional expressions linking items. A maximum of 10 levels of parentheses can be specified.
KASM2003A	The data source has been deleted. The reporting function is unavailable.	Create a data source for the report information in the manager service settings.
KASM2003B	An item required for the host search has not been entered.	No condition for the host search has been entered. Enter the appropriate item.
KASM2003C	A conditional expression has not been set between items.	Enter a conditional expression linking items.

Table 30. Management Console Error Messages (KASM2nnnn, SASM3nnnn, KASM6nnnn)

Message ID	Message Text	Action
KASM2003D	Disk space for the transmission destination is insufficient.	Save data to a disk that has sufficient free space.
KASM20041	There is an unusable reporting notification method. Use the manager service settings to specify the required item.	In the manager service settings, set the report method.
KASM20042	Email information has not been set. Use the manager service settings specify the email settings for the reporting function.	In the manager service settings, specify the email settings for the report function.
KASM20043	The specified transmission destination path does not exist.	Create the specified destination path. Set the destination path again, and then re-execute.
KASM20044	The connection-destination manager service is full. Delete one of the manager services, and then add an entry to the list.	Delete one of the manager services, and then add it to the list.
KASM20045	The manager service to be logged in has not been selected.	Select the manager service to be logged on.
KASM20046	The IP address is invalid. Specify a valid IP address.	Set the correct IP address.
KASM20047	The HTML format cannot be selected because the manager service is old. Select the CSV format for the attached file.	Change the format of the attached file to CSV, and then try again.
KASM2004A	The specified file cannot be opened.	Check the file specification.
KASM2004B	The size of the specified file is invalid.	Check the specified file size.
KASM2004D	A valid manager service does not exist.	No supported manager service has been logged on. Log on to the correct manager service.
KASM2004F	The specified file has already been registered in the list.	A file with the same name cannot be registered more than once.
KASM20050	The OS of the selected server is running. Wait a while, and then try again.	Make sure that the OS is running at the managed server.
KASM20052	The OS of the operating server might be hung up.	Check the status of the managed server.
KASM20055	The specified file is not an alert attribute file.	Specify the correct alert attribute file.
KASM20056	The specified alert attribute file is invalid.	Specify the correct alert attribute file.

Table 30. Management Console Error Messages (KASM2nnnn, SASM3nnnn, KASM6nnnn)

Message ID	Message Text	Action
KASM20057	The version of the alert attribute file is invalid.	Specify an alert attribute file whose version is supported by the console service being used.
KASM20058	The SVP module cannot be registered by using the host name. Enter the IP address.	Enter the IP address, and then register the module.
KASM20059	Enter the correct name.	Check for any invalid characters in the name, and then enter a valid name.
KASM21001	The external program could not be started.	Check the file name set for the external program.
KASM21002	An attempt to write to the registry has failed.	Installation environment is invalid. Uninstall and then re-install.
KASM21003	The alert conditions settings file is corrupted.	Installation environment is invalid. Uninstall and then re-install.
KASM21004	The alert conditions settings file was not found.	Installation environment is invalid. Uninstall and then re-install.
KASM21005	An error occurred during printing.	Restart the system.
KASM21006	An error occurred during printing. The disk area for spooling is insufficient.	Allocate sufficient disk space, and then re-execute.
KASM21007	An error occurred during printing. The memory area for spooling is insufficient.	Terminate some applications, and then re-execute.
KASM21008	An error occurred during printing. The print job was canceled.	Re-execute.
KASM21009	An error occurred while writing to the node data file.	Installation environment is invalid. Uninstall and then re-install.
KASM2100A	An error occurred while writing to the CSV file.	(1) Save data to a disk that has sufficient free space. (2) Use Explorer to check the disk for errors.
KASM2100B	An error occurred while reading the alert data file.	Use Explorer* to check the disk for errors.
KASM2100C	An error occurred while writing to the alert data file.	(1) Save data to a disk that has sufficient free space. (2) Use Explorer to check the disk errors.
KASM2100E	An error occurred while reading the schedule data file.	Use Explorer to check the disk for errors.

Table 30. Management Console Error Messages (KASM2nnnn, SASM3nnnn, KASM6nnnn)

Message ID	Message Text	Action
KASM2100F	An error occurred while writing to the schedule data file.	(1) Save data to a disk that has sufficient free space. (2) Use Explorer to check the disk for errors.
KASM21010	An error occurred while reading the node data file.	Installation environment is invalid. Uninstall and then re-install.
KASM21014	The group has been deleted. Update to the latest information.	Refresh the information.
KASM21015	The resource has been deleted. Update to the latest information.	Refresh the information.
KASM21017	There is no switching destination for the owner node.	Cancel the operation and check to see if there is a switchover-target node.
KASM21018	The association of the SVP and the host is invalid. An invalid environment might have been created previously. Delete the host, and then either perform registration again or restart the agent.	An error occurred in the operating environment because a port number or IP address was changed without the previous host being deleted. Delete the host, and then re-register the SVP.
KASM2101A	An attempt to start the alert action program has failed.	Re-execute. If the error recurs, re-install the program.
KASM2101B	This function cannot be operated because the agent service version is too old.	To use this function, use the most recent agent service.
KASM2101C	The write operation cannot be performed because the disk is full.	Delete unneeded files to provide free disk space.
KASM2101D	The data cannot be acquired. The host configuration might have been changed. Update the host information to the latest information.	Update with the latest information, and then perform the operation again.
KASM2101E	The local IP address cannot be obtained.	Check the network settings again.
KASM21022	An error occurred during mutual monitoring with SVP.	Check the status of the managed server.
KASM21023	An error occurred while writing to the alert attribute file.	(1) Save data to a disk that has sufficient free space. (2) If the file used for writing data is in the read-only mode, change its mode so that data can be written. (3) Check for disk errors.
KASM21024	An error occurred while reading the alert attribute file.	Check for disk errors.

Table 30. Management Console Error Messages (KASM2nnnn, SASM3nnnn, KASM6nnnn)

Message ID	Message Text	Action
KASM21026	There is no image data file.	The agent service used for draft view has an invalid environment. Check and, if necessary, revise its environment.
KASM21027 - KASM21031	An error occurred while reading the image data.	(1) Terminate some applications, and then re-execute. (2) Check for disk errors. (3) The agent service used for draft view has an invalid environment. Re-install the agent service.
KASM21032 - KASM21033	An error occurred while displaying the image data.	Terminate some applications, and then re-execute.
KASM21037	An error occurred while reading the MIB file. Detailed message (An attempt to analyze or open the file has failed.) (file-name)	(1) Obtain a new MIB file and retry, or check to see if the MIB file supports SNMP v1. (2) Check the file access permissions. (3) Use Explorer to check the disk for errors.
KASM21038	An error occurred while writing to the export data file.	(1) There is not enough disk space. Save data to a disk that has sufficient free space. (2) A disk error occurred. Use Explorer to check the disk for errors.
KASM21039	An error occurred while writing to the defined-contents confirmation data file.	(1) There is not enough disk space. Save data to a disk that has sufficient free space. (2) A disk error occurred. Use Explorer to check the disk for errors.
KASM2103A	An error occurred while reading the import data file. Detailed message.	(1) The format of import data is invalid. Check the format of the import data. (2) Check the file access permissions. (3) Use Explorer* to check the disk for errors.
KASM21801	An error occurred in the network to the computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.

Table 30. Management Console Error Messages (KASM2nnnn, SASM3nnnn, KASM6nnnn)

Message ID	Message Text	Action
KASM21802	An error occurred while logging in to computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21803	An error occurred in the reboot request to computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21804	An error occurred in the power-on request to computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21805	An error occurred in the power-off request to computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21806	An error occurred during remote control operation of computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21807	An error occurred while setting the power control schedule for computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21808	An error occurred while processing the password change of computer name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21809	An error occurred while connecting to computer-name (service-name). Use the settings utility to check the settings, and then reboot the system.	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM2180A	An error occurred while disconnecting communication with computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM2180B	An error occurred while obtaining settings information for computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM2180C	An error occurred while configuring computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.

Table 30. Management Console Error Messages (KASM2nnnn, SASM3nnnn, KASM6nnnn)

Message ID	Message Text	Action
KASM2180D	An error occurred while checking the keep-alive connection of computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM2180E	An error occurred during server connection to computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM2180F	An error occurred while deleting computer-name (service-name) from the management target.	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21810	An error occurred while obtaining inventory information for computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21813	An error occurred while obtaining the alert logs for computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21814	An error occurred while obtaining the SVP for computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21815	An error occurred while obtaining alert log file information for computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21816	An error occurred while deleting the alert log file for computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21818	An error occurred while setting computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM2181A	An error occurred while obtaining the host status for computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM2181B	An error occurred while obtaining settings information for computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.

Table 30. Management Console Error Messages (KASM2nnnn, SASM3nnnn, KASM6nnnn)

Message ID	Message Text	Action
KASM2181C	An error occurred while setting computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM2181D	An error occurred while deleting computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM2181F	An error occurred while obtaining the power control schedule for computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21820	An error occurred in a forced-power-off request to computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21828	An error occurred while registering a host into the management targets for computer-name (service-name).	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM2182A	An error occurred while obtaining grouping data.	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM2182B	An error occurred while writing grouping data.	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM2182C	An error occurred during processing to unlock the grouping data.	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM2182D	An error occurred during processing to lock the grouping data.	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM2182E	An error occurred while checking whether the host belongs to a group.	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM2182F	An error occurred in the shutdown request for %s.	This error message is displayed together with another error. The action to be taken depends on the other error.

Table 30. Management Console Error Messages (KASM2nnnn, SASM3nnnn, KASM6nnnn)

Message ID	Message Text	Action
KASM21830	An error occurred while obtaining the information acquisition menu.	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21831	An error occurred while executing the information acquisition menu.	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21832	An error occurred while executing the information acquisition menu.	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21834	An error occurred while setting the information acquisition menu.	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21835	An error occurred while obtaining file information.	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21836	An error occurred while executing the information acquisition menu.	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21837	An error occurred while obtaining a reporting schedule.	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21838	An error occurred during the host search.	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM21839	An error occurred while updating the database.	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM2183A	An error occurred while setting the reporting schedule.	This error message is displayed together with another error. The action to be taken depends on the other error.
KASM2183B	An error occurred in the report function of %s.	This is an internal error. Restart the console service.
KASM2183E-E	This error message is displayed with other messages.	Re-execute the operation. If the same error is displayed, contact the system administrator.

Table 30. Management Console Error Messages (KASM2nnnn, SASM3nnnn, KASM6nnnn)

Message ID	Message Text	Action
KASM2184E		To use this function, update the system with the latest SVP firmware.
KASM22001	An error occurred in Windows. Restart the system.	Restart the system.
KASM22002	An error occurred in the console service. Restart the console service.	Restart the console service.
KASM22003	An attempt to allocate memory has failed. Close some applications, and then try again.	Terminate some applications, and then re-execute.
KASM22004	An error occurred while writing to an error log file. This error cannot be retained in a log.	No action is required.
KASM30011	The argument is invalid.	This is an internal error. Restart the console service.
KASM30012	The address is invalid.	This is an internal error. Restart the console service.
KASM30013	Communication has not been prepared.	Wait a while in the **Login** window, and then click **OK** again.
KASM30014	The operation has been duplicated.	Wait until the operation is finished, and then perform the next operation.
KASM30015	A connection with the manager service is not established.	Check the connection settings of the manager service.
KASM30016	A connection has already been established with the manager service.	Check if the connection settings or operation is duplicated.
KASM30017	You are not yet logged in.	Perform the operation after you have logged on.
KASM30018	Seed information does not exist.	This is an internal error. Restart the console service.
KASM30019	This function is not supported.	Check the documentation for details about the unsupported function.
KASM3001A	Processing cannot be executed because the host is not connected. Establish a connection.	From the **Host Operation** menu, execute **Connect**.
KASM3001C	This node is not a subordinate node.	Make sure the node is being managed.
KASM3001D	An invalid response regarding the operation was returned.	Make sure the network status is normal and the agent on the node targeted by the operation is operating correctly.

Table 30. Management Console Error Messages (KASM2nnnn, SASM3nnnn, KASM6nnnn)

Message ID	Message Text	Action
KASM3001E	A communication error occurred (packet header error).	Make sure the network status is normal and the agent on the node targeted by the operation is operating correctly.
KASM3001F	A communication error occurred (packet data error).	Make sure the network status is normal and the agent on the node targeted by the operation is operating correctly.
KASM30020	The length of the received data is invalid.	Make sure the network status is normal and the agent on the node targeted by the operation is operating correctly.
KASM30021	The received packet was discarded because the format is invalid.	Make sure the network status is normal and the agent on the node targeted by the operation is operating correctly.
KASM30022	An error occurred when the error log file was being written.	Make sure the disk has free space and the OS is stable.
KASM30023	A response for an unimplemented operation was received.	Do not change an IP address during an operation. Restart the console service.
KASM30024	The operation cannot be performed because the node has already been deleted.	Do not perform operations on a node that has been deleted.
KASM30028	This function cannot be operated because the manager service version is too old.	To use this function, update the manager service to the most recent version.
KASM3002A	An error occurred during an operation to one or more manager services.	Make sure the communication status is normal and the manager service at the operation destination node is operating correctly. Check also for a settings error if the settings have been changed.
KASM3002B	An error occurred during operation to all of the manager services.	Make sure the communication status is normal and the manager service at the operation destination node is operating correctly.
KASM3002C	A manager service that can execute the specified function was not found.	Make sure the manager service at the operation destination node is operating correctly.
KASM3002D	The response from SVP was returned with an error.	Make sure there are no errors in the settings needed to send and receive information to and from SVP.

Table 30. Management Console Error Messages (KASM2nnnn, SASM3nnnn, KASM6nnnn)

Message ID	Message Text	Action
KASM3002E	The response from SVP was returned with an error.	Make sure there are no errors in the settings needed to send and receive information to and from SVP.
KASM3002F	Invalid data was accessed.	Either the program was not installed correctly or data on the disk is corrupt.
KASM30030	An undefined library error occurred.	Either the program was not installed correctly or data on the disk is corrupt.
KASM30031	A node required for this operation is not registered.	Make sure the operation destination node is registered correctly.
KASM30032	Data cannot be acquired from SVP. Check whether SVP is running.	Make sure SVP is running. If it is running, wait a little while, and then perform the operation again.
KASM300F0	An attempt to allocate memory has failed.	Make sure there is enough storage capacity on the OS and there is enough disk capacity for the virtual storage area.
KASM300F1	The port number is unknown.	Make sure there are no errors in the port number setting or the port number is not duplicated.
KASM300F2	A data conversion error occurred during internal processing.	This is an internal error. Make sure the OS is stable.
KASM300F3	The window for alert notification does not exist.	This is an internal error. Make sure the OS is stable.
KASM300FF	A control contradiction occurred during internal processing.	This is an internal error. Make sure the OS is stable.
KASM30100	Processing cannot continue because there are not enough resources.	This is an internal error. Make sure the OS is stable.
KASM30101	An error occurred in Windows.	This is an internal error. Make sure the OS is stable.
KASM6A101	Processing cannot be executed because the method for obtaining information is unknown.	Restart the agent service.
KASM6A201	An attempt to execute the command for obtaining inventory information has failed.	Restart the agent service.
KASM6A301	An attempt to execute the command for obtaining inventory information has failed.	Restart the agent service.

Table 30. Management Console Error Messages (KASM2nnnn, SASM3nnnn, KASM6nnnn)

Message ID	Message Text	Action
KASM6A302	A timeout was detected while obtaining inventory information.	Use the Environment Settings Utility to set a slightly larger command timeout value.

Table 31. Network Error Messages (KASM4nnnn)

Message ID	Message Text	Action
KASM42104	The maximum number of creatable sockets has been reached. Release some connections, and then try again.	Release some of the connections, and then re-execute.
KASM42106	A connection cannot be established. (connection error)	The connection target may not be active. Make sure that the connection target has started.
KASM42107	A packet cannot be sent.	Data cannot be transmitted for reasons such as a busy line. Re-execute after a while.
KASM43102	The specified address is invalid.	Start the Environment Settings Utility, check the connection-target address or host name, and then restart the service.
KASM43201	A send command timeout was detected.	There is no response to the request. Processing may be too slow at the connection destination. Use the Environment Settings Utility to set a large command timeout value.

Table 32. Manager Service Error Messages (KASM5nnnn)

Message ID	Message Text	Action
KASM50003	This host has already been deleted by another console service. To delete this host, from the menu select **[Connection Management]** and then **[Delete]**.	Delete this host by choosing the console service's connection management, and then clicking **Delete**.

Table 32. Manager Service Error Messages (KASM5nnnn)

Message ID	Message Text	Action
KASM5000D	This host has already been deleted by another console service. To delete this host, from the menu select **[Connection Management]** and then **[Delete]**.	Delete this host by choosing the console service's connection management, and then clicking **Delete**.
KASM5000E	This host has already been deleted by another console service. To delete this host, from the menu select **[Connection Management]** and then **[Delete]**.	Delete this host by choosing the console service's connection management, and then clicking **Delete**.
KASM507B8	A table for which deletion processing failed remains on the database.	Manually delete the database that has been set at the server where the manager service is installed.
KASM507BB	An error occurred while registering the DSN.	Check the DSN information that has been set at the server where the manager service is installed.
KASM507BC	An error occurred while updating the database.	Connect the agent service on the host where databases can be registered to the manager service. If the error cannot be corrected by the above actions, use the **Manager Service Settings** dialog box to reset the report function.
KASM507BD	An error occurred while searching the database.	If the value entered as the host search conditions is too large, check and, if necessary, revise the search item. If you have changed the DSN settings on the **Control Panel**, restore the original settings. If the error cannot be corrected by the above actions, create a new DSN and set the report function using the **Manager Service Settings** dialog box.
KASM50018	The DLL function has not been loaded.	Service is being initialized. Re-execute after a little while.
KASM51003	The password is incorrect.	Re-enter the password.
KASM51016	A password has not been set.	Set the password with the Environment Settings Utility.
KASM51019	Data cannot be transferred to the SVP.	Network data is invalid. Contact program maintenance personnel.
KASM51031	An attempt to add a node has failed.	Check the following: Whether or not the specified IP address or host name is correct. Whether or not the type of host to be registered is correct. Whether or not the address of the host name specified in the manager service can be resolved

Table 32. Manager Service Error Messages (KASM5nnnn)

Message ID	Message Text	Action
KASM51033	The connection to the Manager Manager service was lost for a reason such as a session timeout or line disconnection. Log in again	Log in again after checking that the Manager Service has started and that the line is connected.
KASM51038	The grouping data is locked.	The grouping data is being updated by another management console. Wait until the updating by the other management console has been completed.
KASM51039	The manager service locked the grouping data.	The grouping data is being updated by the manager service. Re-execute after a while.
KASM5103A	The grouping data was not found.	The grouping data has not been registered.
KASM5103B	The grouping data is not locked.	Data was unlocked because the session with the manager service was closed temporarily due to a session timeout. Cancel the operation.
KASM51042	Deletion could not be performed because the grouping data is locked.	The grouping data is being edited by another console service. Wait a while, and then re-execute.
KASM51044	A save could not be performed because the grouping data contains a deleted host. Use the **Host Management** window to update to the latest information, and then delete any unnecessary hosts.	Delete unneeded hosts from the grouping data.
KASM5106F	The inventory information database has already been created.	No action is necessary because this is not a failure notification.
KASM5107F	A power-on request could not be sent from the manager service.	On the machine where the manager service has been installed, check the following: 1. The correct network settings have been specified, such as IP address, default gateway, and subnet mask. 2. The LAN cable has been attached securely.
KASM51500		Update the system with the latest manager service.
KASM51501		Update the system with the latest SVP firmware.
KASM52003	An attempt to access alert management information has failed.	Uninstall, and then re-install.

Table 33. Agent Service Error Messages on WIndows Server (KASM6nnnn)

Message ID	Message Text	Action
KASM63101	An unsupported command was received.	Make sure that the agent service being used supports this function.
KASM67101	A shutdown permission flag has not been locally set.	To permit shutdown, in the **Agent Service** dialog box of the server's Environment Settings Utility, click **Set Details**, choose the **System Settings** tab, and then change the shutdown permission setting to **Permit**.
KASM67102	An error occurred as a result of a shutdown being executed.	A shutdown instruction was executed, but an error occurred during shutdown processing. If SVP has been installed, execute forced shutdown.
KASM67701	An attempt to access the file has failed.	Menu information is invalid. Set the correct menu information.
KASM67702	The menu information is invalid.	Menu information is invalid. Set the correct menu information.
KASM67703	An attempt to execute the tool has failed.	Tool execution failed because its execution time was too long. Delete the registration from the menu.
KASM67704	An attempt to execute the tool has failed.	Menu information is invalid. Set the correct menu information.
KASM67705	An attempt to obtain file information has failed.	Use Explorer to check the disk for errors.
KASM67707	The output file is being used for an email transmission.	Wait a while, and then re-execute.
KASM67708	Information is being obtained for the same server from another console.	Wait a while, and then re-execute.
KASM67C01	An attempt to obtain file information has failed.	(1) Check for disk errors. (2) Environment of the agent service is invalid. Re-install the agent service.
KASM64201 - KASM64203,		
KASM68801 - KASM68804	The operating environment for the agent service is invalid. Re-install the agent service.	Reinstall the Agent.
KASM68805 - KASM68807	An attempt to initialize the agent service has failed.	Execute the Environment Settings Utility, and then restart the agent service.

Table 33. Agent Service Error Messages on WIndows Server (KASM6nnnn)

Message ID	Message Text	Action
KASM68901	An error occurred in a sub-module of the agent service.	Check the operating environment. If necessary, restart the machine or agent service (SM_AgtSvc and SM_AgtProvider services).

Table 34. Agent Service Error Messages on Linux Server (KASM6nnnn)

Message ID	Message Text	Action
KASM 20053-W	The alert logs for the specified date have already been deleted.	From the **Console** menu, choose **Host Management**, and then **Alert Log** to specify the date again.
KASM 61202-C	Memory cannot be allocated.	Terminate some applications, and then restart the agent service.
KASM 61302-C	The operating environment for the agent service is invalid. Re-install the agent service.	Installation environment is invalid. Uninstall the agent, and then re-install it.
KASM 63101-C	An unsupported command was received.	To use this function, use the most recent agent service.
KASM 63201-C	Either an unsupported command was received, or a module for processing a requested command was incorrectly installed.	Installation environment is invalid. Uninstall the agent, and then re-install it.
KASM 63202-C	An unsupported command was received.	Installation environment is invalid. Uninstall the agent, and then re-install it.
KASM 63203-C	An unsupported command was received.	Installation environment is invalid. Uninstall the agent, and then re-install it.
KASM 63204-C	An unsupported command was received.	Installation environment is invalid. Uninstall the agent, and then re-install it.
KASM 63205-C	An unsupported command was received.	Installation environment is invalid. Uninstall the agent, and then re-install it.
KASM 64201-C	The operating environment for the agent service is invalid. Re-install the agent service.	Installation environment is invalid. Uninstall the agent, and then re-install it.
KASM 64202-C	The operating environment for the agent service is invalid. Re-install the agent service.	Installation environment is invalid. Uninstall the agent, and then re-install it.

Table 34. Agent Service Error Messages on Linux Server (KASM6nnnn)

Message ID	Message Text	Action
KASM 64203-C	The operating environment for the agent service is invalid. Re-install the agent service.	Installation environment is invalid. Uninstall the agent, and then re-install it.
KASM 65303-C	An attempt was made to obtain the polling value of the disk, but the value has not been set.	Restart the console service, and then re-execute. If this action does not correct the event, contact the system administrator.
KASM 65304-C	This polling ID is not supported.	To use this function, use the most recent agent service.
KASM 67101-C	The permission settings for executing the shutdown and reboot commands from the console service have been set to “Do not permit”.	To permit shutdown, change the environment setting command's “ShutdownDemand” setting to True.
KASM 67102-C	An error occurred as a result of executing a shutdown.	Check if /sbin/shutdown is available. If the command is available, check its execution permissions.
KASM 67202-C	The alert log file could not be deleted.	The specified alert log file has already been deleted or a disk error may have occurred. Check for the file or a disk error.
KASM 67701-C	An attempt to access the file has failed.	There is not enough space in the file system. Delete unneeded files from the file system. If this does not correct the event, the file may have been deleted illegally. Uninstall the Agent, and then re-install it.
KASM 67702-C	The menu information is invalid.	The server was unable to execute the specified menu. Check that the server environment satisfies the conditions for executing the menu. If this does not correct the event, the installation environment may be invalid. Uninstall the Agent, and then re-install it.
KASM 67703-C	Tool execution timed out.	Tool execution failed because its execution time was too long. For the command transmission timeout value, set a larger value than the current value.
KASM 67704-C	An attempt to execute the tool has failed.	Make sure that the server environment and settings satisfy the tool execution conditions. The tool execution conditions depend on the specified tool.
KASM 67705-C	An attempt to obtain information has failed.	Installation environment is invalid. Uninstall the Agent, and then re-install it.

Table 34. Agent Service Error Messages on Linux Server (KASM6nnnn)

Message ID	Message Text	Action
KASM 67706-C	An attempt to transmit the file has failed.	The transferred file may have been corrupted. Check the transferred file.
KASM 67709-C	The tool file information is invalid.	Installation environment is invalid. Uninstall the Agent, and then re-install it.
KASM 67901-C	The OS information cannot be obtained.	Make sure that the Agent supports the Kernel version. If the Kernel version is normal, the OS may not be functioning normally. Check the free space and file permissions for /proc, and then reboot the OS. If this action does not correct the event, re-install the OS.
KASM 67902-C	The system information cannot be obtained.	Make sure that the Agent supports the Kernel version. If the Kernel version is normal, the OS may not be functioning normally. Check the free space and file permissions for /proc, and then reboot the OS. If this action does not correct the event, re-install the OS.
KASM 67903-C	The mount information cannot be obtained.	Make sure that the Agent supports the Kernel version. If the Kernel version is normal, the OS may not be functioning normally. Check the free space and file permissions for /proc, and then reboot the OS. If this action does not correct the event, re-install the OS.
KASM 67904-C	The file system information is invalid.	Make sure that the Agent supports the Kernel version. If the Kernel version is normal, the OS may not be functioning normally. Check the free space and file permissions for /proc, and then reboot the OS. If this action does not correct the event, re-install the OS.
KASM 67981-C	An attempt to access /proc has failed.	Make sure that the Agent supports the Kernel version. If the Kernel version is normal, the OS may not be functioning normally. Check the free space and file permissions for /proc, and then reboot the OS. If this action does not correct the event, re-install the OS.

Table 34. Agent Service Error Messages on Linux Server (KASM6nnnn)

Message ID	Message Text	Action
KASM 67982-C	An attempt to obtain keyboard information has failed.	Make sure that the Agent supports the Kernel version. If the Kernel version is normal, the OS may not be functioning normally. Check the free space and file permissions for /proc, and then reboot the OS. If this action does not correct the event, re-install the OS.
KASM 67983-C	An attempt to access /proc has failed.	Make sure that the Agent supports the Kernel version. If the Kernel version is normal, the OS may not be functioning normally. Check the free space and file permissions for /proc, and then reboot the OS. If this action does not correct the event, re-install the OS.
KASM 67984-C	An attempt to access the slot number definition file has failed.	Make sure that the Agent supports the Kernel version. If the Kernel version is normal, the OS may not be functioning normally. Check the free space and file permissions for /proc, and then reboot the OS. If this action does not correct the event, re-install the OS.
KASM 67985-C	An attempt to obtain IRQ information has failed.	Make sure that the Agent supports the Kernel version. If the Kernel version is normal, the OS may not be functioning normally. Check the free space and file permissions for /proc, and then reboot the OS. If this action does not correct the event, re-install the OS.
KASM 67986-C	An attempt to obtain CPU information has failed.	Make sure that the Agent supports the Kernel version. If the Kernel version is normal, the OS may not be functioning normally. Check the free space and file permissions for /proc, and then reboot the OS. If this action does not correct the event, re-install the OS.
KASM 67987-C	An attempt to access the PCI device definition file has failed.	Make sure that the Agent supports the Kernel version. If the Kernel version is normal, the OS may not be functioning normally. Check the free space and file permissions for /proc, and then reboot the OS. If this action does not correct the event, re-install the OS.

Table 34. Agent Service Error Messages on Linux Server (KASM6nnnn)

Message ID	Message Text	Action
KASM 67988-C	An attempt to analyze the slot number definition file has failed.	Make sure that the Agent supports the Kernel version. If the Kernel version is normal, the OS may not be functioning normally. Check the free space and file permissions for /proc, and then reboot the OS. If this action does not correct the event, re-install the OS.
KASM 67989-C	An attempt to access /proc has failed.	Make sure that the Agent supports the Kernel version. If the Kernel version is normal, the OS may not be functioning normally. Check the free space and file permissions for /proc, and then reboot the OS. If this action does not correct the event, re-install the OS.
KASM 6B101-C	An error occurred while accessing the IPMI driver.	Uninstall the Agent, and then re-install it. If re-installation does not correct the error, contact the system administrator.
KASM 6B102-C	An error occurred while accessing the IPMI driver.	Uninstall the Agent, and then re-install it. If re-installation does not correct the error, contact the system administrator.
KASM 6B103-C	An error occurred while accessing the IPMI driver.	Uninstall the Agent, and then re-install it. If re-installation does not correct the error, contact the system administrator.
KASM 6B104-C	An error occurred while accessing the IPMI driver.	Uninstall the Agent, and then re-install it. If re-installation does not correct the error, contact the system administrator.
KASM 6B105-C	An error occurred while accessing the IPMI driver.	Uninstall the Agent, and then re-install it. If re-installation does not correct the error, contact the system administrator.
KASM 6B106-C	An error occurred while accessing the IPMI driver.	Uninstall the Agent, and then re-install it. If re-installation does not correct the error, contact the system administrator.
KASM 6B107-C	An error occurred while accessing the IPMI driver.	Uninstall the Agent, and then re-install it. If re-installation does not correct the error, contact the system administrator.
KASM 6B108-C	An error occurred while accessing the IPMI driver.	Uninstall the Agent, and then re-install it. If re-installation does not correct the error, contact the system administrator.

Table 34. Agent Service Error Messages on Linux Server (KASM6nnnn)

Message ID	Message Text	Action
KASM 6B109-C	An error occurred while accessing the IPMI driver.	Uninstall the Agent, and then re-install it. If re-installation does not correct the error, contact the system administrator.
KASM 6B10A-C	An error occurred while accessing the IPMI driver.	Uninstall the Agent, and then re-install it. If re-installation does not correct the error, contact the system administrator.
KASM 6B2xx-C		
(xx: hexadecimal value)	An error occurred while accessing the IPMI driver.	Uninstall the Agent, and then re-install it. If re-installation does not correct the error, contact the system administrator.
KASA0905A-I	An alert occurred on the agent. (ID = 0x%04x, LEVEL = %S, MSG = %S)	An alert occurred. Take appropriate action for the ID according to B. List of Alerts.
KASA0906A-W	An alert occurred on the agent. (ID = 0x%04x, LEVEL = %S, MSG = %S)	An alert occurred. Take appropriate action for the ID according to B. List of Alerts.
KASA0907A-E	An alert occurred on the agent. (ID = 0x%04x, LEVEL = %S, MSG = %S)	An alert occurred. Take appropriate action for the ID according to B. List of Alerts.

Appendix B: List of Alerts

Table 35. Casing and Power Alerts

Alert ID	Level	Message	Action
0x0501	Warning	The temperature (<d>) in the frame exceeds the warning value.	Remove dust from the system device's air vent to provide good ventilation. If the same event recurs with good ventilation, contact hardware support or the hardware vendor for the system device.
0x0501	Warning	The temperature (<d>) in the frame exceeds the warning value.	Remove dust from the system device's air vent to provide good ventilation. If the same event recurs with good ventilation, contact hardware support or the hardware vendor for the system device.
0x0502	Failure	The temperature (<d>) in the frame has risen to an excessively high level.	Remove dust from the system device's air vent to provide good ventilation. If the same event recurs with good ventilation, contact hardware support or the hardware vendor for the system device.
0x0520	Warning	The voltage (<d>) on the package has risen above the standard value.	Contact hardware support or the hardware vendor for the system device.
0x0520	Warning	The voltage (<d>) on the package has risen above the standard value.	Contact hardware support or the hardware vendor for the system device.
0x0521	Warning	The voltage (<d>) on the package has fallen below the standard value.	Contact hardware support or the hardware vendor for the system device.
0x0521	Warning	The voltage (<d>) on the package has fallen below the standard value.	Contact hardware support or the hardware vendor for the system device.
0x0530	Warning	An error occurred in the power unit (<d>).	Contact hardware support or the hardware vendor for the system device.
0x0533	Caution	The temperature of the air intake into the frame has risen above the standard value.	Contact hardware support or the hardware vendor for the system device.

Table 35. Casing and Power Alerts

Alert ID	Level	Message	Action
0x0534	Caution	The temperature of the air intake into the frame has fallen below the standard value.	Contact hardware support or the hardware vendor for the system device.
0x0536	Failure	The temperature of the air intake into the frame has risen to an excessively high level.	Contact hardware support or the hardware vendor for the system device.
0x0537	Failure	An error occurred in the voltage (<d>) on the package.	Contact hardware support or the hardware vendor for the system device.
0x0601	Failure		Contact hardware support or the hardware vendor for the system device.
0x0602	Failure		Contact hardware support or the hardware vendor for the system device.
0x0603	Warning		Contact hardware support or the hardware vendor for the system device.

Table 36. System Board Alerts

Alert ID	Level	Message	Action
0x0561	Failure	An abnormal temperature was detected on the CPU in the CPU slot (<d>).	Remove dust from the system device's air vent to provide good ventilation. If the same event recurs with good ventilation, contact hardware support or the hardware vendor for the system device.
0x0562	Caution	The CPU in the CPU slot (<d>) was degraded.	Contact hardware support or the hardware vendor for the system device.
0x0564	Failure	An error occurred in the CPU in the CPU slot (<d>).	Contact hardware support or hardware vendor for the system device.
0x0569	Warning	The temperature of the CPU in the CPU slot (<d>) exceeds the warning value.	Remove dust from the system device's air vent to provide good ventilation. If the same event recurs with good ventilation, contact hardware support or the hardware vendor for the system device.

Table 36. System Board Alerts

Alert ID	Level	Message	Action
0x0571	Caution	Part of the installed memory has been started in a degraded state.	Contact hardware support or the hardware vendor for the system device.
0x0572	Information	The amount of installed memory is different from the last time.	Check if the memory configuration was changed before the system device was started.
0x05B0	Warning	An error occurred in the I2C bus.	Contact hardware support or the hardware vendor for the system device.
0x0611	Caution		Contact hardware support or the hardware vendor for the system device.
0x0612	Failure		Contact hardware support or the hardware vendor for the system device.
0x0613	Failure		Contact hardware support or the hardware vendor for the system device.
0x0614	Failure		Contact hardware support or the hardware vendor for the system device.
0x0615	Failure		Contact hardware support or the hardware vendor for the system device.
0x0616	Warning		No action is required.
0x0617	Failure		Contact hardware support or the hardware vendor for the system device.
0x0618	Warning		Contact hardware support or the hardware vendor for the system device.
0x0619	Failure		Contact hardware support or the hardware vendor for the system device.
0x061A	Failure		Contact hardware support or the hardware vendor for the system device.
0x061B	Warning		Contact hardware support or the hardware vendor for the system device.

Table 37. Extension Slot Alerts

Alert ID	Level	Message	Action
0x0584	Failure	An error occurred in the PCI hot plug slot (<d>).	Contact hardware support or the hardware vendor for the system device.

Table 38. BIOS POST Alerts

Alert ID	Level	Message	Action
0x05A0	Caution	An error was detected during BIOS POST.	Contact hardware support or the hardware vendor for the system device.

Table 39. Agent Service Alerts

Alert ID	Level	Message	Action
0x3102	Information	The system will now be shut down.	This is not an error message. No action is necessary.
0x3201	Information	The server will now be %s because an event ID [%x] occurred.	Take appropriate action according to the ID displayed in EventID:.
0x3203	Caution	The memory usage rate has reached the threshold %d% (%d KB/%d KB). The usage rate is currently %d% (%d KB/ %d KB).	Check and, if necessary, revise the system configuration or threshold settings.
0x3204	Caution	The %c drive usage rate has reached the threshold %d% (%d KB/%d KB). The usage rate is currently %d% (%d KB/ %d KB).	Check and, if necessary, revise the system configuration or threshold settings.
0x3205	Caution	The log size has reached the specified %d KB. The log size is currently %d KB.	More log information is stored than the specified size of the log storage area. Increase the log size setting or delete unneeded log information.

Table 39. Agent Service Alerts

Alert ID	Level	Message	Action
0x3206	Caution	The log retention period exceeded the specified %d days. The oldest logs will now be deleted.	The number of days log information has been stored exceeds the specified value (default is 30 days). The log information stored beyond the specified days will be deleted.
0x3207	Caution	The usage rate of the CPU %d has reached the threshold %d%. Currently, the usage rate is %d%.	Check and, if necessary, revise the system configuration or threshold settings.
0x3301	Caution	An error occurred while writing to the log file. The disk might be full. Check the free space on the disk.	Check the free disk space and delete unneeded files to provide more space.
0x3302	Caution	An error occurred while creating a log control file. The disk might be full. Check the free space on the disk.	Check the free disk space and delete unneeded files to provide more disk space.
0x3303	Caution	An error occurred while creating a log file. The disk might be full. Check the free space on the disk.	Check the free disk space and delete unneeded files to provide more space.
0x3304	Information	A property of the agent was changed.	This is not an error message. No action is necessary.
0x3801	Information	An alert occurred when the console service or manager service was not connected (%s-%s).	Regarding the alert issued during the specified period, check the alert log information for the host where the alert occurred.
0x8570	Caution	The usage rate of the file system <s> has reached the threshold <d>% (<d> KB/<d> KB). The usage rate is currently <d>% (<d> KB/<d> KB).	Check and, if necessary, revise the system configuration or threshold settings.

Table 40. Manager Service Alerts

lert ID	Level	Message	Action
0x4050	Caution	Reception of the <s> alert was canceled.	Check the client's alert status. To start receiving alerts again, choose **Refresh** or **Connect** from the menu.

Appendix C: Managable Inventory Information

Note: *The inventory information that can be acquired depends on the managed server type. For details about the inventory information that can be acquired, see Invent.xls in the help folder on the console service installation target.*

Inventory Information for Windows* Servers

Basic System Information

Basic system: Choosing basic system from the inventory tree displays the following information.

Table 41. System Device Information

Displayed Item	Description
Agent version	Agent version
RAS driver version	Nothing is displayed
Keyboard type	Keyboard type
Number of extension slots	Number of extension slots
System BIOS version	System BIOS version
System BIOS creation date	Creation date of the system BIOS

Table 42. Operating System and Network Information

Displayed Item	Description
OS name	OS being used by the server
OS version	OS version
Service pack	Service pack version being used by the servers
Domain name	Name of Windows domain to which the server belongs
Computer name	Server's computer name
Host name	Server's host name

Table 43. Casing Information

Displayed Item	Description
Temperature status	Icon indicating the temperature of the casing
Fan status	Icons indicating the number and status of fans in the casing:  Normal  Abnormal

Table 44. Power Information

Displayed Item	Description
UPS operating status	Nothing is displayed
Remaining battery charge	Nothing is displayed
Battery charge status	Nothing is displayed
Power unit	Icons indicating the number and status of power units:  Normal  Abnormal
Fan	Icon indicating the status of a power unit fan:  Normal  Abnormal
Voltage	Power supply voltage

Table 45. Processor Information

Displayed Item	Description
Processor name	Name of the CPU installed on the server
Maximum speed of processor	Clock speed of the installed CPU
Coprocessor name	Name of the coprocessor installed on the server
Attachment status	Icons indicating the number and status of processors mounted in a CPU socket:  Normal  Abnormal  Not mounted
Temperature status	Icon indicating the temperature of each CPU:  Normal  Abnormal
Fan status	Icon indicating the status of each CPU fan:  Normal  Abnormal
System cache size	Size of cache provided by the system

Table 46. Memory Information

Displayed Item	Description
column 1 and column 2	Size and status of each memory in memory slots 1 and 2:  Not connected  Connected  Degenerated  ECC 1-bit error  Configuration change, added  Configuration change, deleted
Total memory size	Total size of the memory currently installed
Maximum size of paging file	Sum of the sizes of physical memory and swap files
Number of ECC 1-bit error corrections	Number of times ECC 1-bit errors have been corrected
Address of correctable ECC error that occurred first	Nothing is displayed
Address of the first uncorrectable ECC error	Nothing is displayed

Logical Drive Information

Table 47. Logical Drive Information

Displayed Item	Description
Drive name	Drive name
Drive assortment	Drive assortment (such as floppy disk or local drive)
Total drive capacity	Total drive capacity (this information is not displayed if the selected drive is for a removable medium, such as a floppy disk, CD-ROM, or MO)
Free drive space	Amount of free drive space (this information is not displayed if the selected drive is for a removable medium, such as a floppy disk, CD-ROM, or MO)
Partition type	Drive's partition (such as FAT or NTFS)

SCSI Information

Table 48. SCSI Board Information

Displayed Item	Description
Driver name	Driver name of the SCSI adapter
Status	Status of the SCSI adapter

Table 49. SCSI Device Information

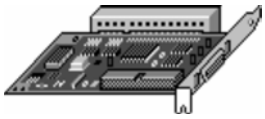
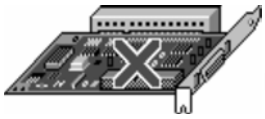
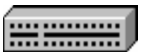
Displayed Item	Description
SCSI ID	SCSI ID
Logical unit number	Logical unit number
Device type	Type
Storage type	Storage type
Vendor name	Vendor name
Product name	Product name
Revision	Revision
Total physical capacity	Total capacity for a device such as a hard disk
Status	Whether the device is enabled or disabled
Total operation time	Cumulative operation time
Number of read accesses	Number of read accesses to the SCSI device
Number of write accesses	Number of write accesses to the SCSI device
Number of read errors	Number of read errors
Number of write errors	Number of write errors
Number of corrected read errors	Number of corrected read errors
Number of corrected write errors	Number of corrected write errors
Number of change processes	Number of times replacement was made
Number of bus resets	Number of time bus was reset
Number of bus parity errors	Number of bus parity errors
Bus phase, number of sequence errors	Number of bus phase sequence errors
Bus selection, number of time-outs	Number of bus selection time-outs
Number of media errors	Number of media errors
Number of device hardware errors	Number of device hardware errors
Number of device resets	Number of times the device was reset

Table 50. PCI Device Information

Displayed Item	Description
Primary PCI, secondary PCI	Nothing is displayed
Device number	Nothing is displayed
Status	Nothing is displayed

Extensible Slot Information

Table 51. PCI Slot Information

Displayed Item	Description
Slot n	Icon indicating the selected slot number, whether or not a board has been installed, and the status of the board, if installed:  Installed  Installed, error  Not installed  Not installed, error
Device ID	Nothing is displayed
Board name	Nothing is displayed
Vendor ID	Vendor ID of the installed PCI board
Vendor name	Vendor name of the installed PCI board
Fuse status	Fuse status of the PCI slot; either TRUE (normal) or FALSE (disconnected) is displayed as the status

System Resource Information

Table 52. Memory Information

Displayed Item	Description
Memory physical address	Physical address of the memory
Memory address length	Length of the memory address
Used device	Device that is in use

Table 53. I/O Port Information

Displayed Item	Description
Port physical address	Physical address of the port
Port address length	Length of the port address
Used device	Device that is in use

Table 54. DMA Information

Displayed Item	Description
DMA channel	DMA channel
Used device	Device that is in use

Table 55. IRQ Information

Displayed Item	Description
IRQ	IRQ
Used device	Device that is in use

Assets Information

Table 56. Device Information

Displayed Item	Description
Product name	Server's product name (the product name is set in the server hardware at the time of shipment, so this information cannot be changed)
Manufacturer's name	Server's manufacturer (this information cannot be changed because it is set in the hardware)

For Assets information, the information described below is displayed. This is the information that was set in the **Agent Service** dialog box of the Environment Settings Utility. If no asset information was set, this information is not displayed.

Table 57. Assets Information

Displayed Item	Description
Asset name	Asset name that has been set
Asset number	Asset number that has been set
Device configuration	Device configuration that has been set
Purchase date	Purchase date that has been set
Depreciation period	Depreciation period that has been set
Managed section	Managed section name that has been set
Managed section number	Managed section number that has been set
Administrator's name	Manager name that has been set
Administrator's number	Manager number that has been set
Administrator's details	Manager details that have been set

For Administrator information, the information described below is displayed. This is the information that was set in the **Agent Service** dialog box of the Environment Settings Utility. If no operation administrator information was set, this information is not displayed.

Table 58. Administrator Information

Displayed Item	Description
Operation administrator's name	Operation administrator's name that has been set
Operation administrator's number	Operation administrator's number that has been set
Operation administrator's details	Operation administrator's details that have been set
Contact point phone number	Contact point phone number that has been set
Contact point email address	Contact point email address that has been set

For Installation site/other, the information described below is displayed. This is the information that was set in the **Agent Service** dialog box of the Environment Settings Utility. If no installation site/other information was set, this information is not displayed.

Table 59. Installation Site / Other Information

Displayed Item	Description
Site information	Site information that has been set
Installation site details	Details of the installation site that have been set
Note	Note that has been set

Inventory Information for Linux Servers

This appendix section describes the items that can be displayed as inventory information for Linux servers.

Basic System Information

Basic system: Choosing Basic system from the inventory tree displays the following information:

Table 60. System Device Information

Displayed Item	Description
Agent version	Version of Agent (Linux)
RAS driver version	Nothing is displayed
Keyboard type	If X-Window has been installed, the keyboard type that was specified when X-Window was installed
Number of extension slots	Number of extension slots
System BIOS version	System BIOS version
System BIOS creation date	Creation date of the system BIOS

Table 61. Operating System and Network Information

Displayed Item	Description
OS name	OS being used by the server
OS version	OS version
Host name	Server's host name
Boot date and time	Last date and time the server was booted

Table 62. Casing Information

Displayed Item	Description
Temperature status	Icon indicating the temperature of the casing
Fan status	Icons indicating the number and status of fans in the casing:  normal  abnormal

Table 63. Power Information

Displayed Item	Description
UPS operation status	Nothing is displayed
Remaining battery charge	Nothing is displayed
Battery charge status	Nothing is displayed
Power unit	Icons indicating the number and status of power units:  Normal  Abnormal
Voltage	Power supply voltage

Table 64. Processor Information

Displayed Item	Description
Processor name	Name of the CPU installed on the server
Maximum speed of processor	Clock speed of the installed CPU
Coprocessor name	Name of the coprocessor installed on the server
Attachment status	Icons indicating the number and status of processors mounted in a CPU socket:  Normal  Abnormal  Not mounted
Temperature status	Icon indicating the temperature of each CPU:  Normal  Abnormal
Fan status	Icon indicating the status of each CPU fan:  Normal  Abnormal
System cache size	Size of cache provided by the system

Table 65. Memory Information

Displayed Item	Description
column 1 and column 2	Size and status of each memory in memory slots 1 and 2:  Not connected  Connected  Degenerated  ECC 1-bit error  Configuration change, added  Configuration change, deleted
Total memory size	Total size of the memory currently installed
Maximum size of paging file	Sum of the sizes of physical memory and swap files
Number of ECC 1-bit error corrections	Number of times ECC 1-bit errors have been corrected
Address of correctable ECC error that occurred first	Nothing is displayed
Address of the first uncorrectable ECC error	Nothing is displayed

File System Information

Choosing File system from the inventory tree displays the following information for each file system:

Table 66. File System Information

Displayed Item	Description
Mount point	Mount point of the file system
File system file	Type of file system (such as hfs)
Access type	Access type of the file system (such as Read Write)
Total capacity	Size of the file system
Free space	Free space in the file system
Total number of i-nodes	Total number of i-nodes that can be created in the file system
Number of free i-nodes	Number of available i-nodes
Disk	Disk special file name used in the file system

SCSI Information

Choosing SCSI from the inventory tree displays the following information for each adapter:

Table 67. SCSI Board Information

Displayed Item	Description
Driver name	Driver name of the SCSI adapter
Status	Nothing is displayed

Table 68. SCSI Device Information

Displayed Item	Description
SCSI ID	SCSI ID
Logical unit number	Logical unit number
Device type	Type
Storage type	Storage type
Vendor name	Vendor name
Product name	Product name
Revision	Nothing is displayed
Total physical capacity	Nothing is displayed
Status	Nothing is displayed
Total operation time	Nothing is displayed
Number of read accesses	Nothing is displayed
Number of write accesses	Nothing is displayed
Number of read errors	Nothing is displayed
Number of write errors	Nothing is displayed
Number of corrected read errors	Nothing is displayed
Number of corrected write errors	Nothing is displayed
Number of change processes	Nothing is displayed
Number of bus resets	Nothing is displayed
Number of bus parity errors	Nothing is displayed
Bus phase, number of sequence errors	Nothing is displayed
Bus selection, number of time-outs	Nothing is displayed
Number of media errors	Nothing is displayed
Number of device hardware errors	Nothing is displayed
Number of device resets	Nothing is displayed

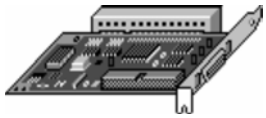
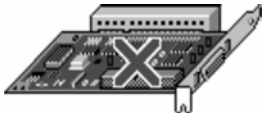
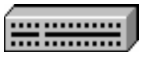
Extensible Slot Information

Extensible slot displays information about the PCI or EISA board that has been installed in the extension slot. Choosing an extension slot PCI from the inventory tree displays the following information:

Table 69. PCI Device Information

Displayed Item	Description
Primary PCI, secondary PCI	Nothing is displayed
Device number	Nothing is displayed
Status	Nothing is displayed

Table 70. PCI Slot Information

Displayed Item	Description
Slot n	Icon indicating the selected slot number, whether or not a board has been installed, and the status of the board, if installed:  Installed  Installed, error  Not installed  Not installed, error
Device ID	Nothing is displayed
Board name	Nothing is displayed
Vendor ID	Nothing is displayed
Vendor name	Vendor name of the installed PCI board

System Resource Information

Choosing System resource from the inventory tree displays the following information:

Table 71. Memory Information

Displayed Item	Description
Memory physical address	Physical address of the memory
Memory address length	Length of the memory address
Used device	Device that is in use

Table 72. U/O Port Information

Displayed Item	Description
Port physical address	Physical address of the port
Port address length	Length of the port address
Used device	Device that is in use

Table 73. DMA Information

Displayed Item	Description
DMA channel	DMA channel
Used device	Device that is in use

Table 74. IRQ Information

Displayed Item	Description
IRQ	IRQ
Used device	Device that is in use

Assets Information

Choosing Assets information from the inventory tree displays the following information:

Table 75. Device Information

Displayed Item	Description
Product name	Server's product name (the product name is set in the server hardware at the time of shipment, so this information cannot be changed)
Manufacturer's name	Server's manufacturer (this information cannot be changed because it is set in the hardware)

Assets Information

For Assets information, the information described below is displayed. This is the information that was set in the **Agent Service** dialog box of the Environment Settings Utility. If no asset information was set, this information is not displayed.

Table 76. Assets Information

Displayed Item	Description
Asset name	Asset name that has been set
Asset number	Asset number that has been set
Device configuration	Device configuration that has been set
Purchase date	Purchase date that has been set
Depreciation period	Depreciation period that has been set
Managed section	Managed section name that has been set
Managed section number	Managed section number that has been set
Administrator's name	Manager name that has been set
Administrator's number	Manager number that has been set
Administrator's details	Manager details that have been set

Administrator Information

For Administrator information, the information described below is displayed. This is the information that was set in the **Agent Service** dialog box of the Environment Settings Utility. If no operation administrator information was set, this information is not displayed.

Table 77. Administrator Information

Displayed Item	Description
Operation administrator's name	Operation administrator's name that has been set
Operation administrator's number	Operation administrator's number that has been set
Operation administrator's details	Operation administrator's details that have been set
Contact point phone number	Contact point phone number that has been set
Contact point email address	Contact point email address that has been set

Installation Site / Other

For Installation site/other, the information described below is displayed. This is the information that was set in the **Agent Service** dialog box of the Environment Settings Utility. If no installation site/other information was set, this information is not displayed.

Table 78. Installation / Other Information

Displayed Item	Description
Site information	Site information that has been set
Installation site details	Details of the installation site that have been set
Note	Note that has been set

Appendix D: Glossary

Term	Definition
alert	Information, such as about an error that has occurred on a host. Because ServerConductor can detect alert information, host failures can be handled at an early stage.
cluster	By treating two or more servers as a single system, the hot-standby and high availability functions are provided to the connected clients.
dump	Process of recording or displaying a file's contents or the memory contents.
failover	A function for using an alternate server to inherit processing and data in the event of a server failure.
host	Generic name for any Windows* server managed by ServerConductor.
hot plug	Mounting components without turning off the power.
IA32	Collective name for the micro-architectures used with Intel 32-bit microprocessors.
inventory	Information about a host's configuration and status, such as the OS version, hardware status, and hard disk capacity of a managed host.
Linux server	A Red Hat Enterprise Linux AS 4 server managed by ServerConductor.
load balancing	Technique for allocating processing to devices that operate in parallel in such a manner that the overall workload is distributed as evenly as possible among the devices.
MAC address	ID number unique to each Ethernet card. A unique number has been assigned to each and every Ethernet card and this number is used to transfer data between cards. This ID number is expressed by the combination of an IEEE-managed and -assigned fixed number for each manufacturer and a unique number assigned to each card by its manufacturer.
managed host	Generic name for any Windows* server managed by ServerConductor.
manager	Machine that manages an entire system through collective management of servers.
manager service log file	A log file output by the BSM manager service. Log information about communication using the SNMP protocol is also output to this log file.
server alert log	A log of alerts that have occurred at a server.
Windows* server	A PC server running Windows Server 2003* managed by ServerConductor.

Appendix E: Getting Help

World Wide Web

http://support.intel.com/support/motherboards/server/[Product Name].

Telephone

All calls are billed per incident, levied in local currency at the applicable credit card exchange rate plus applicable taxes. (Intel reserves the right to change the pricing for telephone support at any time without notice).

Before calling, fill out an "Intel® Server Issue Report Form". A sample form is provided on the following pages. However, for the fastest service, please submit your form via the Internet.

For an updated support contact list, see http://www.intel.com/support/9089.htm/

U.S. and Canada

1-800-404-2284

Europe

Belgium 02 714 3182

Denmark ... 38 487077

Finland 9 693 79297

France..... 01 41 918529

Germany ... 069 9509 6099

Holland..... 020 487 4562

Italy..... 02 696 33276

Norway 23 1620 50

Spain..... 91 377 8166

Sweden..... 08 445 1251

UK..... 870 6072439

In Asia-Pacific Region

Australia.... 1800 649931

Cambodia.. 63 2 636 9797 (via Philippines)

China ..... 800 820 1100 (toll-free)

..... 8 621 33104691 (not toll-free)

Hong Kong 852 2 844 4456

India..... 0006517 2 68303634 (manual toll-free. You need an IDD-equipped telephone)

Indonesia... 803 65 7249

Korea 822 767 2595

Malaysia 1 800 80 1390

Myanmar... 63 2 636 9796 (via Philippines)

New Zealand 0800 444 365

Pakistan..... 632 63684 15 (IDD via Philippines)

Philippines 1 800 1 651 0117

Singapore .. 65 6213-1311

Taiwan 2 2545-1640

Thailand.... 1 800 631 0003

Vietnam..... 632 6368416 (IDD via Philippines)

Japan

Domestic.... 0120 868686

Outside country 81 298 47 0800

Latin America

Argentina .. Contact AT&T USA at 0-800 222 1288. Once connected, dial 800 843 4481

Brazil 001-916 377 0180

Chile

Easter Island. ..... Contact AT&T USA at 800 800 311. Once connected, dial 800 843 4481

Mainland and Juan .. Contact AT&T USA at 800 225 288. Once connected, dial 800 843 4481

Colombia ... Contact AT&T USA at 01 800 911 0010. Once connected, dial 800 843 4481

Costa Rica . Contact AT&T USA at 0 800 0 114 114. Once connected, dial 800 843 4481

Ecuador

(Andimate) .... Contact AT&T USA at 1 999 119. Once connected, dial 800 843 4481
(Pacifictel) ..... Contact AT&T USA at 1 800 225 528. Once connected, dial 800 843 4481

Guatemala . Contact AT&T USA at 99 99 190. Once connected, dial 800 843 4481

Mexico ..... Contact AT&T USA at 001 800 462 628 4240. Once connected, dial 800 843 4481

Miami 1 800 621 8423

Panama..... Contact AT&T USA at 00 800 001 0109. Once connected, dial 800 843 4481

Paraguay ... 001 916 377 0114

Peru 001 916 377 0114

Uruguay..... 001 916 377 0114

Venezuela... Contact AT&T USA at 0 800 2255 288. Once connected, dial 800 843 4481