

**Hitachi Compute Blade Series  
Hitachi Compute Rack Series**  
Server installation and monitoring tool User's Guide  
alive monitoring functions

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# Preface

This document provides information on Server installation and monitoring tool User's Guide alive monitoring functions for Compute Blade and Compute Rack. Please read this document carefully, and maintain a copy for reference.

This preface includes the following information:

- [Intended audience](#)
- [Release Notes](#)
- [Abbreviations of Operating Systems](#)
- [Document Conventions](#)
- [Getting Help](#)
- [Technical Information and Update Program](#)
- [Comments](#)

**Notice:** The use of Compute Blade, Compute Rack, and all other Hitachi Data Systems products is governed by the terms of your agreement(s) with Hitachi Data Systems.

## Intended Audience

This document is intended for the personnel who are involved in planning, managing, and performing the tasks to prepare your site for Compute Blade and Compute Rack installation and to install the same.

This document assumes the following:

- The reader has a background in hardware installation of computer systems.
- The reader is familiar with the location where Compute Blade or Compute Rack will be installed, including knowledge of physical characteristics, power systems and specifications, and environmental specifications.

## Release Notes

Release notes contain requirements and more recent product information that may not be fully described in this manual. Be sure to review the release notes before installation.

## Abbreviations of Operating Systems

This section describes abbreviations of operating systems used in this manual.

- Microsoft® Windows Server® 2012 R2, Datacenter Edition  
(Hereinafter, referred to as Windows Server 2012 R2, Datacenter Edition; Windows Server 2012 R2)
- Microsoft® Windows Server® 2012 R2, Standard Edition  
(Hereinafter, referred to as Windows Server 2012 R2, Standard Edition; Windows Server 2012 R2)
- Microsoft® Windows Server® 2012, Datacenter Edition  
(Hereinafter, referred to as Windows Server 2012, Datacenter Edition; Windows Server 2012)
- Microsoft® Windows Server® 2012, Standard Edition  
(Hereinafter, referred to as Windows Server 2012, Standard Edition; Windows Server 2012)
- Microsoft® Windows Server® 2008 R2 Standard x64 Edition  
(Hereinafter, referred to as Windows Server 2008 R2, Standard x64 Edition; Windows Server 2008 R2 x64 Editions; Windows Server 2008 R2)
- Microsoft® Windows Server® 2008 R2 Enterprise x64 Edition  
(Hereinafter, referred to as Windows Server 2008 R2, Enterprise x64 Edition; Windows Server 2008 R2 x64 Editions; Windows Server 2008 R2)
- Microsoft® Windows Server® 2008 Standard  
(Hereinafter, referred to as Windows Server 2008 Standard; Windows Server 2008; Windows)
- Microsoft® Windows Server® 2008 Enterprise  
(Hereinafter, referred to as Windows Server 2008 Enterprise; Windows Server 2008; Windows)
- Microsoft® Windows Server® 2008 Standard without Hyper-V™  
(Hereinafter, referred to as Windows Server 2008 Standard without Hyper-V; Windows Server 2008 Standard; Windows Server 2008; Windows)
- Microsoft® Windows Server® 2008 Enterprise without Hyper-V™  
(Hereinafter, referred to as Windows Server 2008 Enterprise without Hyper-V; Windows Server 2008 Enterprise; Windows Server 2008; Windows)
- Red Hat® Enterprise Linux® Server 6.4  
(Hereinafter, referred to as Red Hat Enterprise Linux Server 6.4, Red Hat Enterprise Linux 6, or Linux)
- Red Hat® Enterprise Linux® Server 6.2  
(Hereinafter, referred to as Red Hat Enterprise Linux Server 6.2, Red Hat Enterprise Linux 6, or Linux)

- Red Hat® Enterprise Linux® Server 5.9  
(Hereinafter, referred to as Red Hat Enterprise Linux Server 5.9, Red Hat Enterprise Linux 5, or Linux)
- Red Hat® Enterprise Linux® Server 5.7  
(Hereinafter, referred to as Red Hat Enterprise Linux Server 5.7, Red Hat Enterprise Linux 5, or Linux)

## Document conventions

This term “Compute Blade” refers to all the models of the Compute Blade; the term “Compute Rack” refers to CR 210 and CR 220; unless otherwise noted.

The Hitachi Virtualization Manager (HVM) name has been changed to Hitachi logical partitioning manager (LPAR manager, or LP). If you are using HVM based logical partitioning feature, substitute references to Hitachi logical partitioning manager (LPAR manager, or LP) with HVM.

This document uses the following typographic conventions:

Convention	Description
<b>Bold</b>	Indicates text on a window, other than the window title, including menus, menu options, buttons, fields, and labels. Example: Click <b>OK</b> .
<i>Italic</i>	Indicates a variable, which is a placeholder for actual text provided by the user or system. Example: <i>copy source-file target-file</i> <b>Note:</b> Angled brackets (< >) are also used to indicate variables.
screen/code	Indicates text that is displayed on screen or entered by the user. Example: # <code>pairdisplay -g oradb</code>
< > angled brackets	Indicates a variable, which is a placeholder for actual text provided by the user or system. Example: # <code>pairdisplay -g &lt;group&gt;</code> <b>Note:</b> Italic font is also used to indicate variables.
[ ] square brackets	Indicates optional values. Example: [ a   b ] indicates that you can choose a, b, or nothing.
{ } braces	Indicates required or expected values. Example: { a   b } indicates that you must choose either a or b.
vertical bar	Indicates that you have a choice between two or more options or arguments. Examples: [ a   b ] indicates that you can choose a, b, or nothing. { a   b } indicates that you must choose either a or b.
<u>underline</u>	Indicates the default value. Example: [ <u>a</u>   b ]

## Getting Help

If you purchased this product from an authorized HDS reseller, contact that reseller for support. For the name of your nearest HDS authorized reseller, refer to the HDS support web site for locations and contact information. To contact the Hitachi Data Systems Support Center, please visit the HDS website for current telephone numbers and other contact information: <http://support.hds.com>.

Before calling the Hitachi Data Systems Support Center, please provide as much information about the problem as possible, including:

- The circumstances surrounding the error or failure.
- The exact content of any error message(s) displayed on the host system(s).

## Technical Information and Update Program

It is recommended that you apply the latest drivers, utilities, BIOS, and firmware for using the system unit safely. For the latest version of update programs, contact your reseller.

When maintenance personnel change components due to some failure, basically the latest version of BIOS and firmware are applied to the newly installed components. BIOS and firmware may be updated for not-replaced components in maintenance work.

## Comments

Please send us your comments on this document: [doc.comments@hds.com](mailto:doc.comments@hds.com). Include the document title, number, and revision, and refer to specific sections and paragraphs whenever possible. All comments become the property of Hitachi Data Systems Corporation. **Thank you!**





# Safety guidelines

Safety guidelines include warnings and important safety guidelines for using utilities for Hitachi Compute Rack series and Hitachi Compute Blade series. Read and understand the following information before using utilities.

- [Safety information](#)
- [Common precautions concerning safety](#)
- [Precautions against damage to equipment](#)

## Safety information

This document uses the following symbols to emphasize certain information.

Symbol	Label	Description
	WARNING	This indicates the presence of a potential risk that might cause death or severe injury.
	CAUTION	This indicates the presence of a potential risk that might cause relatively mild or moderate injury.
<b>NOTICE</b>	NOTICE	This indicates the presence of a potential risk that might cause severe damage to the equipment and/or damage to surrounding properties.
	Note	This indicates notes not directly related to injury or severe damage to equipment.
	Tip	This indicates advice on how to make the best use of the equipment.
	General Mandatory Sign	This indicates a general action to take. Action by following the instructions in this guide.

## Common precautions concerning safety

Please carefully read through these safety instructions to follow:

- When operating the equipment, follow the instructions and procedures provided in the manual.
- Be sure to follow notes, cautionary statements and advice indicated on the equipment or in the manual.
- Referring to manuals attached to other products which you install in the equipment, follow the instructions described in those manuals.

Failure to follow those instructions can cause the system unit to fail or data to be corrupted.

## Precautions against damage to equipment

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### Installation

Use this product with a system unit supporting this product. If you install this product on a system other than that, failure may occur due to the specification difference. See your system unit manual to find whether your system support this product or not.

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# Overview of alive monitor

This chapter describes about the functional overview of the alive monitor function.

- [Overview](#)
- [Function](#)
- [System Requirements for Operation](#)
- [Required Software](#)

## Overview

Alive monitor function is one of the functions of Server installation and monitoring tool. This function works on Windows Server 2008, Windows Server 2008R2, Windows Server 2012, Windows Server 2012 R2, Red Hat Enterprise Linux 5 or Red Hat Enterprise Linux 6 as an application supporting Compute Blade and Compute Rack operations.

## Function

Alive monitor function carries out Keep Alive with the Baseboard Management Controller (hereafter referred to as BMC) of a server blade to detect OS hangup and BMC failure.

### Detection of OS hang-up

BMC of a serverblade monitors alive monitor operation. When the OS hangs up, or the alive monitor stops, operations such as reset of the server blade can be carried out automatically.

### Abnormal detection of BMC

Alive monitor function monitors BMC of a server blade, and when there is no response from the server blade, a message that the server is not responding is output in OS log [event log (Windows) or syslog (Linux)].

## Keep Alive with BMC

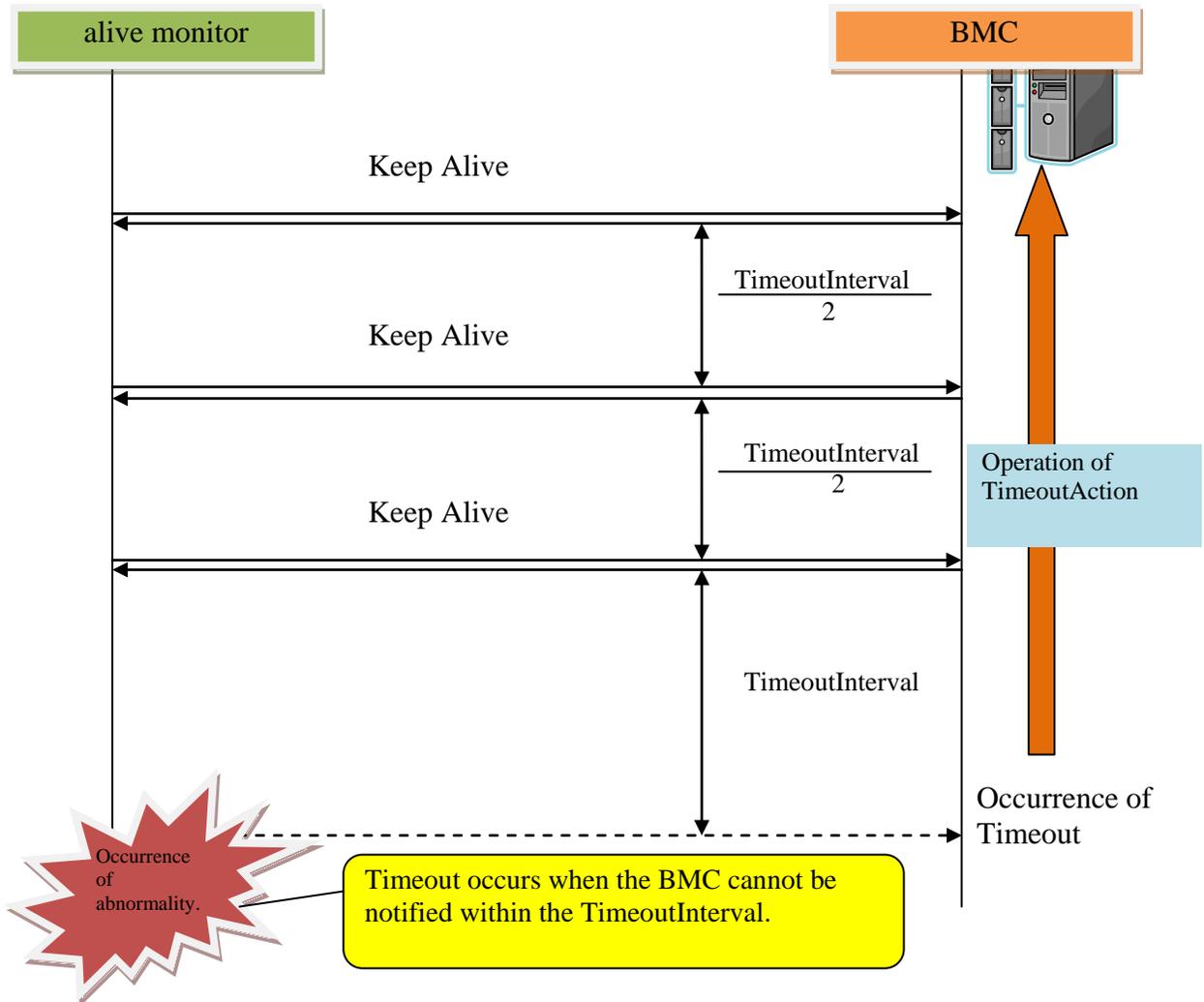
Keep Alive with BMC of a server blade can detect OS hangup and BMC abnormality. See the following subsections.

- [Detecting OS hangup](#)
- [Detecting BMC abnormality](#)

## Detecting OS Hangup

Keep Alive is performed at every half the interval time set in TimeoutInterval between alive monitor and BMC of a server blade. If the notification from the alive monitor is interrupted during Keep Alive, timeout is generated and the action set in TimeoutAction is executed.

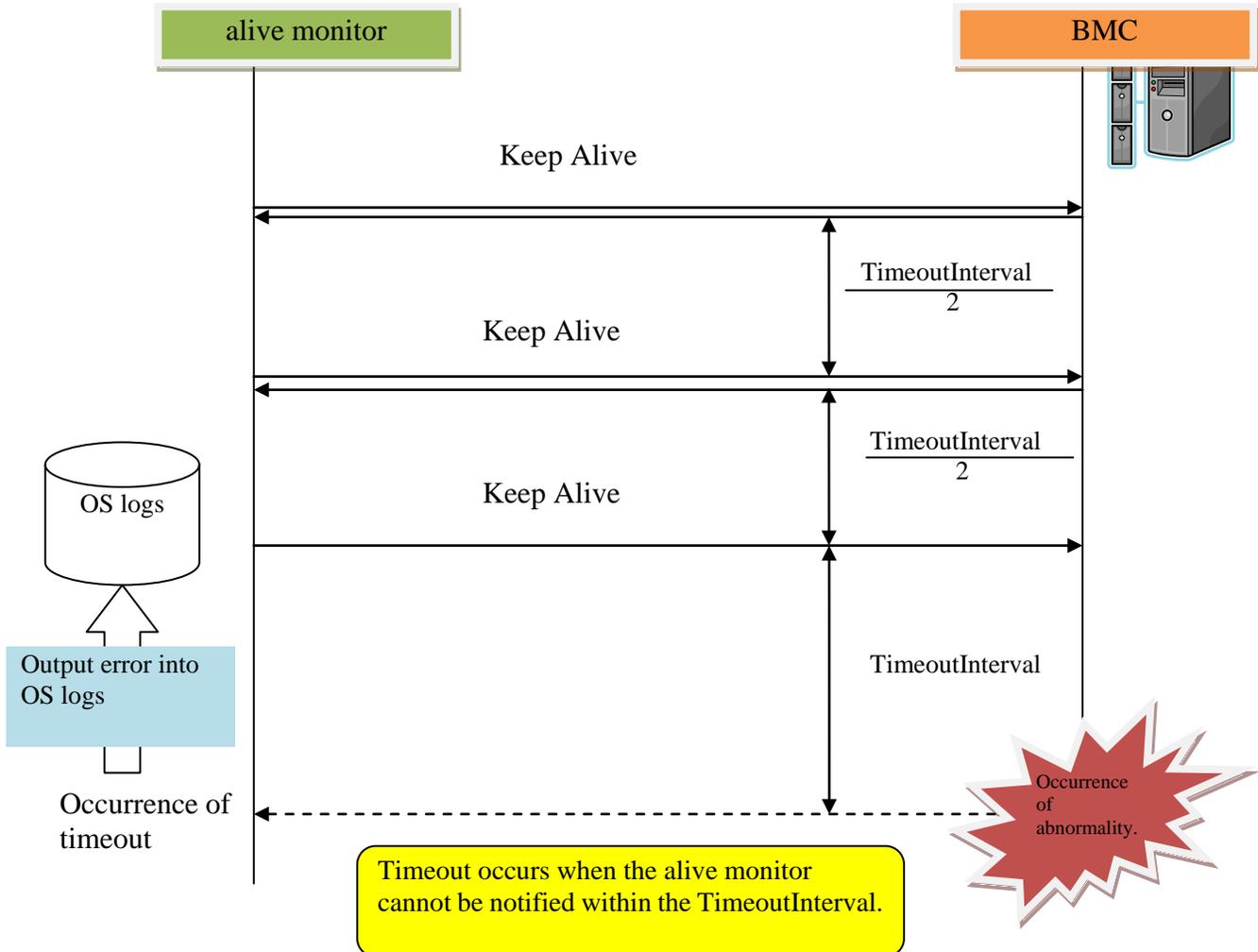
The operation is as shown below.



## Detecting BMC Abnormality

Keep Alive is performed at every half the interval time set in TimeoutInterval between alive monitor and BMC of a server blade. If the notification from the server blade is interrupted during Keep Alive, timeout of Watchdog Timer is generated and the alive monitor outputs the occurrence of timeout in the OS log.

The operation is as shown below.



## System Requirements for Operation

The following table shows requirements for alive monitor operation.

Item	Specifications
System unit	Hitachi Compute Blade: CB 500 series Hitachi Compute Blade: CB 2000 X55R3, X55S3, X57A2 Hitachi Compute Rack: CR 220 HM, CR 210 HM, CR 220 SM
OS	Windows Server 2012 R2 Standard Windows Server 2012 R2 Datacenter Windows Server 2012 Standard Windows Server 2012 Datacenter Windows Server 2008 R2 Standard Windows Server 2008 R2 Enterprise Windows Server 2008 R2 Datacenter Windows Server 2008 Standard Windows Server 2008 Enterprise Windows Server 2008 Datacenter Windows Server 2008 Standard without Hyper-V Windows Server 2008 Enterprise without Hyper-V Windows Server 2008 Enterprise Datacenter without Hyper-V Red Hat Enterprise Linux 6 Red Hat Enterprise Linux 5



Alive monitor does not support virtual environments.

## Required Software

The following software is required for alive monitor operation.

- Windows  
None
- Red Hat Enterprise Linux 6  
OpenIPMI package (RPM)  
ipmitool package (RPM)
- Red Hat Enterprise Linux 5  
OpenIPMI package (RPM)  
OpenIPMI-tool package (RPM)



# Installation of alive monitor function

This chapter describes about how to install and uninstall alive monitor function.

- [Installation](#)
- [Upgrade](#)
- [Uninstall](#)

# Installation

To use alive monitor, it is necessary to install library module 'connector for manager' and 'alive monitor' which is available in alive monitor, as a prerequisite.

- [When installing alive monitor function of Windows version](#)
- [When installing alive monitor function of Linux version](#)

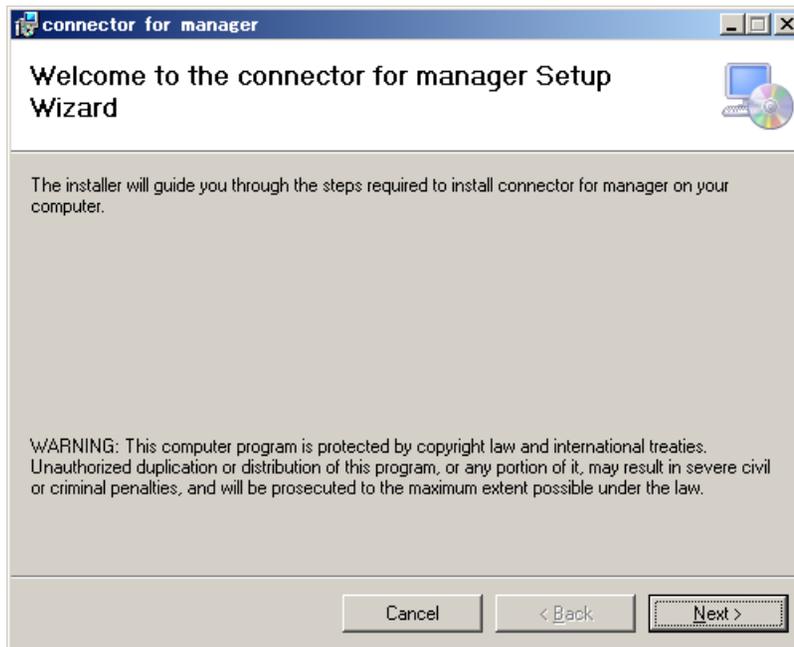
## When installing alive monitor function of Windows version

Installation method of alive monitor Windows version is described below.

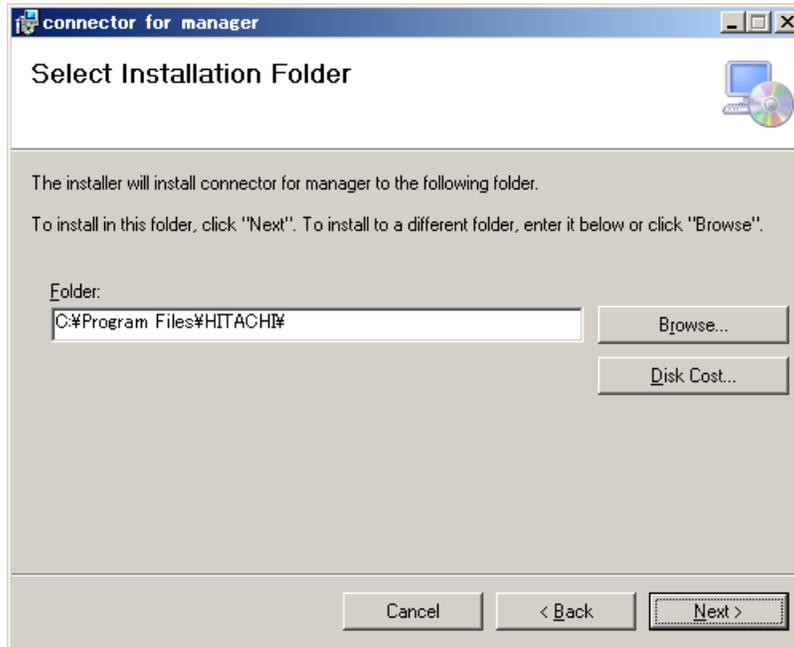
1. Start Windows, and login as "Administrator".
2. Insert "Server installation and monitoring tool" DVD into the CD/DVD drive. Go to **Support\_EN.html**, select the utility list for your target OS, and find the directory containing Server installation and monitoring tool – alive monitor.
3. Execute the following command stored in the package to install the connector for manager.

Ext\SNVMC\DISK1\setup.bat

4. The following screen is displayed. Click the **Next** button.



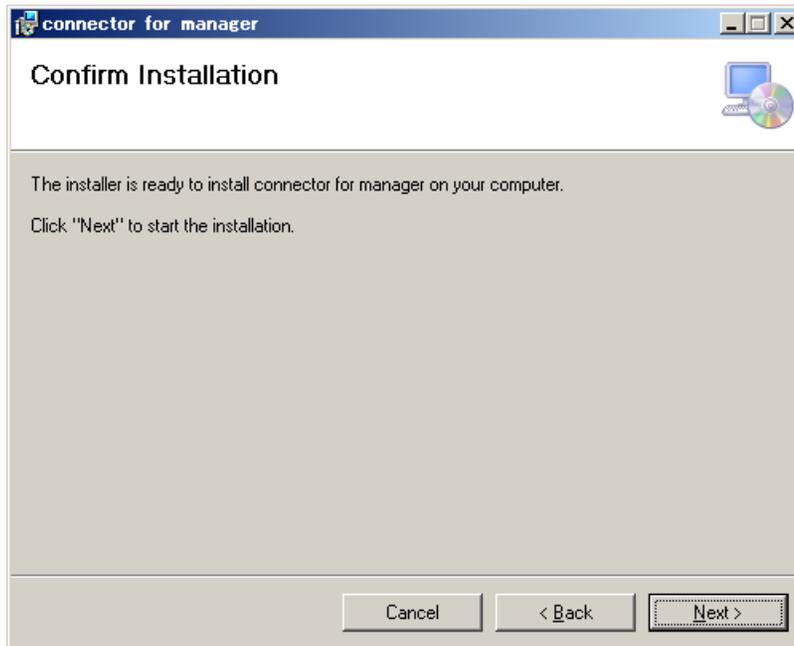
5. When the “Select Installation Folder” screen is displayed, specify the installation folder and click the **Next** button.



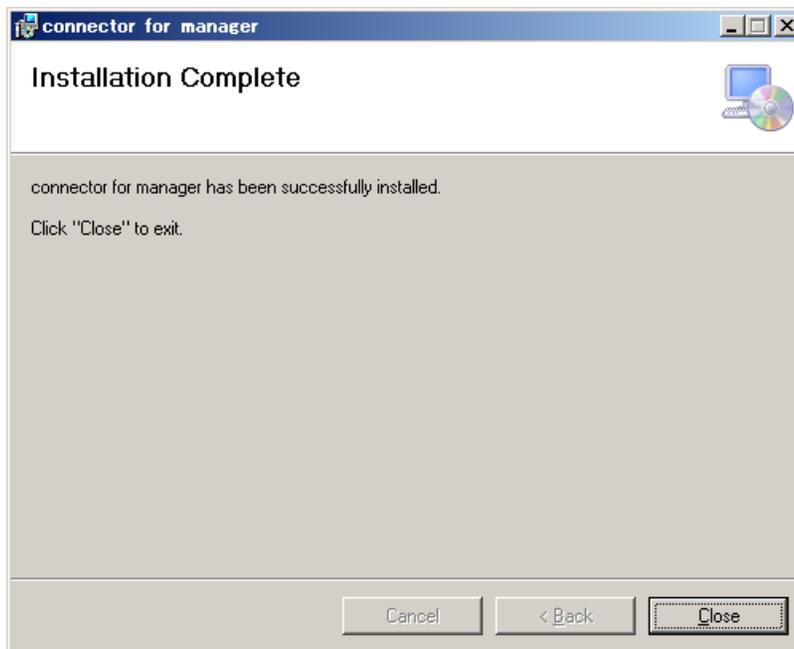
The folder that is actually installed is “SNV-CM” created inside the specified folder.

---

- When the "Confirm Installation" screen is displayed, click the **Next** button.

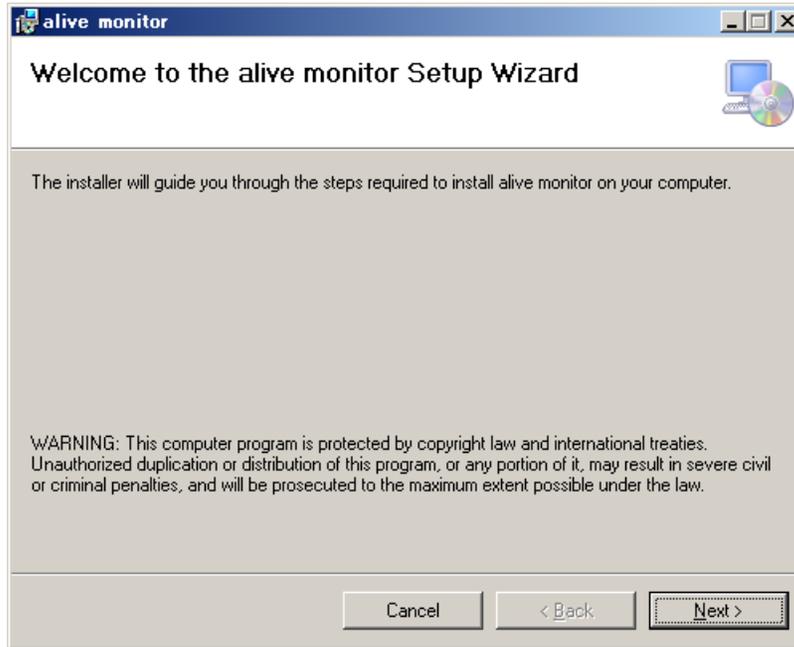


- On completion of installation, the "Installation Complete" screen is displayed. Click the **Close** button.

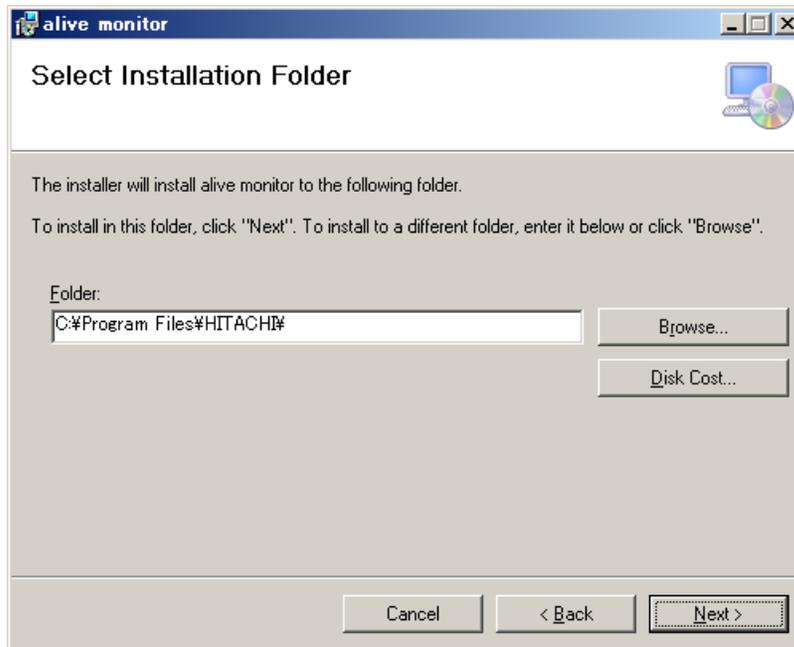


- Execute the following file stored in the package to install Alive Monitor.  
DISK1\setup.bat

9. The following screen is displayed. Click the **Next** button.

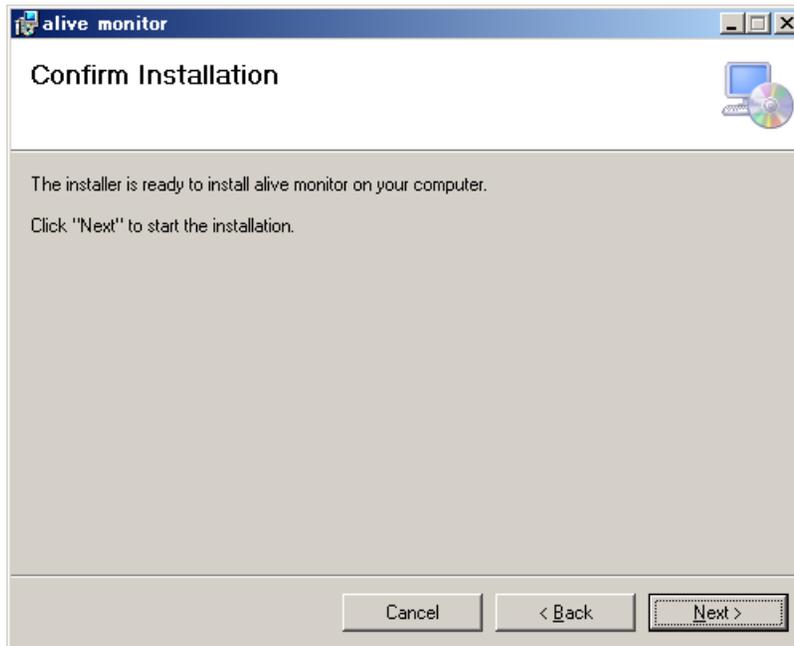


10. When the "Select Installation Folder" screen is displayed, specify the installation folder and click the **Next** button.

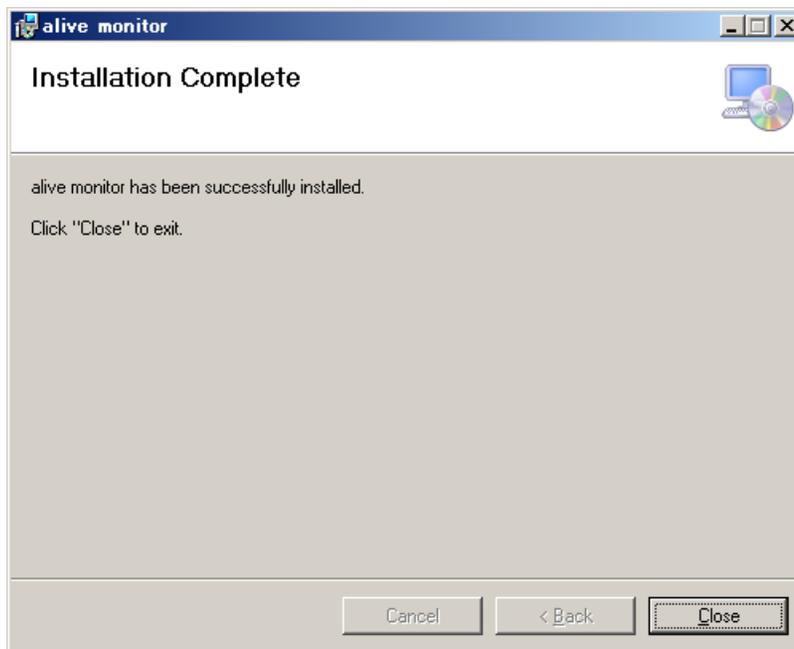


The folder that is actually installed is "SNV-CM" created inside the specified folder.

11. When the "Confirm Installation" screen is displayed, click the **Next** button.



12. On completion of installation, the "Installation Complete" screen is displayed. Click the **Close** button.



The installation of alive monitor function ends with the above.

## When installing alive monitor function of Linux version

Installation method of alive monitor Linux version is described below.

1. Start Linux and login as "root"
2. Insert "Server installation and monitoring tool" DVD into the CD/DVD drive. Go to **Support\_EN.html**, select the utility list for your target OS, and find the directory containing Server installation and monitoring tool – alive monitor.
3. The "snvam\_I\*.tgz" file stored in the package is extracted to a suitable directory. In the following example, "/tmp/alivemonitor" denotes the directory where the files are extracted to.

```
# mkdir /tmp/alivemonitor
# cd /tmp/alivemonitor
# cp <The "snvam_I*.tgz" file stored in the package> .
# tar -zxvf snvam_I*.tgz
```

4. Execute the following command to install "connector for manager".  
# /tmp/alivemonitor/Ext/SNVMC/setup.sh -i
5. Execute the following command to install "alive monitor".  
# /tmp/alivemonitor/setup.sh -i
6. Remove the directory to which the files were extracted.  
# cd /tmp  
# rm -rf /tmp/alivemonitor



Installation is done in the following two directories.

```
/opt/hitachi/snv-cm/
/opt/hitachi/snv-am/
```

---

The installation of alive monitor function ends with the above.

## Upgrade

To use alive monitor, it is necessary to install library module 'connector for manager' and 'alive monitor' which is available in alive monitor, as a prerequisite.

- [When upgrading alive monitor function of Windows version](#)
- [When upgrading alive monitor function of Linux version](#)

### When upgrading alive monitor function of Windows version

For upgrading alive monitor for Windows, execute the same procedure as that described in [When installing alive monitor function of Windows version](#).



Downgrading alive monitor for Windows is not supported. Uninstall the current version, and then install a previous one.

---

### When upgrading alive monitor function of Linux version

For upgrading alive monitor for Linux, execute the same procedure as that described in [When installing alive monitor function of Linux version](#).



Downgrading alive monitor for Linux is not supported. Uninstall the current version, and then install a previous one.

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# Uninstall

Alive monitor uninstall methods are described below.

- [When uninstalling alive monitor function of Windows version](#)
- [When uninstalling alive monitor function of Linux version](#)

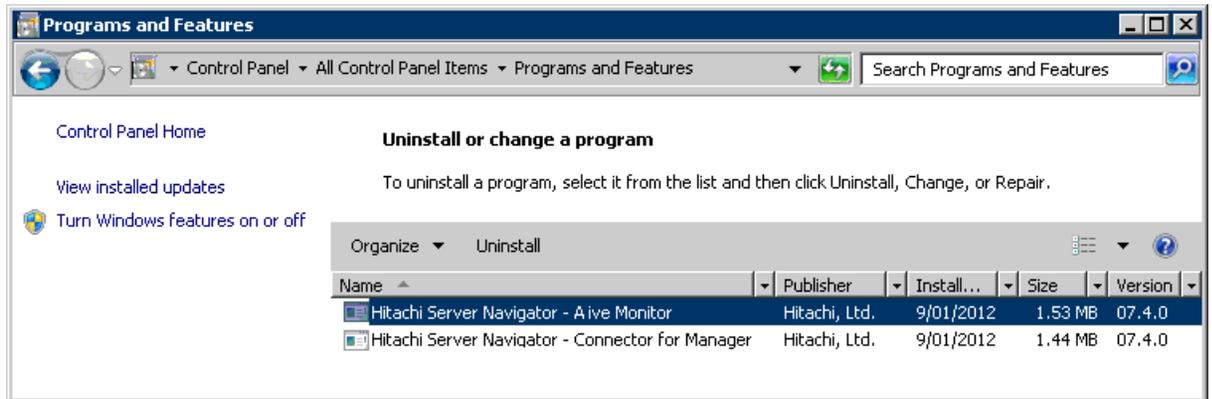
## When uninstalling alive monitor function of Windows version

Uninstall methods of alive monitor Windows version is described below.

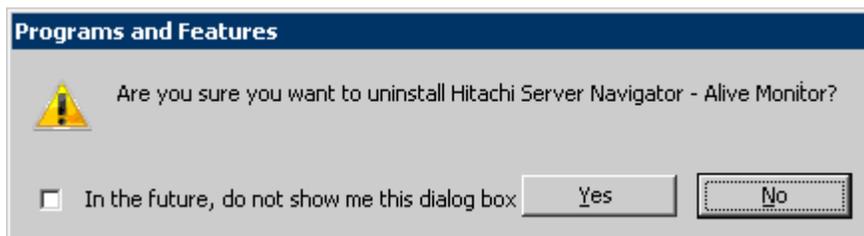


[alive monitor] and [connector for manager] are displayed on the [Programs and Features] of Windows. Please make sure that uninstall is performed from [alive monitor].

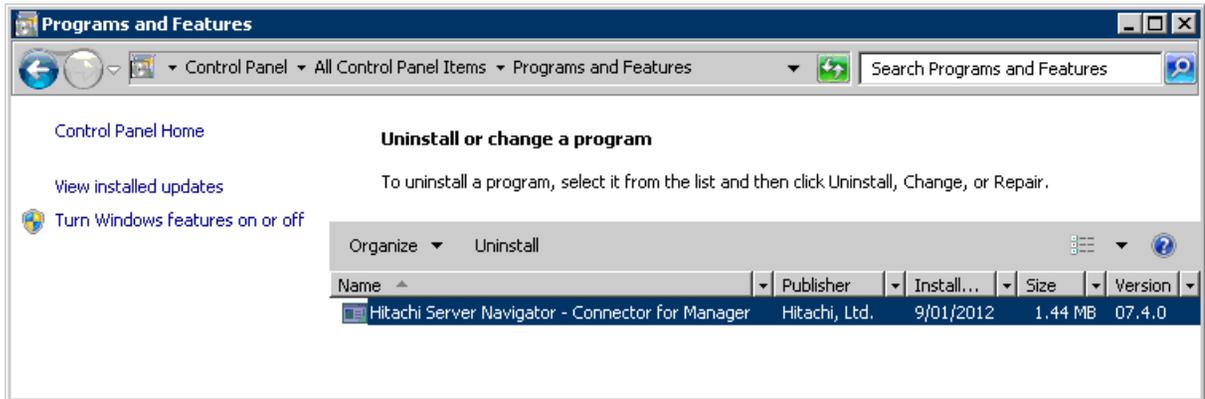
1. Start Windows and login as "Administrator"
2. Open the [Program and Features] from Control Panel.
3. When the following screen is displayed, select **alive monitor** and click the **Uninstall** button.



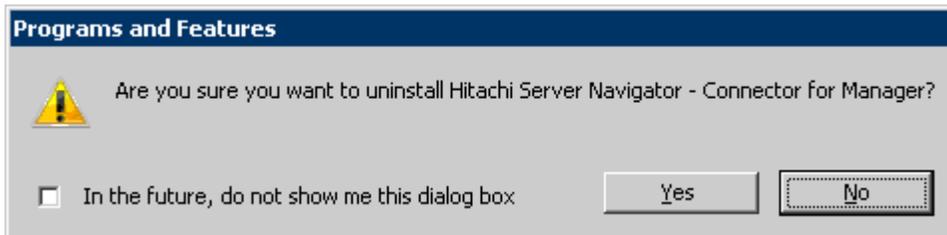
4. When the following dialog is displayed, click the **Yes** button.



5. It will be uninstalled. Continue to select **connector for manager** and click the **Uninstall** button.



6. When the following dialog is displayed, click the **Yes** button.

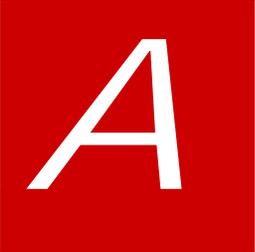


The uninstallation of alive monitor ends with the above.

## When uninstalling alive monitor of Linux version

1. Start Linux and login as "root".
2. Enter the following command from the command line and perform uninstallation.  
`rpm -e hsnvam`
3. Continue to uninstall by entering the following command.  
`rpm -e hsnvcm`

The uninstallation of alive monitor ends with the above.



# A

## Appendix

This Appendix-A provides log messages, and settings for SNMP trap and BIOS.

- [Message list](#)
- [SNMP trap Notification Settings](#)
- [Services](#)
- [BIOS Settings](#)

## Message List

The message list of event log for Windows and syslog for Linux which are output by alive monitor function is described below.

### List of event log and syslog

#### Message list of event log and syslog

Following is the list of event log and syslog details.

Message ID	Message	Explanation	Action
SNVAM-061-I	Alive Monitor : The service started successfully.	Alive monitor is started.	Action is not required.
SNVAM-062-I	Alive Monitor : The service stopped successfully.	Alive monitor is stopped.	Action is not required.
SNVAM-063-I	Alive Monitor : The timer is successfully set and started.	Keep Alive with the server is started.	Action is not required.
SNVAM-064-I	Alive Monitor : The Timer is successfully stopped.	Keep Alive with the server is stopped.	Action is not required.
SNVAM-065-E	Alive Monitor : There is no response from the hardware.	There is no response of Keep Alive from the server.	There is a possibility that the server might have failed. Disconnect the power of the server once and then switch it on. If the same error is recorded even after the above, please replace the motherboard.
SNVAM-066-I	Alive Monitor : The response recovered from the hardware.	The response from the server is recovered.	Action is not required.
SNVAM-067-E	Alive Monitor : Stopping the timer has been failed.	Stopping the Keep Alive with the server resulted in failure.	There is a possibility that the server might have failed. Disconnect the power of the server once and then switch it on. If the same error is recorded even after the above, please replace the motherboard.
SNVAM-109-I	Alive Monitor : The timer is disabled.	Alive monitor function is disabled.	Action is not required.
SNVAM-110-I	Alive Monitor : The timer is not started.	Since communication with the server is not possible, alive monitor function cannot be used.	No action is required if alive monitor is not used. If the alive monitor has to be used, please set the status such that communication is possible with the server (such as BIOS setting change, IPMI driver installation etc).

Message ID	Message	Explanation	Action
SNVAM-119-W	Alive Monitor : Some parameters are invalid. All parameters are used to default value.	Some parameters are invalid. All parameters are used to default value.	Restart alive monitor service. If the same message displayed after restarting, uninstall alive monitor and then reinstall it.

## SNMP Trap Notification Settings

The example for notifying the messages, output by alive monitor function in the event log for Windows and syslog for Linux, to other hosts as an SNMP trap is described below.

### Settings for notifying Event Log (Windows) as SNMP Trap

Methods for using SNMP service of Windows is described below.

1. Install SNMP service

Install the SNMP service from the [Server manager] [Function] of Management tool (Not necessary if it is already installed).

2. Execute the following command from the DOS prompt

```
> reg add HKLM\SYSTEM\CurrentControlSet\services\SNMP\Parameters\TrapConfiguration /f
>
```

3. Create a file with the following content

```
#pragma ADD Application "SNVAM Trace" 1
#pragma ADD Application "SNVAM Trace" 2
#pragma ADD_TRAP_DEST <community name> <notification destination host IP address>
```

4. Execute the following command from the DOS prompt

```
> evntcmd <above mentioned file name>
>
```

OID when using this method is as follows.

```
1.3.6.1.4.1.311.1.13.1.11.83.78.86.65.77.32.84.114.97.99.101
```

## Settings for notifying syslog (Linux) as SNMP trap

Method for using net-snmp of Linux is described below.

### 1. Install net-snmp

Install net-snmp package (Not necessary if it is already installed).

```
# rpm -i lm_sensors-libs-x.x.x-xx.xxx.xxxx.rpm
# rpm -i lm_sensors-x.x.x-xx.xxx.xxxx.rpm
# rpm -i net-snmp-libs-x.x.x-xx.xxx.xxxx.rpm
# rpm -i net-snmp-x.x.x-xx.xxx.xxxx.rpm
# rpm -i net-snmp-utils-x.x.x-xx.xxx.xxxx.rpm
# chkconfig snmpd on
#
```

### 2. Notification setting for SNMP trap

Add the following settings in /etc/snmp/snmpd.conf.

If the output destination of syslog (/var/log/messages) is changed, please change it appropriately.

```
trapsink <notification destination host IP address > <community name>
createUser _internaluser MD5 "internalpass"
iquerySecName _internaluser
rwuser _internaluser
logmatch SNV-AM /var/log/messages 60 Alive Monitor
notificationEvent AliveMonitor 1.3.6.1.4.1.116.7.35.5.2.1.40
monitor -u _internaluser -S -D -r 10 -I -e AliveMonitor LogMatchMonitor01 -i logMatchRegEx.1 logMatchCounter.1 != 0
```

### 3. Confirmation of SELinux setting

When SELinux is made valid, confirm and change if necessary, the context of /etc/snmpd/snmpd.conf such that the SNMP trap is notified to other hosts

This is unnecessary if SELinux is made invalid.

### 4. Start (Restart) SNMP service.

The SNMP service is reactivated.

```
# service snmpd restart
Stopping snmpd:          [ OK ]
Starting snmpd:          [ OK ]
#
```

OID when using this method is as follows.

```
1.3.6.1.4.1.116.7.35.5.2.1.40
```

## Services

This section describes services provided by alive monitor.

- Windows  
HSNVAM
- Red Hat Enterprise Linux  
hsnvamon

## BIOS Settings

IPMI Object must be enabled to use alive monitor. For Compute Rack series, enable IPMI Object in Server Mgmt menu in BIOS setting because IPMI Object is disabled by default.



Compute Blade 500 and Compute Blade 2000 have fixed IPMI Object Enabled. Thus, you need not to change the setting.

---





## **Hitachi Data Systems**

### **Corporate Headquarters**

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