



Hinemos ver4.1
Installation Manual, Edition 1.0

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- The theme name is "Development of an Integrated Manager for Distributed Facilities."
- <http://www.ipa.go.jp/about/jigyoseika/04fy-pro/open.html>

For the latest information about Hinemos, please visit the Hinemos web portal (<http://www.hinemos.info>).

1 License

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2 Introduction

This manual explains Hinemos installation and setup procedures. This is only an example of configuration, and when actually used, it is recommended that you make configuration changes according to the security policy in use. We are in no way responsible for any damage resulting from the use of this software.

3 Prerequisites

3.1 System Configuration

Hinemos is composed of a manager server, managed nodes, and a client.

- Manager Server

The manager server is a server that provides Hinemos operation management features. It maintains a repository of the data about managed nodes, and a database that stores the data handled in each feature. In this manual, the software installed on the manager server is referred to as Hinemos Manager.

- Managed Node

The machines which are managed by Hinemos. The software program run on each managed node is called Hinemos Agent. The following designations are used in this manual.

Hinemos Agent (all platforms) → "Hinemos Agent"

Hinemos Agent (Linux) → "Linux Agent"

Hinemos Agent (Windows) → "Windows Agent"

- Client

The client is the operation terminal used by the operator. Hinemos provides GUI-based client applications. In this manual, the software installed on the client is referred to as the Hinemos Client.

Three Hinemos packages are available, depending on functionality: manager, agent, and client.

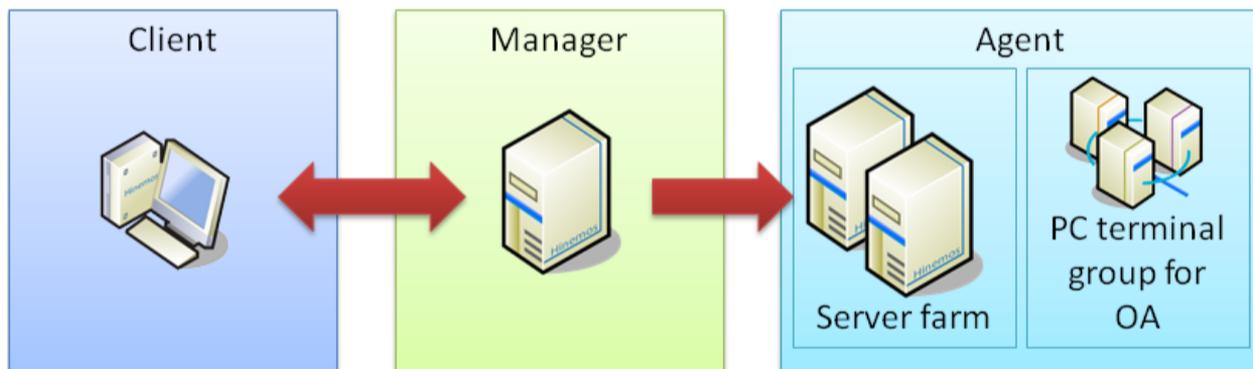


Figure 3-1 Role of Packages

3.2 Manager Server

The machine Hinemos Manager runs on must meet the following hardware requirements.

Table 3-1 Recommended Hardware Specifications for Manager Server

CPU	2GHz, one or more cores
Memory (up to 100 monitored units)	1GB or more
Memory (more than 100 monitored units)	2GB or more
HDD	5GB or more
Network controller	One or more

If monitoring more than 100 units, follow the description in section 4.3 "Java heap memory settings" in the Hinemos Administrator's Guide to increase the JVM heap size.

Table 3-2 Supported Platforms for Hinemos Manager

Package	Platform
---------	----------

hinemos_manager-4.1.x_rhel6_32.tar.gz	Red Hat Enterprise Linux 6 *1 32bit
	Oracle Linux 6 *1 32bit
	CentOS 6 *1 32bit
	Amazon Linux *2 32bit
hinemos_manager-4.1.x_rhel6_64.tar.gz	Red Hat Enterprise Linux 6 *1 64bit
	Oracle Linux 6 *1 64bit
	CentOS 6 *1 64bit
	Amazon Linux *2 64bit

*1 Release later than 6.3 is required.

*2 Compatible with Amazon Linux 2013.03 or later. For the instance type, small instance or above is required. It will not work with micro instances (t1.micro). However, the features of Job management through SSH and collective run are not available on Amazon Linux.

The following packages are required by Hinemos Manager.

- java-1.7.0-openjdk
- java-1.7.0-openjdk-devel

When using the WBEM protocol to perform monitoring features (resource monitoring, process monitoring), install the following packages as well: ('sblimCIMClient.jar', which is included in this package, is required when using the WBEM protocol.)

- sblim-cim-client

3.3 Managed Node

The following specifications are suggested for the Hinemos Agent.

Table 3-3 Recommended Hardware Specifications for a Managed Node

CPU	1GHz, one core or more
Memory	256MB or more
HDD	1GB or more (dedicated for Hinemos)
Network controller	One or more

Table 3-4 Supported Platforms for Hinemos Agent

Package	Platform
hinemos_agent-4.1.x_rhel4_32.tar.gz	Red Hat Enterprise Linux 4 32bit
	Oracle Linux 4 32bit
hinemos_agent-4.1.x_rhel4_64.tar.gz	Red Hat Enterprise Linux 4 64bit
	Oracle Linux 4 64bit
hinemos_agent-4.1.x_rhel5-rhel6.tar.gz	Red Hat Enterprise Linux 5,6 32bit/64bit
	Oracle Linux 5,6 32bit/64bit
	CentOS 5,6 32bit/64bit
	Amazon Linux 32bit/64bit *1
HinemosAgentInstaller-4.1.x_win2003server_32.msi	Windows Server 2003, 2003R2 32bit *2 *3
HinemosAgentInstaller-4.1.x_win2003server_64.msi	Windows Server 2003, 2003R2 64bit *3
HinemosAgentInstaller-4.1.x_win2008server_32.msi	Windows Server 2008 32bit *3
HinemosAgentInstaller-4.1.x_win2008server_64.msi	Windows Server 2008, 2008R2 64bit *3

HinemosAgentInstaller-4.1.x_win2012server_64.msi	Windows Server 2012 64bit *3
--	------------------------------

*1 Compatible with Amazon Linux 2013.03 or later.

*2 SP1 or above is required on Windows Server 2003, while it is not necessary on Windows Server 2003 R2, Windows Server 2008, Windows Server 2008 R2 and Windows Server 2012.

*3 IA-64 server is not supported.

Table 3-5 Supported Platforms for Hinemos Agent (Unix)

OS	Support
Solaris 10 (SPARC, x86)	○ *
Solaris 11 (SPARC, x86)	○ *
HP-UX 11i v3	○ *
AIX 5.3, 6.1, 7.1	○ *

* For information about getting an Hinemos Agent for Commercial Unix, please contact us by email (osdquery@nttdata.co.jp), or make a request using the contact form at the Hinemos web portal (<http://www.hinemos.info>).

The protocol used in Hinemos for "Monitoring" is that generally used for system monitoring. Therefore, most available monitoring features can be used in an agent-less environment. However, some job management and monitoring management features require that the agent be installed.

By default, Hinemos retrieves resource monitoring and process monitoring information via the SNMP protocol. It is possible to obtain information via WBEM protocol by changing settings.

To use all features available with the Linux Agent, depending on the desired feature, the following RPM packages must already be installed: (The recommended version is in parenthesis. If no recommended version is mentioned, the version included with the OS will work.)

When using Hinemos Agent

Please install one of the compatible openjdk listed in the following.

- hinemos_agent-4.1.x_rhel5-rhel6.tar.gz
 - java-1.7.0-openjdk
 - java-1.6.0-openjdk

According to the openjdk version, you also need to install a openjdk-devel.

- hinemos_agent-4.1.x_rhel5-rhel6.tar.gz
 - java-1.7.0-openjdk-devel
 - java-1.6.0-openjdk-devel

Please notice that except for hinemos_agent-4.1.x_rhel5-rhel6.tar.gz, all other versions are already bundled with a JRE. If you are using another version, there is no need to install the openjdk and openjdk-devel again.

When using the SNMP protocol to perform the monitoring features (resource monitoring, process monitoring)

To use the default SNMP protocol, the following packages are required.

- Red Hat Enterprise Linux 4, Oracle Linux 4
 - net-snmp (5.1.2-11.EL4.11 or later)
 - net-snmp-libs (5.1.2-11.EL4.11 or later)
- Red Hat Enterprise Linux 5, Oracle Linux 5, CentOS 5
 - net-snmp (5.3.1-19.el5 or later)
 - net-snmp-libs (5.3.1-19.el5 or later)

- Red Hat Enterprise Linux 6, Oracle Linux 6, CentOS 6, Amazon Linux
 - net-snmp
 - net-snmp-libs

When using the WBEM protocol to perform the monitoring features (resource monitoring, process monitoring)

The following packages are required in order to use the WBEM protocol: (If WBEM protocols will not be used to perform resource monitoring and process monitoring, the following packages are not required.)

- Red Hat Enterprise Linux 4, Oracle Linux 4
 - tog-pegasus (2.5.1-6.el4 or later)
 - sblim-wbemcli(1.5.4-13a.el4_6.1 or later)
 - sblim-cmpi-base(1.5.4-13a.el4_6.1 or later)
 - sblim-cmpi-fsvol(1.4.3-13a.el4_6.1 or later)
- Red Hat Enterprise Linux 5, Oracle Linux 5, CentOS 5
 - tog-pegasus (2.7.0-2.el5 or later)
 - sblim-wbemcli (1.5.5-31.el5 or later)
 - sblim-cmpi-base (1.5.5-31.el5 or later)
 - sblim-cmpi-fsvol (1.4.4-31.el5 or later)
- Red Hat Enterprise Linux 6, Oracle Linux 6, CentOS 6, Amazon Linux
 - tog-pegasus
 - sblim-wbemcli
 - sblim-cmpi-base
 - sblim-cmpi-fsvol

* For instructions on how to switch to the WBEM protocol, refer to section 7.8.2 "Method for switching between SNMP/WBEM" in the Hinemos Administrator's Guide.

General features of collective run

- Red Hat Enterprise Linux 4, 5, 6, Oracle Linux 4, 5, 6, CentOS 5, 6, Amazon Linux
 - expect
 - coreutils
 - shadow-utils
 - gawk
 - grep
 - sed
 - krb5-workstation
 - passwd
 - openssh
 - openssh-clients

3.4 Client

The following are the recommended specifications for machines that run the Hinemos Client.

Table 3-6 Recommended Hardware Specifications for a Client Machine

CPU	2GHz, one or more cores
-----	-------------------------

Memory	1GB or more
HDD	1GB or more (dedicated for Hinemos)
Network controller	One or more
Display resolution	1280 x 1024 or more

Table 3-7 Supported Platforms for Hinemos Client

Package	Platform
HinemosClientInstaller-4.1.x_win32.msi	Windows Server 2008 32bit
	Windows 7, 8 32bit
HinemosClientInstaller-4.1.x_win64.msi	Windows Server 2008, 2008R2, 2012 64bit
	Windows 7, 8 64bit

* Windows Service Pack is not required.

3.5 Network Requirements

3.5.1 Connections in Manager Server

The connections used by each component in the manager server are listed in Table 3-8, "Connections in Manager Server". Please make sure that the listen port listed in the table does not conflict with other products.

Table 3-8 Connections in Manager Server

Component	Feature	Listen ports
rsyslog *1	System Log Monitor	TCP 514
		UDP 514
JAVA	General	TCP 8080
		UDP 162, 24514
PostgreSQL	General	TCP 24001

*1 Use the rsyslog that is normally installed with the OS.

3.5.2 Connections to Manager Server

Connections to a manager server from clients and managed nodes are listed in Table 3-9 Connections to Manager Server.

Table 3-9 Connections to Manager Server

Source node	Source component	Feature	Destination port
Client	Hinemos Client	General	TCP 8080
Management Target Node	Hinemos Agent	General	TCP 8080
	rsyslog (Linux) syslogd (Linux) *1	System Log Monitor	TCP 514 *2
			UDP 514
SNMP trap agent	SNMPTRAP monitoring *3	UDP 162	

*1 This will be either TCP514 or UDP514 when using rsyslog. Confirm /etc/rsyslog.conf. (Set up the environment where the Hinemos Agent is installed to use TCP514.) This will be UDP514 when using syslogd.

*2 The connection that is affected by the inactivity timeout. Referring to [Notes on Usage of Multiple NW Segments or Address Translation \(e.g. NAT or NAPT\)](#), disable the inactivity time-out.

*3 The snmptrapd service, included in the OS on which the Hinemos Manager is running, must be stopped if SNMPTRAP monitoring is used. If the snmptrapd service is not stopped, it may conflict on the UDP 162 port and SNMPTRAP monitoring may not work.

3.5.3 Connections from Manager Server

Connections from manager server to the managed node and other server are listed in Table 3-10 Connections from Manager Server. Further, in addition to Table 3-10, the port number set up for service port monitoring will be a destination port.

Table 3-10 Connections from Manager Server

Destination node	Destination component	Feature	Destination port
Management Target Node	Hinemos Agent	General	UDP 24005
	SNMP agent	Resource Monitor Process Monitor	UDP 161
	CIM server *1 (tog-pegasus)	Resource Monitor Process Monitor	TCP 5988 (HTTP) TCP 5989 (HTTPS)
	WinRM server	Windows Service Monitor	TCP 80 (HTTP, WinRM1.1) 443 (HTTPS, WinRM1.1) 5985 (HTTP, WinRM2.0) 5986 (HTTPS, WinRM2.0)
	sshd	Collective Run	TCP 22
	rshd (xinetd) *2	Collective Run	TCP 514
Other Manager Server	Other Hinemos Manager	Log Escalation Notification	UDP 514

*1 You must open the CIM port if using SNMP for resource monitoring or process monitoring.

*2 rshd and rsyslog use the same TCP port number. If rsh is the remote shell of the collective run feature, and when the manager is the object of the collective run feature, it will be necessary to change one of the port numbers (this problem will not occur if the default ssh is used).

In addition to using the following features, extra communications besides [Connections in Manager Server](#), [Connections to Manager Server](#) and [Connections from Manager Server](#) could also occur.

- Collective Run (RPM installation, file copy)

Communication occurs between the managed node and the FTP server, which is specified during the installation of Hinemos Manager. In that case, TCP port 20 and 21 on the FTP server side are used for FTP connection.

- Job Management (File Transfer)

SSH connection from the transfer destination to transfer source occurs. In that case, TCP port 22 on the source server is used for SSH connection.

3.5.4 Precautions for Using a Firewall or a Load Balancer

This section explains cautions when a load balancer or a firewall is used between the managed node and the manager server.

An inactivity time-out feature, which activates when communication is not occurring, may exist in the load balancer or firewall. When this timeout is enabled for always on connections, the connection between the load balancer or firewall connection and the manager server will persist. In this case, communication cannot be done correctly and system log monitoring will not operate correctly.

To prevent the above issue, follow Note *1, in Table 3-9, "Connections to Manager Server", and disable the inactivity time-out feature in the load balancer or firewall configuration. The log will be lost if TCP514 is disabled by a timeout due to inactivity.

3.5.5 Notes on Usage of Multiple NW Segments or Address Translation (e.g. NAT or NAPT)

- A pattern where the IP address of the Hinemos Agents is changed

During startup, the Hinemos Agent sends server OS information to the Hinemos Manager, then identifies the appropriate node identification that is registered in the Hinemos repository.

Specifically, as seen in Table 3-11, by matching both the value of the node properties registered in the Hinemos repository and the server OS, on which the Hinemos Agent is installed, the Hinemos Agent itself identifies its "Facility ID".

Table 3-11 Information on Node Identification of the Hinemos Agent

Hinemos repository	Hinemos Agent server
Node name	Host name (With Linux, can be checked using the host name command) (With Windows, can be checked using the host name command)
IPv4 address, IPv6 address	IP address (With Linux, can be checked using the ifconfig command) (With Windows, can be checked using the ipconfig command)

If the configuration on the server side is different from the information registered in the Hinemos repository, the Hinemos Agent itself cannot identify its "Facility ID".

Further, there is a method in the Hinemos Agent to directly set the Facility ID. If you use this method, you can use the agent, even in environments (NAT environment or NAPT environment) where the "Facility ID" cannot be discerned. Refer to section 4.5 "Setting the Hinemos Agent's Facility ID" in the Hinemos Administrator's Guide for the setting method.

- Effect of each feature of Hinemos

The monitoring feature, which detects errors in messages sent from the server or the network device, identifies the source (monitoring target) node from the information in the received message. In an environment where address translation (NAT, NAPT, etc) is used, identification of this source (monitoring target) node may not be performed properly.

There are two types of address translation, SNAT and DNAT, and various processing is performed, as shown below.

- SNAT: The source IP address is changed to a different IP address.
- DNAT: The destination IP address is changed to a different IP address.

The method for specifying the SNMPTRAP Monitor feature and system log monitor feature source (monitoring target) node and the effect due to the address change is shown below.

[SNMPTRAP Monitor]

With the SNMPTRAP monitoring feature, the source (monitoring target) node is specified from the information in the repository (the node information from the repository management feature) based on the "source IP address" of the snmp packet the source node sent to the manager server. Specifically, the node that corresponds to the "IPv4 address" or "IPv6 address" registered in the repository information is identified as the source (monitoring target) node.

In an environment where SNAT is used, the source IP address for the snmp packet becomes the IP address after address translation, so it won't match the IP address registered in the repository, and the source (monitoring target) node can't be discerned.

[System Log Monitor]

With the system log monitoring feature, the source (monitoring target) node is specified using the information in the repository (the node information from the repository management feature) based on the "source IP address" of the snmp packet the source node sent to the manager server. (The "HOSTNAME part" in the syslog packet describes a string similar to the host name and the IP address.) Specifically, the node that corresponds to the "IPv4 address" or "IPv6 address" registered in the repository information the "IPv6 address" and the node corresponding to the "Node name" is identified as the source (monitoring target) node.

The value of the HOSTNAME part of the syslog packet depends on the characteristics of the product that sends the syslog packet.

- Effect on monitoring that performs polling

Polling of the Performance Management feature and resource monitoring, process monitoring and SNMP monitoring for monitoring targets is performed from Hinemos Manager using SNMP and WBEM. In cases that use SNAT, the IP address that is reachable from Hinemos Manager and the IP address for the management target may be different. In such a case, in order to perform the monitoring, the reachable IP address will be registered as the IP address of managed node,

3.6 Software in Use

In Hinemos, the following software is used.

- Client
 - Oracle Java Runtime Environment 6, 7**
<http://www.java.com/>
 - Eclipse 4.2**
<http://www.eclipse.org/>
 - jfreechart 1.0**
<http://www.jfree.org/>

- Manager
 - PostgreSQL 9.1**
<http://www.postgresql.org/>
 - PostgreSQL JDBC Driver 9.1**
<http://jdbc.postgresql.org/>
 - OpenNMS 1.2**
<http://www.opennms.org/wiki/>
(Modifications were made to the base distributed source code and used)
 - fping 2.4**
<http://fping.sourceforge.net/>
(Modifications were made to the base distributed source code and used)
 - Apache Commons HttpClient 4.1**
<http://hc.apache.org/httpcomponents-client-ga/>
 - Apache Commons Net 3.0**
<http://commons.apache.org/net/>
 - Apache Commons Codec 1.4**
<http://commons.apache.org/codec/>
 - Intel(R) WS-Management Java Client Library**
<http://software.intel.com/en-us/articles/download-the-latest-intel-ws-management-java-client-library/>
(Modifications were made to the base distributed source code and used)
- Linux Agent
 - Apache Commons Logging 1.1**
<http://commons.apache.org/logging/>
- Windows Agent
 - Oracle Java Runtime Environment 6, 7**
<http://www.java.com/>
 - Apache Commons Logging 1.1**
<http://commons.apache.org/logging/>

3.7 Precautions For Installation

3.7.1 Hinemos Manager

Installing Hinemos Manager - please note the following points on the running machine.

- **Disable SELinux on the server on which Hinemos Manager will be installed.**
- If a swap area is reserved, sub-process creation from the Hinemos Manager will fail and the notification feature (command) and the PING monitoring feature may not run.

3.7.2 Hinemos Agent

Installing Hinemos Agent - note the following points on the running machine.

- **Disable SELinux on the server on which Hinemos Agent will be installed.**
- **If both Hinemos Manager and the Hinemos Agent are installed on a same machine with the included installer, install Hinemos Agent after Hinemos Manager.**
- If a swap area is not reserved on the Linux server, the child process creation (fork) from the Hinemos Agent may fail, and the job management feature may not run.

- If the manager performs the collective run feature, using the rsh as the remote shell, the syslog-ng or the listening port of rshd must be changed (because the rshd used by the rsyslog and the collective run feature use the same port number by default). When the manager is the target of the collective run feature, one of the port numbers must be changed manually (if ssh is used for the remote shell, there is no need to make changes.)

3.7.3 Language and Time-zone

All components of Hinemos Manager, Agent and Client work properly under both English and Japanese environment (OS). However, all of them must be in the same language environment (locale, LANG environment variable).

- If English is used for the display language of Hinemos Client,
All of Hinemos Manager, Agent and Client should be installed in English OS environment.
- If Japanese is used for the display language of Hinemos Client,
All of Hinemos Manager, Agent and Client should be installed in Japanese OS environment.

For example, a Japanese version of Hinemos Manager cannot work with managed nodes in English version of Windows.

- If English is used for the display language of Hinemos,
 - Linux (Hinemos Manager, Linux Agent)
All components of Hinemos Manager/Agent/Client must be in same language environment with locale and LANG environment variable specified as one of the English environments (en_US,en_GB, etc.).
 - Windows (Windows Agent)
Hinemos Agent must be installed in an English version of Windows. Alternatively, you can change the language to English by going to Control Panel > Clock, Language, and Region > Region and Language > Formats and select the appropriate language (English (United States), English (British), etc.).
 - Windows (Hinemos Client)
Please install Hinemos Client to an OS which is installed with English version of OS installers.
- Installer
 - Hinemos Manager
Please use manager_installer_EN.sh to install Hinemos Manager on an English environment.
 - Hinemos Agent (Linux version)
Please use agent_installer_EN.sh to install Hinemos Agent on an English environment.
 - Hinemos Agent (Windows version)
Installer of Hinemos Agent (Windows version) contains both English and Japanese resources. Please use the MSI installer (HinemosAgentInstaller-<version>_<OS>_<architecture>.msi) to install Hinemos Agent on an English environment.
 - Hinemos Client
Installer of Hinemos Client contains both English and Japanese resources. Please use the MSI installer (HinemosClientInstaller-<version>_<OS>_<architecture>.msi) to install Hinemos Client on an English environment.
- Time-zone
All Hinemos Manager, Agent and Client should be installed in OSs with the same time-zone.
However, time-zone is regardless of locale/LANG environment variable, so it is not necessary to specify to be the same.

4 Manager Server

4.1 Installing Hinemos Manager

The Hinemos Manager installation procedures are described below.

1. Extract `hinemos_manager-4.1.x_rhel6_64.tar.gz` into the appropriate directory. (In this document, RHEL6 64bit version is used as an example for explanation and the destination directory is noted as `/tmp`. Installation of RHEL6 32bit version should be the same. You can also specify another destination directory instead.)
2. Run the installation scripts (`manager_installer_EN.sh`).

4.1.1 Expanding Installation Files

Extract `hinemos_manager-4.1.x_rhel6_64.tar.gz` into the appropriate directory. (In this chapter, RHEL6 64bit version of Hinemos Manager is used as an example to explain the installation method. Installation of RHEL6 32bit version is also the same as the following. The destination directory for explanation is noted as `/tmp`, but you can also specify another destination directory instead.)

Login as root user and expand `hinemos_manager-4.1.x_rhel6_64.tar.gz` within the `/tmp` directory.

```
# cd /tmp
# tar -zxvf hinemos_manager-4.1.x_rhel6_64.tar.gz
```

A folder with the name `Hinemos_Manager-4.1.x_rhel6_64` will be created under the `/tmp` directory.

Move into the extracted directory `Hinemos_Manager-4.1.x_rhel6_64`.

```
# cd Hinemos_Manager-4.1.x_rhel6_64/
```

4.1.2 Running Hinemos Manager Installer

The installer performs the following processes.

- perform Pre-installation environment check for SELinux, OS version and RPM Package Dependencies,
- create "hinemos", the user who runs the Hinemos Manager,
- copy installation files,
- configure the IP address of the FTP server for Collective Run feature,
- configuring rsyslog and start up,
- configuring snmpd and start up,
- construct and initialize the DB for Hinemos.

Note: Installation will fail if user "hinemos" exists while the corresponding group "hinemos" does not. In such a case, please delete user "hinemos" at first and retry the installation.

1. Login as root user and run `manager_installer_EN.sh`.

```
# ./manager_installer_EN.sh
```

2. A confirmation message is displayed. Enter "Y".

```
-----
Welcome to the installation for Hinemos Manager
Version 4.1.x
```

```
Copyright (C) 2013 NTT DATA Corporation
-----
```

```
Starting Hinemos Manager Installation?(Y/N default:Y) : Y
```

The following message will be displayed. If there is any NG showing up, follow the instructions to clear all the NG conditions and continue with installation by running `manager_installer_EN.sh`.

```
Verifying current user... [OK]
```

```
Checking SELinux... [OK]
```

```
Checking OS version... [OK]
```

```
Verifying version of rpm package...
```

```
java-1.7.0-openjdk... [OK]
```

```
rsyslog... [OK]
```

```
Checking rsyslog.conf... [OK]
```

```
Checking the install directory /opt/hinemos...
```

```
Install directory /opt/hinemos is created.
```

3. Set up the password for user "hinemos".

You must enter a password. Input the password for the user "hinemos"

```
Checking hinemos user...
```

```
Group hinemos is created.
```

```
New password: [Type password for hinemos user (not shown on the screen)]
```

```
Retype new password: [Retype the same password again (not shown on the screen)]
```

The following message is displayed.

```
Changing password for user hinemos.
```

```
passwd: all authentication tokens updated successfully.
```

```
hinemos user (group hinemos) is created.
```

```
Owner of install directory /opt/hinemos is changed to hinemos:hinemos.
```

4. Set up JAVA_HOME.

Input of JAVA_HOME directory is requested. Set JAVA_HOME to the OpenJDK installation directory.

```
Please input JAVA_HOME. (Default:/usr/lib/jvm/jre-1.7.0-openjdk) :
```

Confirmation of the input JAVA_HOME directory is displayed. Enter "Y" if correct.

```
/usr/lib/jvm/jre-1.7.0-openjdk (/usr/lib/jvm/jre-1.7.0-openjdk/bin/java) is right? (Y/N default:Y) : Y
```

If java does not exist in the input JAVA_HOME directory, confirmation to re-input JAVA_HOME is displayed; to continue with installation without re-inputting JAVA_HOME, enter "N".

```
Warning : Java not found. (/usr/lib/jvm/jre-1.7.0-openjdk/bin/java) re-enter the path of JAVA_HOME?(Y/N default:N) : N
```

5. Install the jar file used with the WBEM protocol.

The output is as shown below. Enter "Y" if the process monitor or resource monitor will be used with the WBEM protocol.

Enter "N" if they will not be used. By default, the process monitor or resource monitor use the SNMP protocol. It will not be a problem if you use the SNMP protocol and still enter "N". Here is an example of using the WBEM Protocol.

```
Do you use WBEM for process monitoring or performance monitoring? (Y/N default:N) : Y
```

The sblimCIMClient.jar installation path is requested so you need to enter the installation path.

```
Please input installation path of sblimCIMClient.jar. (Default:/usr/share/java/sblimCIMClient.jar)" :
```

Confirmation of the sblimCIMClient.jar installation path is displayed. Enter "Y" if correct.

```
/usr/share/java/sblimCIMClient.jar is right? (Y/N default:Y) : Y
```

If the entered sblimCIMClient.jar installation path does not exist, a message is displayed, asking you to re-enter the sblimCIMClient.jar installation path. To continue installation without re-entering the sblimCIMClient.jar installation path, enter "N".

```
Warning: Cannot find sblimCIMClient.jar. Re-enter the installation path? (Y/N default:N) : N
```

6. Set up the IP address of the FTP server used in the collective run feature.

A message is displayed asking you for the IP address for the FTP server so you must enter that information. (For IPv6, do not enter [] before and after the IP address.) If you do not need the collective run feature, just press enter to skip it. (Default setting)

```
Please enter the IP address of the ftp server which is needed by the collective run feature. (default:127.0.0.1) : 192.168.0.1
```

A message is displayed asking you to confirm that the IP address is correct. Enter "Y" if correct.

```
192.168.0.1 is right? (Y/N default:Y) : Y
```

7. Copy the necessary files and configuring settings

The following message is displayed.

```
file systems mounted
  /dev/mapper/vg_templaterhel6432en-lv_root - /
  /dev/sda1 - /boot
database directory(/opt/hinemos/var/data) will be in partition ( / ).
file system contains log directory(/opt/hinemos/var/log) will be in partition ( / ).

Copying required files into install directory... [OK]

Configuring files (hinemos.cfg, postgresql.conf, persistence.xml, selfcheck-service.properties)...
Configuring files (net-snmp)...
Starting snmpd: [OK]
/etc/snmp/snmpd.conf is changed. (appended "view systemview included .1.3.6.1")
runlevel(2345) of snmpd service is enabled.
Notice : Please change snmpd.conf when OIDs (.1.3.6.1...) is not accessible.
[OK]
```

Continue setting up and running rsyslog.

```
Checking rsyslog.conf...
Configuring file (rsyslog.conf)...Shutting down system logger: [OK]

Starting system logger: [OK]

Changing the permissions of files... [OK]
```

When the following message appears, installation is complete.

```
Initializing internal database...
checking database directory(/opt/hinemos/var/data)... done
checking current user(hinemos)... done
initializing database directory(/opt/hinemos/var/data)... done
configuring database... done
starting up database... done
configuring database users... done
configuring database schemas and loading initial data... done
done
shutting down database... done
configuring authentication... done

Installation of Hinemos Manager is completed.
```

The above means that the installation of Hinemos Manager is completed.

Note 1) The installer helps you automatically perform all the basic settings for Hinemos Manager. In order to enable the following additional features, please refer to the "Hinemos Administrator's Guide" for additional settings.

- Enable collective run

In addition, initial installation of the Hinemos Manager may not be sufficiently secure. To change the security settings, refer to section 10 "Security" in the Hinemos Administrator's Guide.

4.2 Starting Hinemos Manager

4.2.1 Running Manager Startup Script

Login as root user and run the following command.

```
# /opt/hinemos/bin/hinemos_start.sh
waiting for Hinemos Manager to start...

waiting for PostgreSQL startup...
PostgreSQL started

waiting for Java Virtual Machine startup...
.....done
Java Virtual Machine started

Hinemos Manager started
```

Hinemos Manager startup is complete when the above messages are displayed.

4.2.2 Checking Running Status on Manager

Run the following command as root user to check the PIDs of both the Java VM and the PostgreSQL.

```
# /opt/hinemos/bin/hinemos_status.sh
Hinemos Manager is running...
- Java VM Process ID : [PID of Java process] (running)
- PostgreSQL Process ID : [PID of Postgres process] (running)
```

Furthermore, use ps command can to see whether processes are running or not.

```
# ps -ef | grep /opt/hinemos/
```

Confirm that the following two processes are running.

- PostgreSQL
/opt/hinemos/postgresql/bin/postgres -D /opt/hinemos/var/data
- Java
/usr/lib/jvm/jre-1.7.0-openjdk.x86_64/bin/java ... com.clustercontrol.HinemosManagerMain

4.3 Stopping Hinemos Manager

4.3.1 Running Manager Stop Script

Login as root user and run the following command.

```
# /opt/hinemos/bin/hinemos_stop.sh
waiting for Hinemos Manager to stop...

waiting for Java Virtual Machine shutdown...
Thread Dump 1
Thread Dump 2
Thread Dump 3
.done
Java Virtual Machine stopped

waiting for PostgreSQL shutdown...
PostgreSQL stopped (shutdown mode : fast)

Hinemos Manager stopped
```

Stopping of Hinemos Manager is complete when the above messages are displayed and entry at the prompt is possible.

4.3.2 Checking Stopped Status on Manager

Run the following command as root user to check if the PIDs of both the Java VM and the PostgreSQL are empty.

```
# /opt/hinemos/bin/hinemos_status.sh
Hinemos Manager is stopped.
- Java VM Process ID   : (stopped)
- PostgreSQL Process ID : (stopped)
```

Furthermore, use ps command can to see whether processes are running or not.

```
# ps -ef | grep /opt/hinemos/
```

In the result, confirm that the two processes described in [Checking Running Status on Manager](#) section have stopped properly.

4.4 Installing Hinemos Manager as a Service

The following steps show how to add Hinemos Manager as an OS service.

After adding as a service, Hinemos Manager can be started/stopped by service command and set to be started automatically during the OS startup.

4.4.1 Service Script for Hinemos Manager

Use the registration script, which is included in the Hinemos Manager package, to add Hinemos Manager as a OS service.

- /opt/hinemos/sbin/service/hinemos_manager

Run the following command as root user to copy the executable service script to /etc/init.d.

```
# cp -p /opt/hinemos/sbin/service/hinemos_manager /etc/init.d/
```

4.4.2 Starting Hinemos Manager Service

Login as root user and run the following command to start Hinemos Manager.

```
# service hinemos_manager start
waiting for Hinemos Manager to start...

waiting for PostgreSQL startup...
PostgreSQL started

waiting for Java Virtual Machine startup...
Java Virtual Machine started (with -W option)

Hinemos Manager started

[ OK ]
```

4.4.3 Checking Service Status on Manager

Login as root user and run the following command.

If it is running, the status will be "running" and the process IDs will be shown. Otherwise the status will be "stopped" and PIDs are left blank.

```
# service hinemos_manager status
Hinemos Manager is running...
- Java VM Process ID : [PID of Java process] (running)
- PostgreSQL Process ID : [PID of Postgres process] (running)
```

4.4.4 Stopping Hinemos Manager Service

Login as root user and run the following command to stop Hinemos Manager.

```
# service hinemos_manager stop
waiting for Hinemos Manager to stop...

waiting for Java Virtual Machine shutdown...
Thread Dump 1
Thread Dump 2
Thread Dump 3
.done
Java Virtual Machine stopped

waiting for PostgreSQL shutdown...
PostgreSQL stopped (shutdown mode : fast)

Hinemos Manager stopped

[ OK ]
```

4.4.5 Auto-start Configuration

Run the following command as root user to enable Hinemos Manager to start automatically at the time the OS starts up.

```
# chkconfig --add hinemos_manager
```

Run the following command as root user to confirm whether Hinemos Manager has been added as an OS service.

```
# chkconfig --list hinemos_manager
hinemos_manager 0:off 1:off 2:on 3:on 4:on 5:on 6:off
```

Run the following command as root user to remove Hinemos Manager service.

```
# chkconfig --del hinemos_manager
```

4.5 Uninstalling Hinemos Manager

The following procedure is for uninstalling Hinemos Manager.

1. Run the uninstallation script (manager_uninstaller_EN.sh).

4.5.1 Running Manager Uninstaller

The uninstaller performs the following.

- Deletes the Hinemos Manager file (below /opt/hinemos directory)
- Deletes the user "hinemos"

1. Login as root user, run manager_uninstaller_EN.sh. If Hinemos Manager is running, stop it at first.

```
# /opt/hinemos/sbin/manager_uninstaller_EN.sh
```

The following message is displayed.

```
-----
Uninstaller for Hinemos Manager
Version 4.1.x

Copyright (C) 2013 NTT DATA Corporation
-----
```

2. A confirmation message is displayed. Enter "Y".

```
Hinemos Manager will be uninstalled, is that OK?(Y/N default:N) : Y
```

The following message is displayed.

```
Verifying current user... [OK]
Verifying Hinemos manager installed... [OK]
Checking status of Hinemos Manager...
Checking Hinemos Agent... [OK]
```

4. A message is displayed confirming if you really want to delete the "hinemos" user account.

If the user account "hinemos" will not be used again after uninstallation of Hinemos Manager, enter "Y". (The home directory of user "hinemos" :/home/hinemos will be deleted.) If the user account "hinemos" will be used again, enter "N".

```
Checking hinemos user...
Remove hinemos user and user's home directory?(Y/N default:Y) : Y
```

The following message is displayed.

```
hinemos user is removed.
```

5. A message is displayed confirming if you really want to delete the install directory.

Enter "Y" to delete.

```
Checking install directory /opt/hinemos...
Remove install directory /opt/hinemos?(Y/N default:Y) : Y
```

The following message is displayed.

```
Install directory /opt/hinemos is removed.
```

Uninstallation is complete when the following message is displayed.

```
The following settings will not be changed because there are a possibility of the settings used by
programs other than Hinemos.
- Setting of /etc/hosts file
- Setting of kernel parameters (SHMMAX,SHMALL)

Uninstallation of Hinemos Manager is completed.
```

Note: The following settings are not changed by the uninstaller because they may be used by programs other than Hinemos.

- Configuring /etc/snmp/snmpd.conf

The location added by the Hinemos Manager installer in /etc/snmp/snmpd.conf is as follows:

```
view systemview included .1.3.6.1
# disk / 10000
# disk /var 10000
```

- Configuring /etc/rsyslog.conf, /etc/rsyslog_hinemos.conf

The location added by the Hinemos Manager installer in /etc/rsyslog.conf is as follows:

```
$IncludeConfig /etc/rsyslog_hinemos.conf
```

Delete /etc/rsyslog_hinemos.conf.

4.6 Precautions

4.6.1 Problems with Anti-Virus Software

If there is an anti-virus software installed on the server of Hinemos Manager, a false positive may occur; the internal DB file of Hinemos Manager might be detected as a virus-infected file.

If the internal DB became broken because of an external program, an reinstall of Hinemos Manager or an recovery from dump file will be required. For that reason, it is recommended to add the installation directory of Hinemos Manager (/opt/hinemos) to scan exclusions of the anti-virus software.

If the directory under the /opt/hinemos directory and the file are linked to an external file, confirm in the settings that the linked directory and file are excluded from the scan.

5 Managed Node (Windows Agent)

5.1 Installing Windows Agent

Hinemos provides agent packages for management on Windows Servers.

The setup for the Windows Agent is explained in this chapter. The following screenshots are taken from Windows Server 2008 R2.

5.1.1 Prerequisites for installation

User Permission for the Installer

In order to install Hinemos Agent on Windows, the following prerequisites for user permission are required.

- Windows Server 2008

One or more of the following conditions are required.

- Using a local administrator
- Using a domain administrator (Built-In Administrator Account)
- Turning UAC (User Account Control) off and using a local user who belongs to the local "Administrators" group
- Turning UAC (User Account Control) off and using a domain user who belongs to the "Domain Admins" group

- Windows Server 2012

One or more of the following conditions are required.

- Using a local administrator
- Using a domain administrator (Built-In Administrator Account)

Windows Firewall

Firewall is normally equipped on Windows Server 2008 R2 or later versions as standard, so the communications between Hinemos software may be blocked. In such a case, you must change the firewall configuration in Windows so that communication is not blocked.

Example of a Windows Firewall configuration method that allows for communication with SNMP Service (UDP161). Windows Agent also use ports other than UDP161. Refer to [Network Requirements](#) section for more details.

1. Select "Control Panel" → "Windows Firewall" and click on "Advanced Settings".

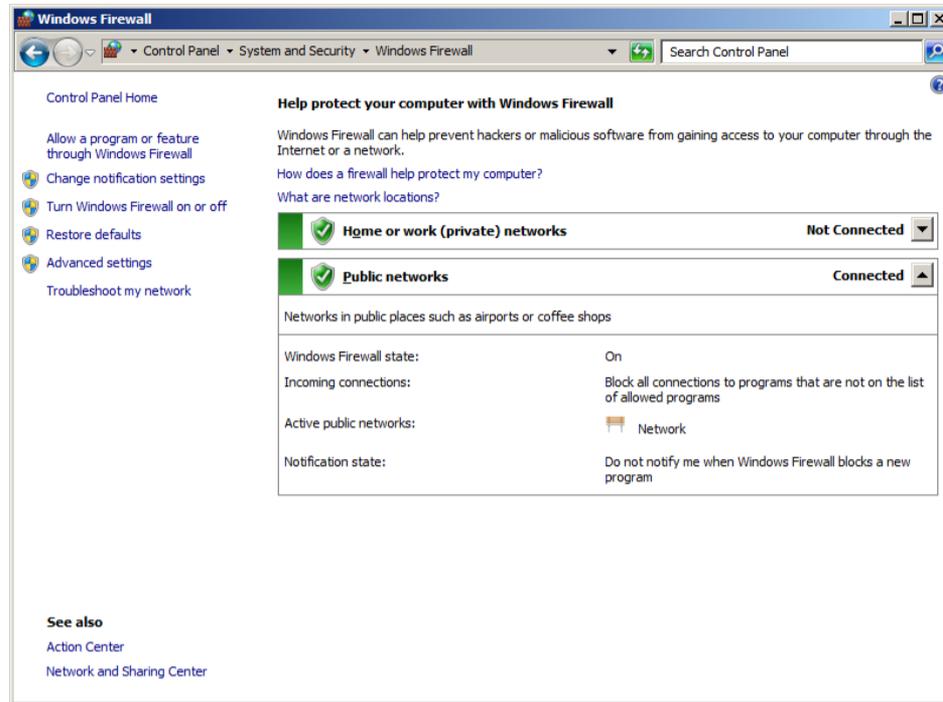


Figure 5-1 Windows Firewall

2. Left click on "Inbound Rules" and click on "New Rule", or click on "Action" - "New Rule".

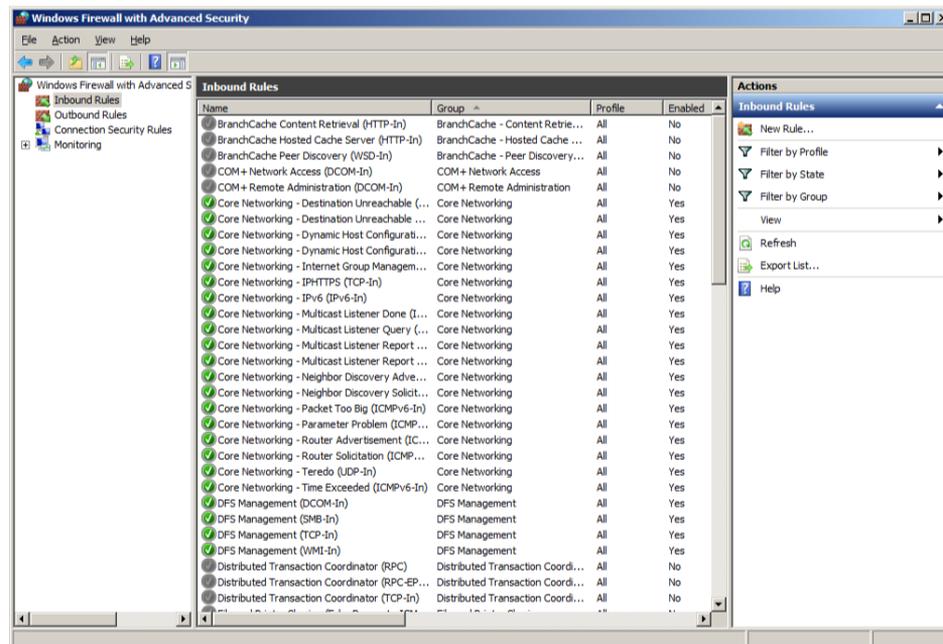


Figure 5-2 Windows Firewall with Advanced Security

3. Select "Port", then click the "Next" button.

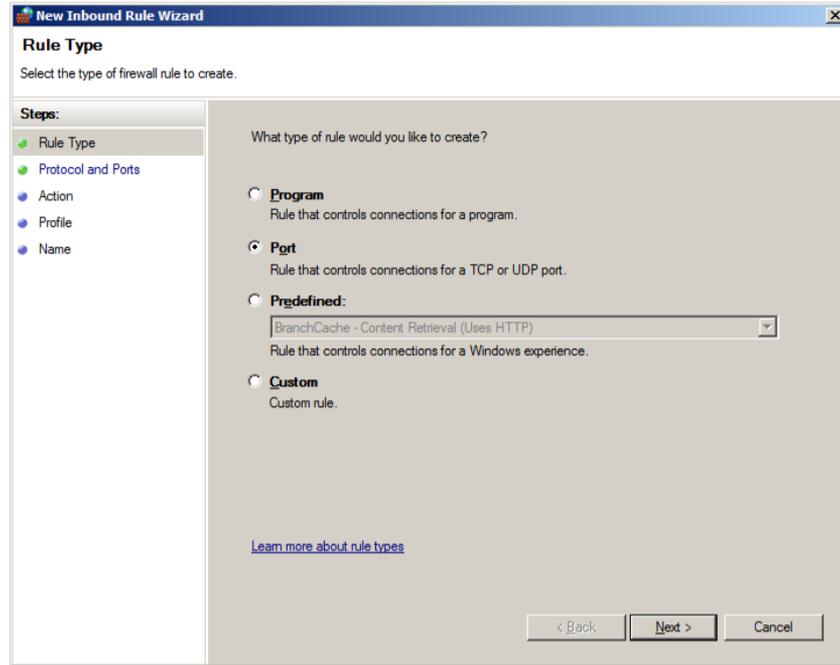


Figure 5-3 New Inbound Rule Wizard (Rule Type)

4. Select "UDP" and "Specific local ports:" and enter "161" in the text box, then click the "Next" button.

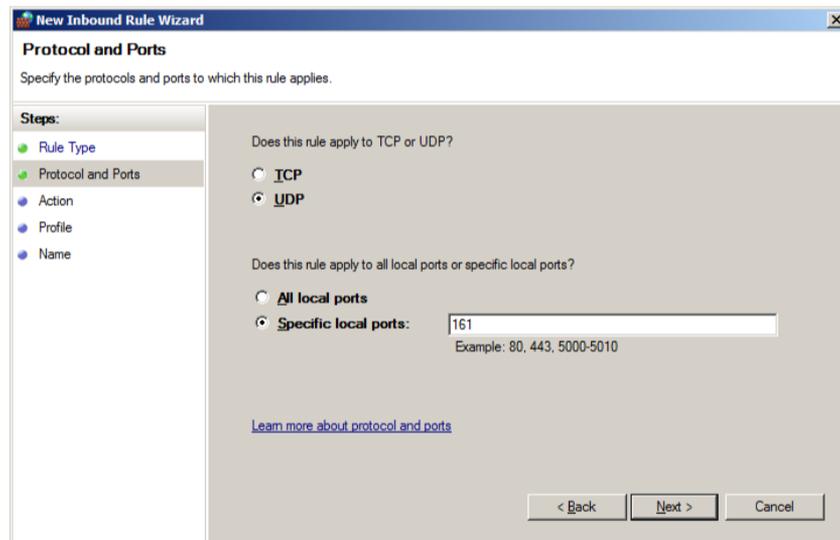


Figure 5-4 Firewall Settings Dialog (Protocol and Ports)

5. Select "Allow the connection", then click the "Next" button.

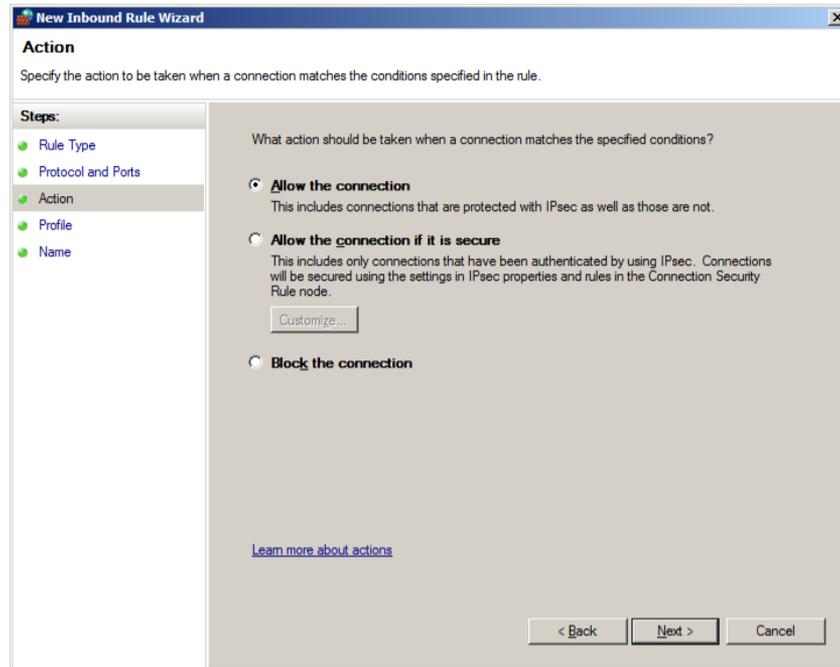


Figure 5-5 Firewall Settings Dialog (Action)

6. Select the network which the Hinemos Manager will connect to from "Domain", "Private" or "Public", then click the "Next" button.

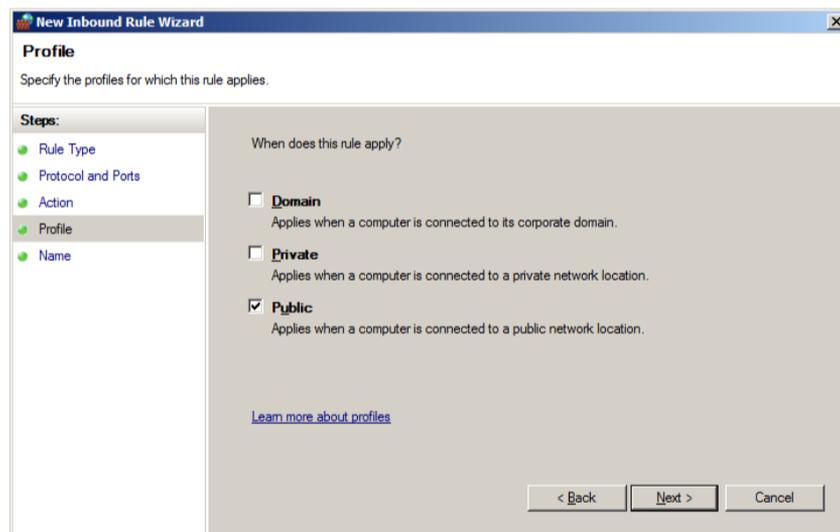


Figure 5-6 Firewall Settings Dialog (Profile)

7. Enter "SNMP Service" as the "Name" and enter a note in "Explanation (Optional)" if necessary. Next, click the "Complete" button.

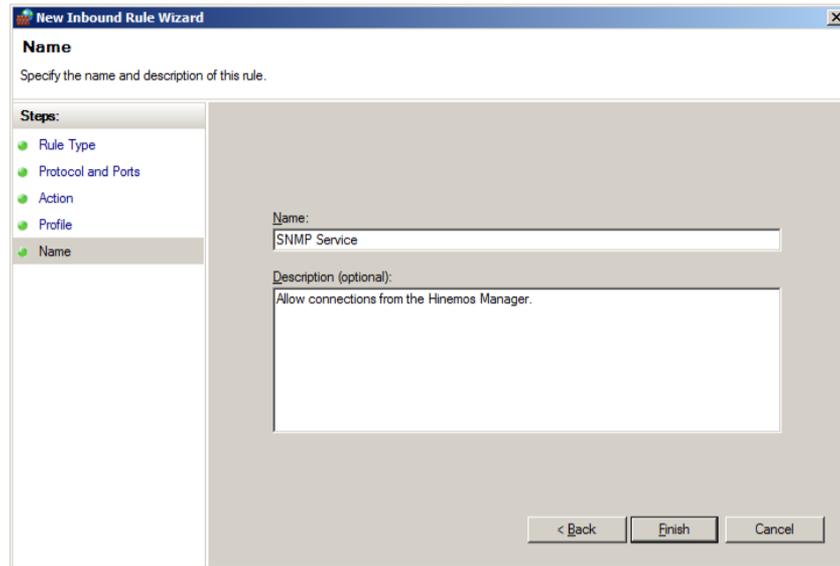


Figure 5-7 Firewall Settings Dialog (Name)

5.1.2 Running Windows Agent Installer

The Hinemos Agent Installer (for Windows) installs the following items.

- Hinemos Agent
- SNMP extension agent (used in resource monitoring and performance management features)

This section explains how to install a Windows Agent.

1. Download the Hinemos Agent installer for Windows (HinemosAgentInstaller-4.1.x_[<OS>_<architecture>].msi) from the Hinemos SourceForge site.
2. Open the downloaded installer.
3. When the Setup Wizard for the Hinemos Agent starts, click the "Next" button.

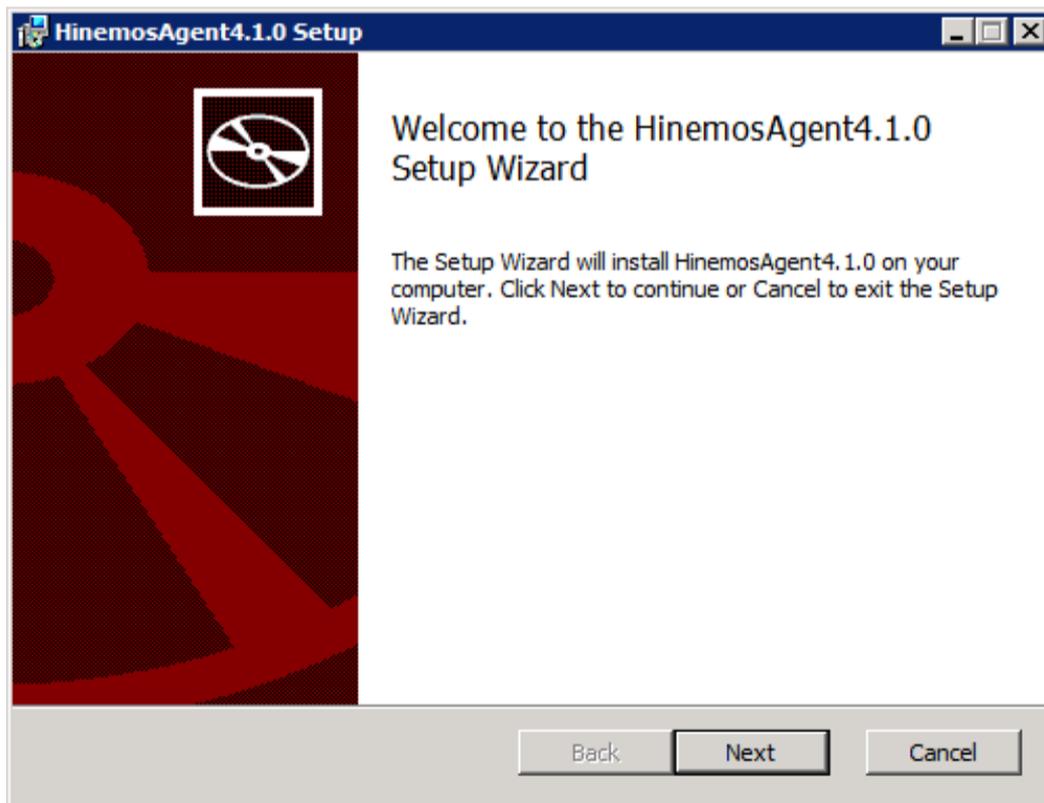


Figure 5-8 Hinemos Agent Setup Wizard

4. Agree to the Software License Agreement.

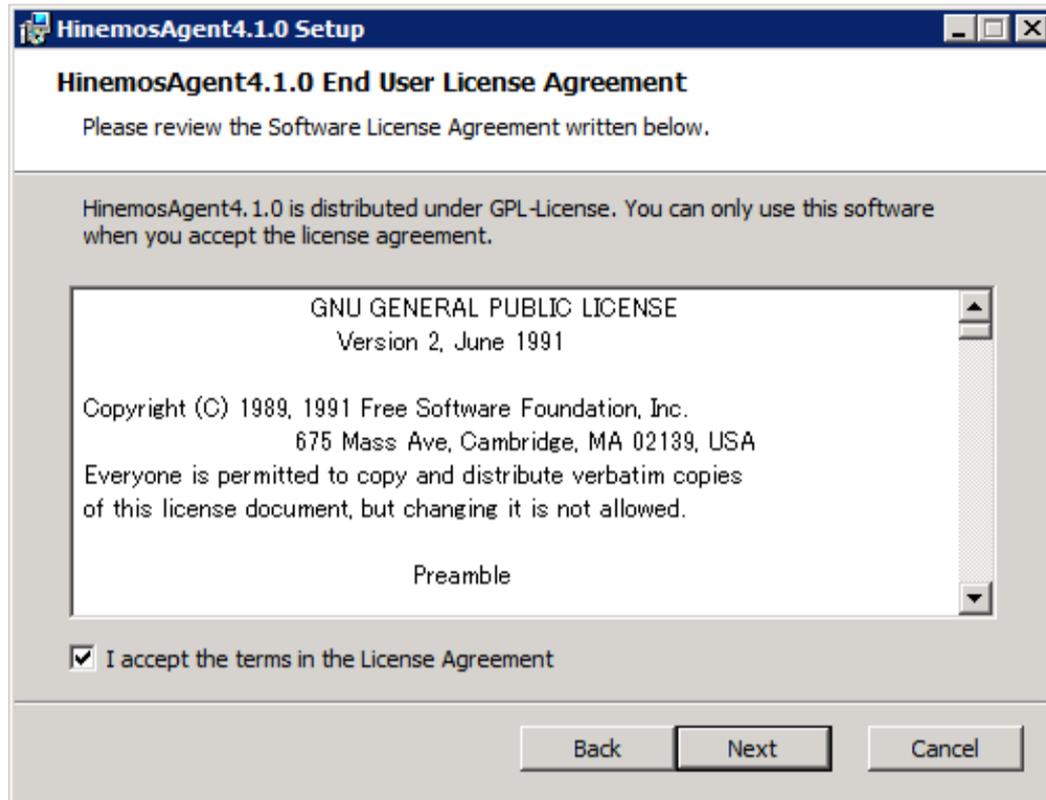


Figure 5-9 Hinemos Agent License Agreement

5. Agree to the Oracle JRE License Agreement.

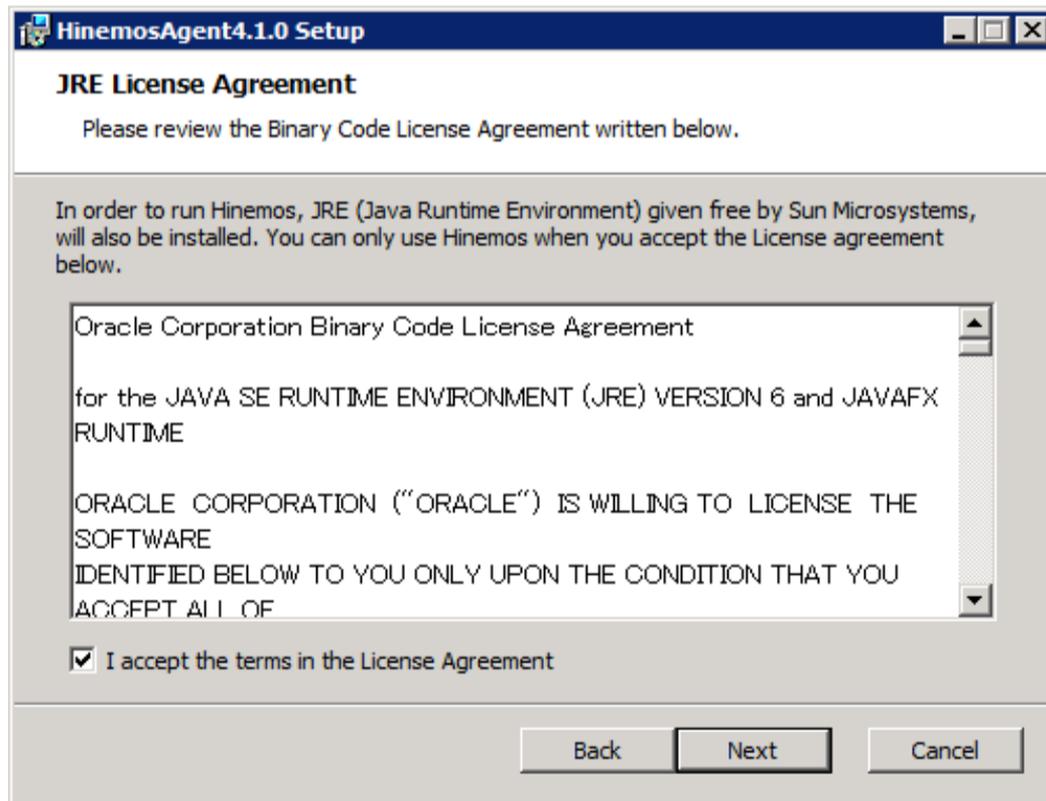


Figure 5-10 JRE License Agreement

6. Enter the hostname or IP address of the Hinemos Manager to which you want to connect. For IPv6, add [] before and after the IP address.

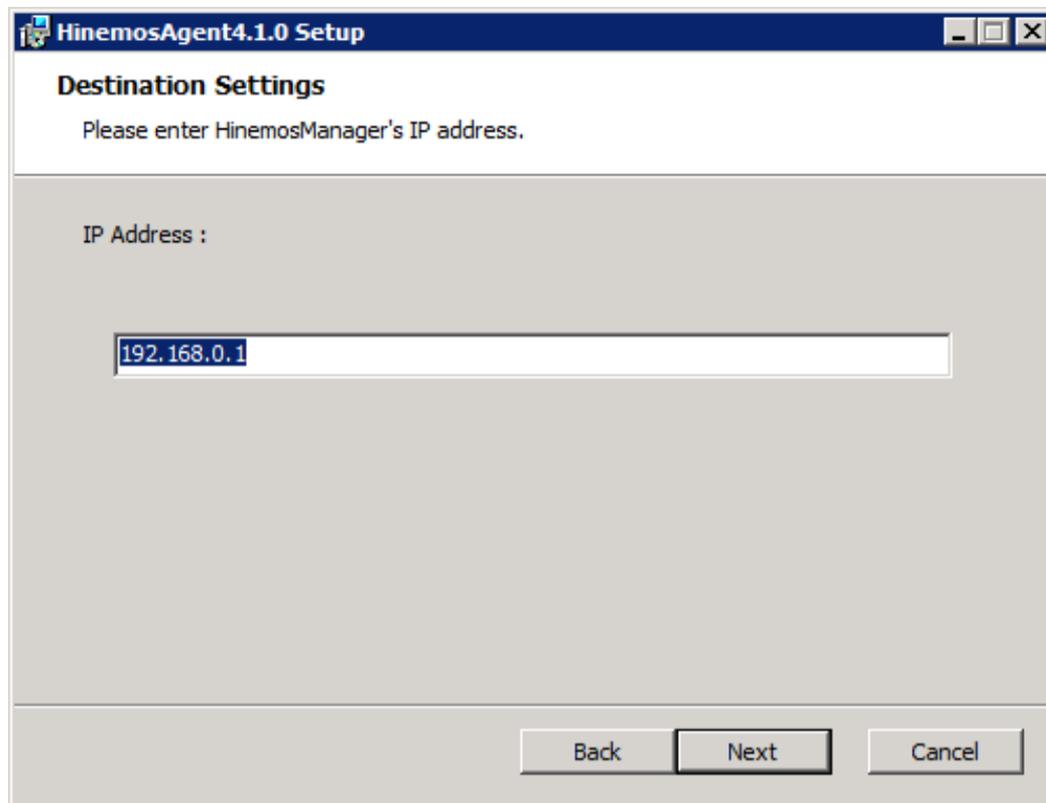


Figure 5-11 Configuring the Destination Hinemos Manager

7. Specify the installation directory for the Hinemos Agent.

(* If Japanese is contained in the installation directory, a correct log cannot be output from the Hinemos Agent.)

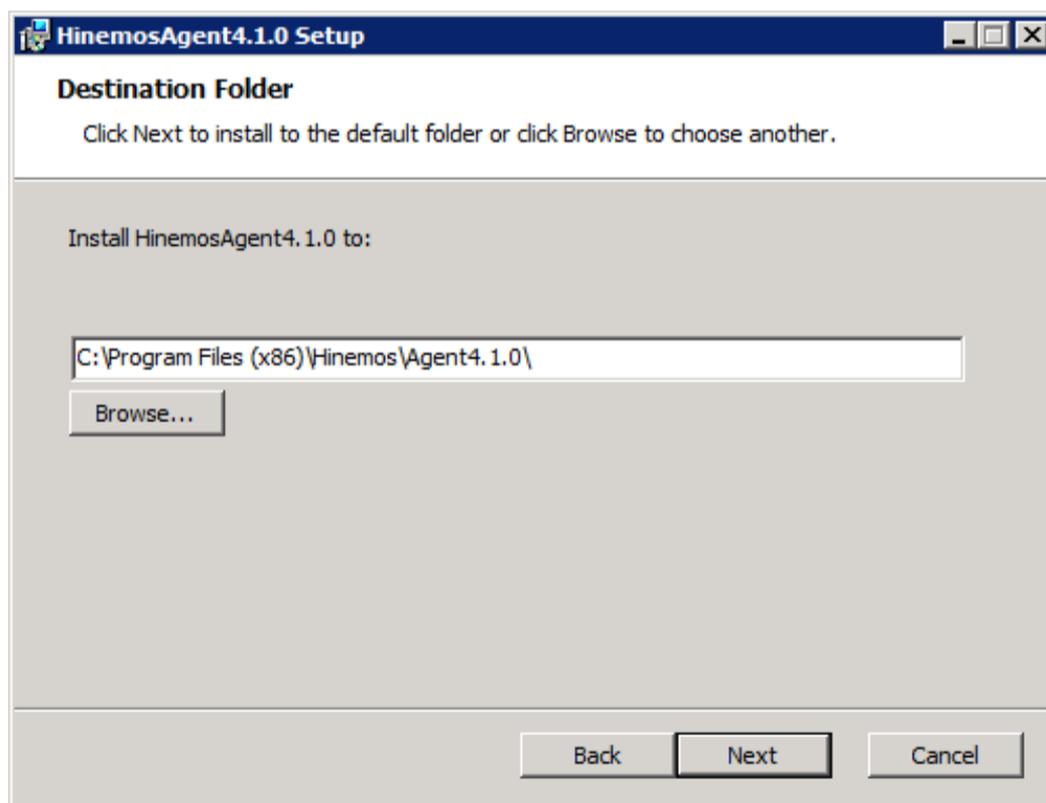


Figure 5-12 Configuring the Installation Directory

8. Click the "Install" button to begin installation.

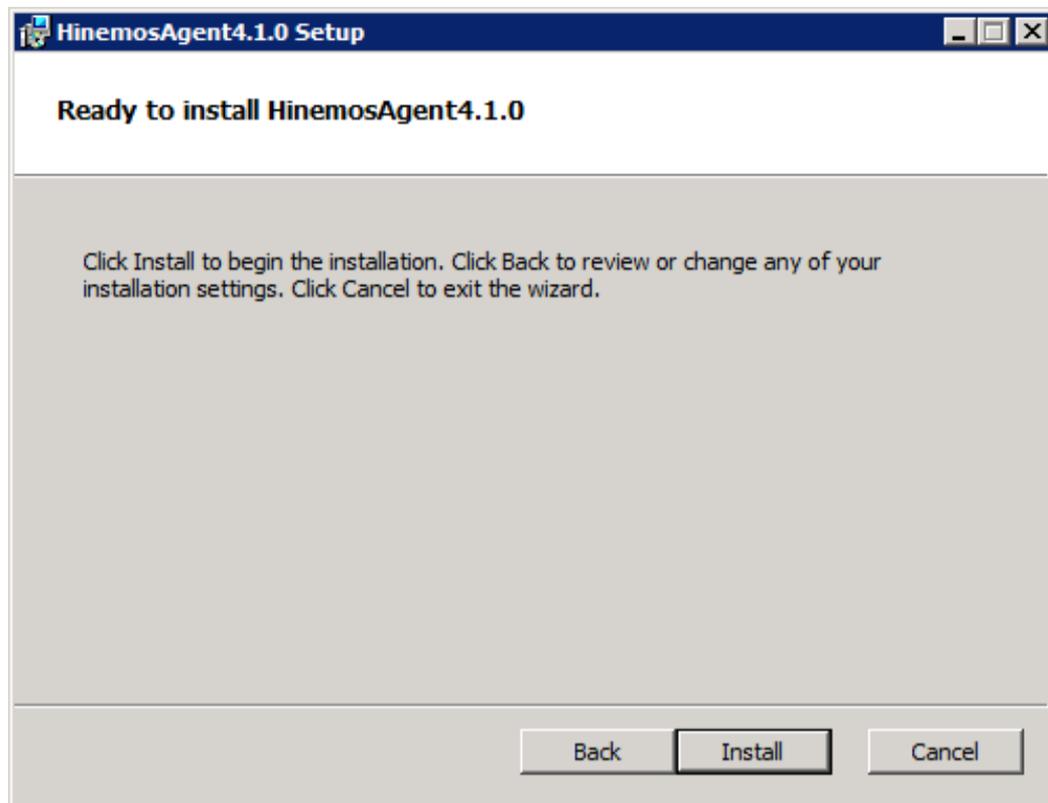


Figure 5-13 Starting Installation

- When the installation is complete, the following message dialog is displayed. Click the "Finish" button to exit the wizard.

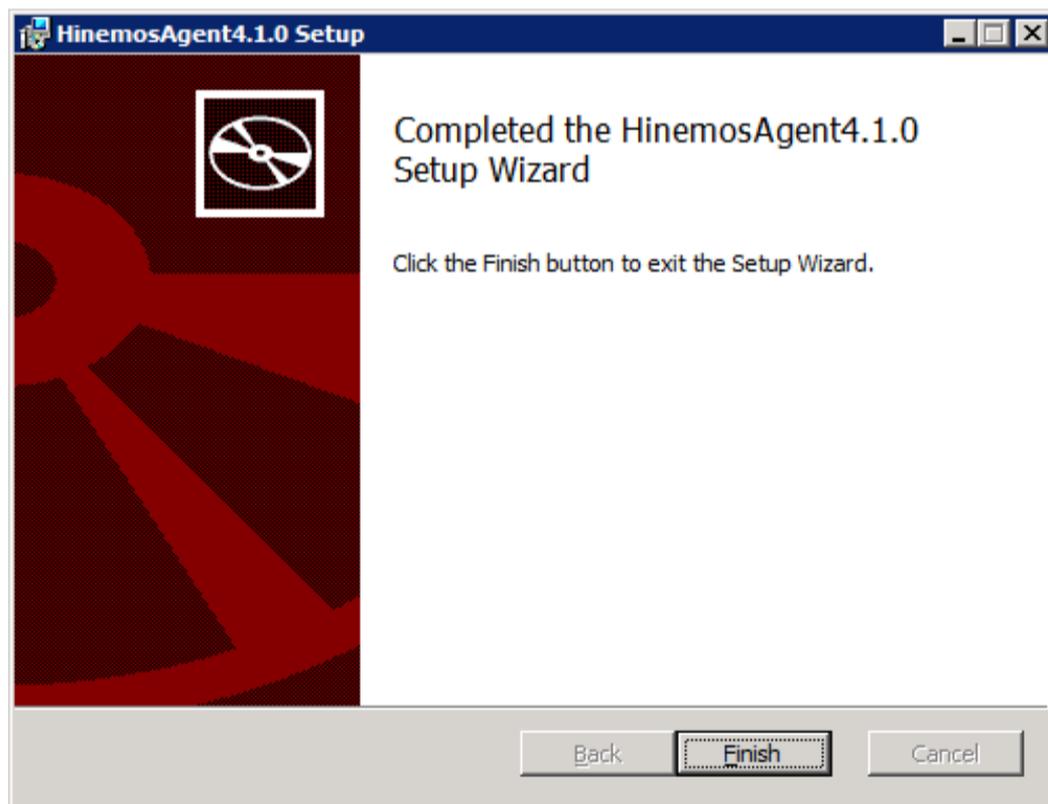


Figure 5-14 Completed Hinemos Agent Setup Wizard

- If the SNMP Service is not installed, select "Control Panel" - "Administrative Tools" - "Services", and start the SNMP service. If the SNMP Service is not installed, a restart will be required after the SNMP Service is installed.

5.2 Starting and Stopping Windows Agent

5.2.1 Starting Hinemos Agent

The Hinemos Agent (for Windows) is registered as a Windows Service, and starts and stops as a Windows Service. Refer to [Windows Agent as a Service](#) section for details.

For information about starting SNMP Service, go to [SNMP Service Setup](#) section.

5.2.2 SNMP Service Setup

The resource information, etc. for the CPU and memory can be obtained by operating the SNMP agent on Windows. This makes the usage of the Hinemos SNMP monitoring features possible.

The following shows the setup procedure for the standard SNMP agent in Windows.

1. Select "Control Panel" - "Programs and Features" and from "Programs and Features", click on "Turn Windows features on or off:".

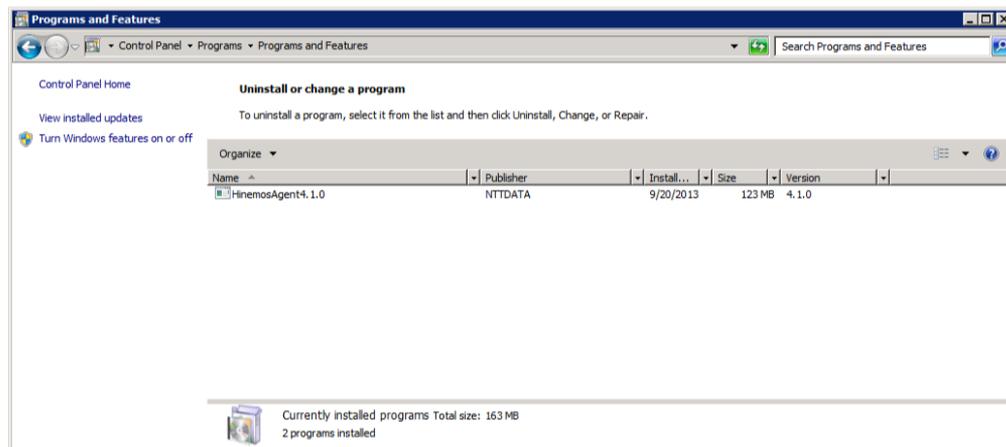


Figure 5-18 Programs and Features

2. Select "Features" and click on "Add Features".

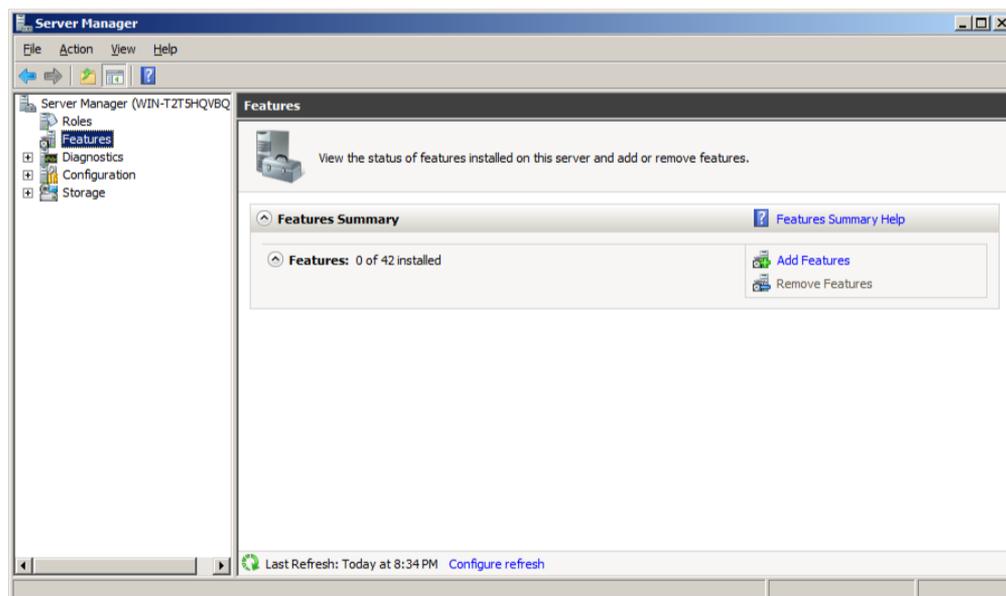


Figure 5-19 Server Manager

3. Select "SNMP Services" - "SNMP Service", then click the "Next" button.

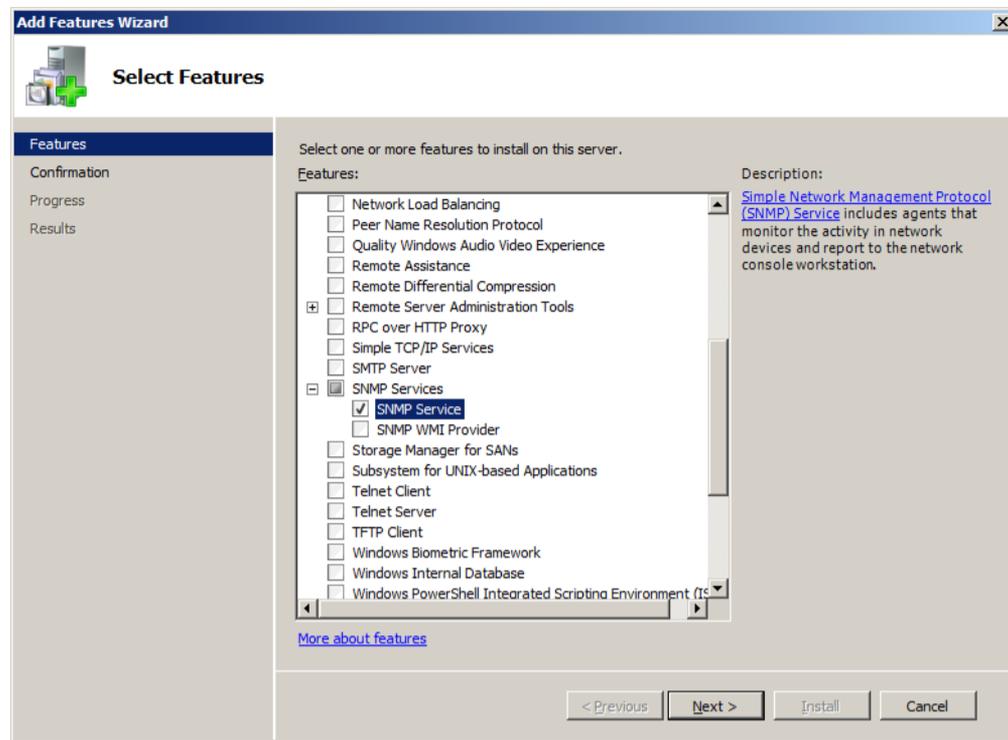


Figure 5-20 Add Features Wizard (Features)

4. Click the "Install" button.

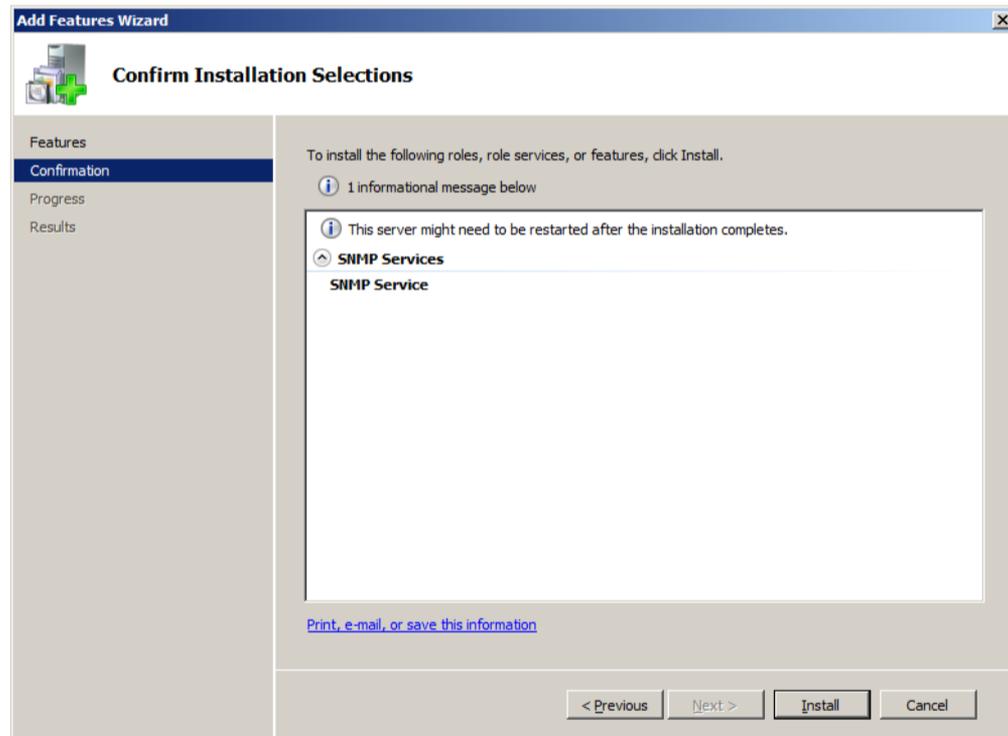


Figure 5-21 Add Features Wizard (Confirmation)

5. Click the "Close" button to exit the wizard.

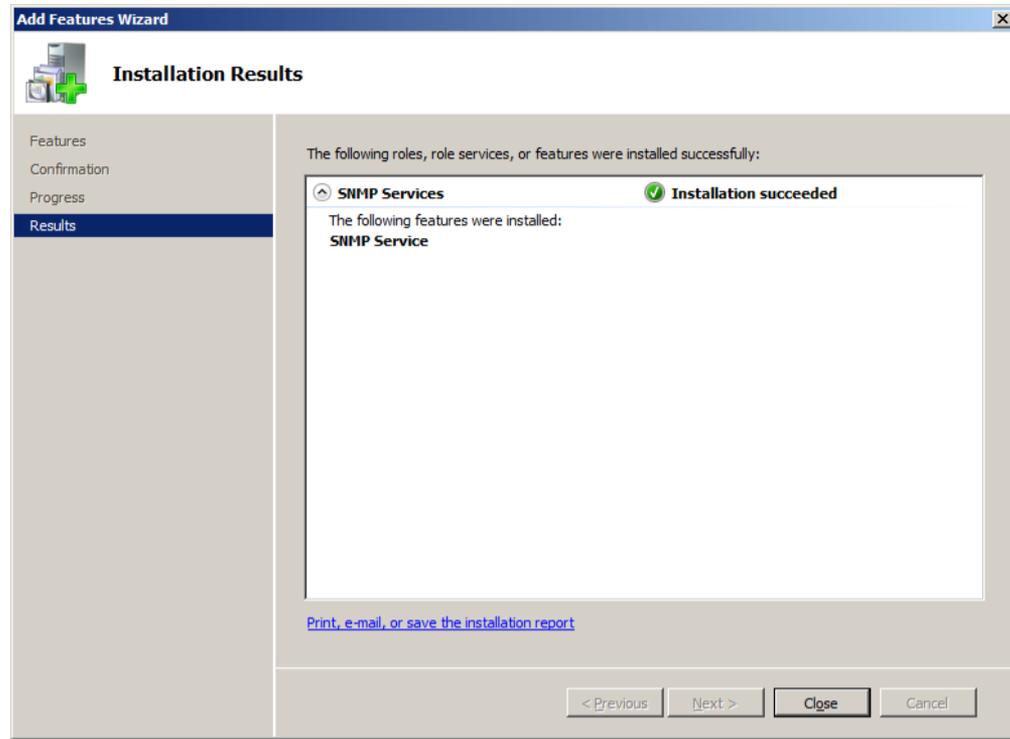


Figure 5-22 Add Features Wizard (Results)

6. Select "Control Panel" - "Administrative Tools" - "Services", right-click on "SNMP Service", then click on "Properties". After the dialog is displayed, select the "Security" tab.

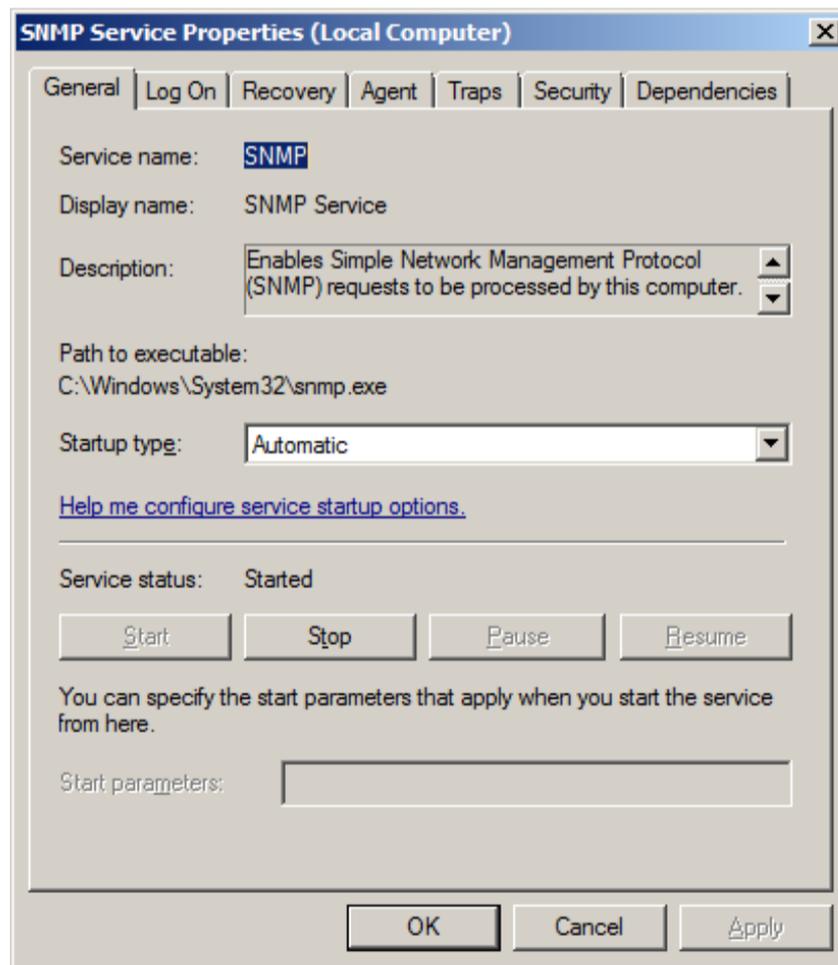


Figure 5-23 SNMP Service Properties

7. In "Accepted community names", add the community name configured in the Hinemos Manager (the default is public). In "Host receiving SNMP packet", configure the host name or IP address of the Hinemos Manager.
8. Confirm that the SNMP polling (udp 161) can communicate with the Windows Firewall.

5.2.3 Set up Resource Monitoring

UCD-MIB(1.3.6.1.4.1.2021) of SNMP is used to obtain the performance value in the resource monitoring and performance management features of Hinemos.

However, the standard SNMP agent in Windows does not support UCD-MIB (1.3.6.1.4.1.2021). Therefore, in Hinemos, the resource information is obtained by extending the SNMP agent.

Configuration of extending SNMP agent can be performed using agent installer.

Moreover, the SNMP extension agent enclosed with Hinemos 4.0.2 or later is capable of outputting Windows Event Logs for failure analysis. Those logs contain monitoring details of SNMP extension agent. For general use, the following settings are not necessarily required. However, if you want to change the settings of event log output, you should adjust them according to actual needs.

In order to make the new configuration take effect, you need to restart the SNMP service.

- Suppressing event log output on API execution failure

The SNMP extension agent uses Windows API to measure performance. Event logs will be outputted if the execution of the API failed. Nevertheless, output of specific error codes (System Error Codes/Performance Data Helper Error Codes) can be ignored by specifying in registry.

To suppress event log output, create or set the registry key and value as shown in Table 5-1.

Table 5-1 Suppressing event log output on API execution failure

Registry Key(32bit)	HKEY_LOCAL_MACHINESOFTWARE\HinemosAgentSNMPExtAgent
Registry Key(64bit)	HKEY_LOCAL_MACHINESOFTWARE\Wow6432Node\HinemosAgentSNMPExtAgent
Name	IgnoreErrorCode
Type	REG_MULTI_SZ
Value	(Specify multiple error codes using newline as delimiter) *1 *2

*1 A value of "-1" means that all errors will be ignored.

*2 An error code must be specified in hexadecimal or in decimal. Note that you need to use the prefix "0x" for a hexadecimal code.

Additional information regarding the error codes can be found at the following URL.

- System Error Codes

[http://msdn.microsoft.com/en-us/library/ms681381\(v=vs.85\).aspx](http://msdn.microsoft.com/en-us/library/ms681381(v=vs.85).aspx)

- Performance Data Helper Error Codes

[http://msdn.microsoft.com/en-us/library/windows/desktop/aa373046\(v=vs.85\).aspx](http://msdn.microsoft.com/en-us/library/windows/desktop/aa373046(v=vs.85).aspx)

- Writing output of values obtained from OS to event log

Hinemos Resource Monitor use values, which

The SNMP extension agent obtains measurement values from OS and Resource Monitor of Hinemos uses those values as source to generate performance values. If a value does not fall within the expected range of Resource Monitor, or if you want to check the details of values obtained by SNMP extension agent, output of source values to event log can be turned on in the registry.

To turn on event log output of source values, create or set the registry key and value as shown in Table 5-2.

Table 5-2 Writing output of values obtained from OS to event log

Registry Key(32bit)	HKEY_LOCAL_MACHINESOFTWARE\HinemosAgentSNMPExtAgent
Registry Key(64bit)	HKEY_LOCAL_MACHINESOFTWARE\Wow6432Node\HinemosAgentSNMPExtAgent
Name	Verbose
Type	REG_DWORD
Value	1

- Event logging levels on API execution failure

By default, the logging level is set to 1 (ERROR). Therefore, if an API execution failure occurred while the SNMP extension agent is obtaining performance value, All logs with higher or equal level than 1 will be outputted. The logging level can be changed as shown in Table 5-3.

Table 5-3 Setting event logging levels on API execution failure

Registry Key(32bit)	HKEY_LOCAL_MACHINE\SOFTWARE\HinemosAgentSNMPExtAgent
Registry Key(64bit)	HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\HinemosAgentSNMPExtAgent
Name	ErrorEventLevel
Type	REG_DWORD
Value	Event level *1

*1 The numeric level of event logging. 1: ERROR; 2: WARN; 4: INFO

5.3 Windows Agent as a Service

A method is provided with the Windows agent to register it as a Windows service. This section describes notes relative to adding or cancelling the agent as service.

For information on how to make the Linux Agent a service, refer to [Linux Agent as a Service](#) section.

5.3.1 Installing Windows Agent as a Service

1. Run bin\RegistAgentService.bat in the install directory. Hinemos Agent is registered in Windows Services.

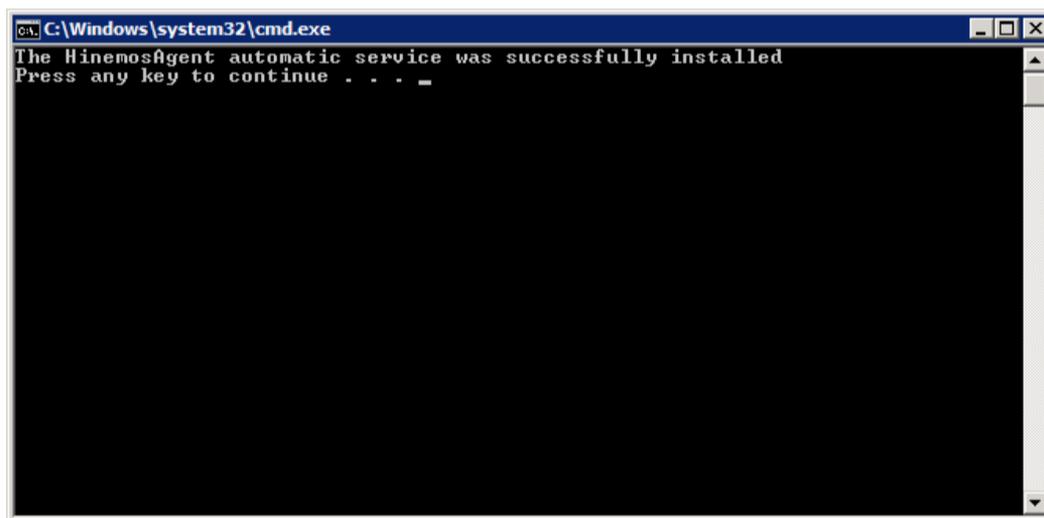


Figure 5-24 Hinemos Agent as a Service

2. Run and set up the Hinemos Agent as a service

Run the service console from "Control Panel" - "Administrative Tools" - "Services".

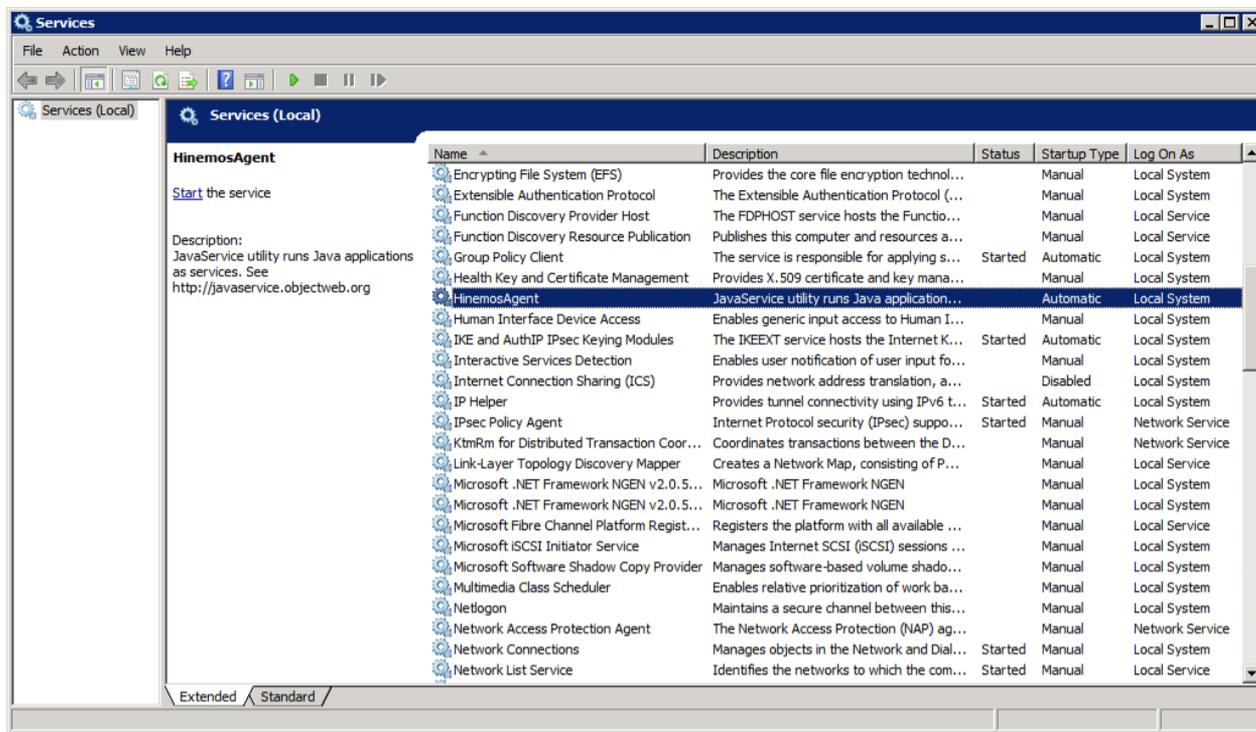


Figure 5-25 Starting Hinemos Agent Service

3. Select "HinemosAgent" by right-clicking it in the list of services in the service console. Select "Start".
When you confirm it in the task manager, normally the process named "HinemosAgentService.exe" is started for the user "SYSTEM".
4. Right click "HinemosAgent" in the list of services when necessary, and select "Properties" and configure the various settings.

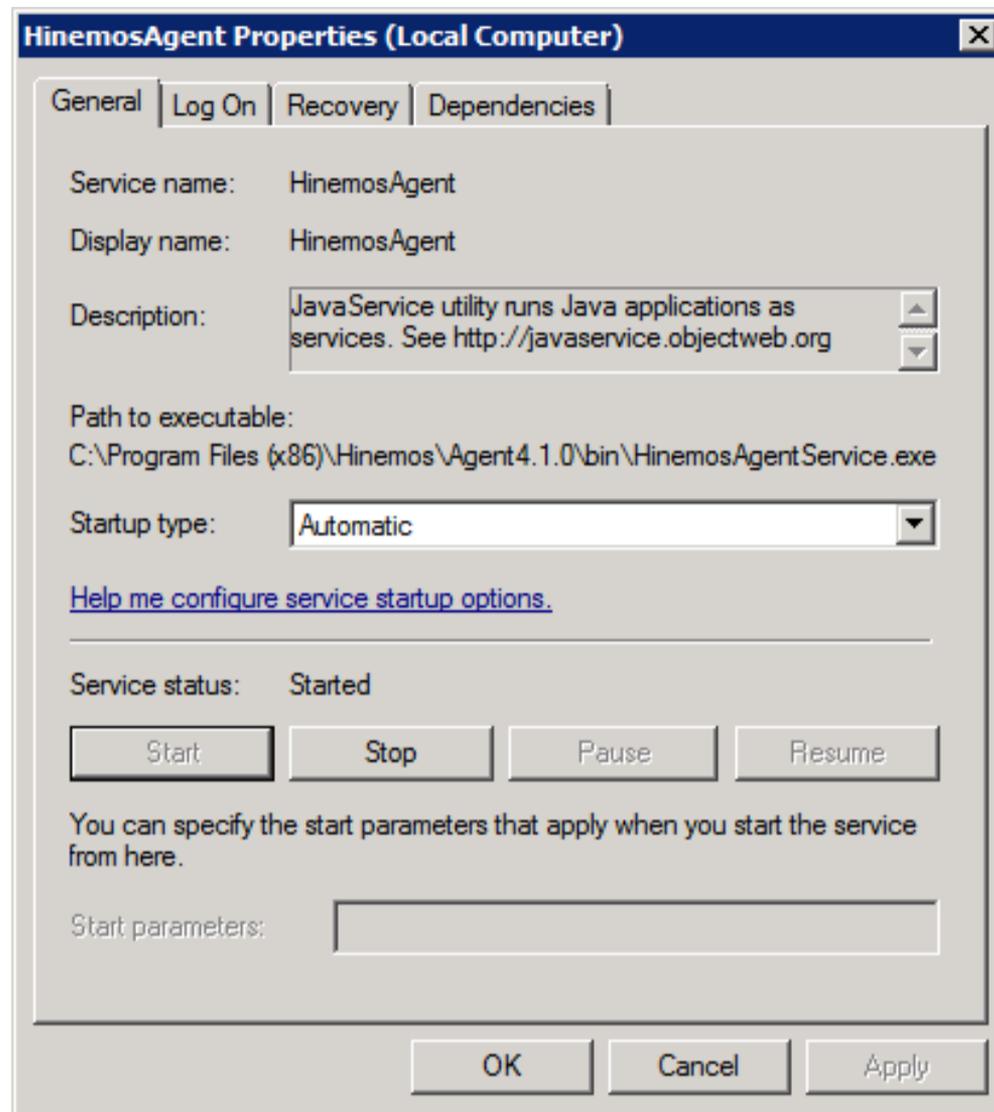


Figure 5-26 HinemosAgent Properties

5.3.2 Removing Windows Agent Service

1. Run the service console from "Control Panel" - "Administrative Tools" - "Services".
2. If Hinemos Agent is running, right click on "HinemosAgent" in the list of services in the service console and select "Stop".
3. Run bin\UnregistAgentService.bat in the install directory. Hinemos Agent is removed from Windows Services.

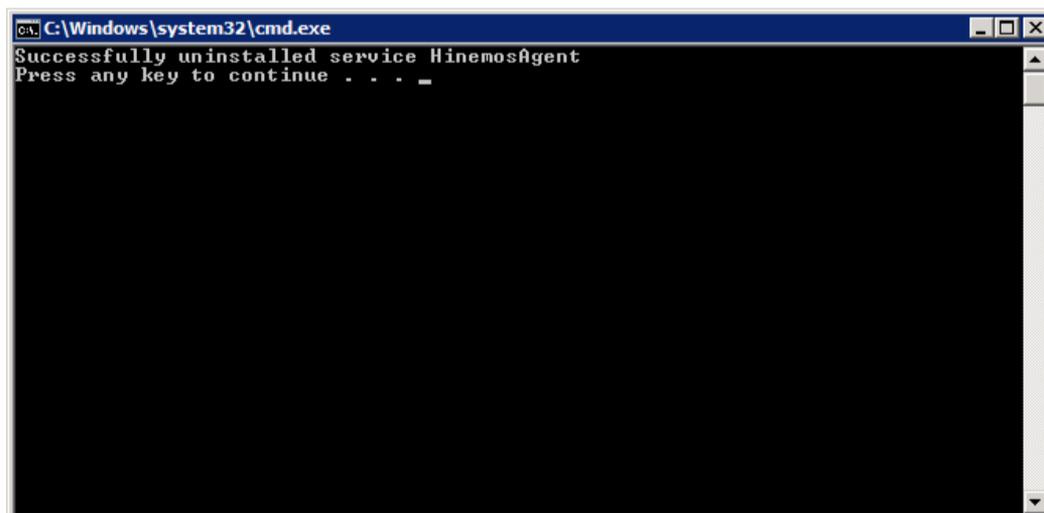


Figure 5-27 Removing the Agent Service

5.4 Uninstalling Windows Agent

Uninstallation of the Windows Agent is performed from the Programs and Features screen. The following describes how to uninstall Windows Agent if it is not displayed in the program list of the Programs and Features screen.

5.4.1 Uninstalling Windows Agent with Uninstaller

1. If the Hinemos Agent is added as a service, remove the service. (Refer to 5.3.2.)
2. If the SNMP Service is started, stop it.
3. Go to "Control Panel" - "Program and Features". A list of programs and features on your computer will be shown.
4. Select HinemosAgent4.1.x from the program list and click "Uninstall".

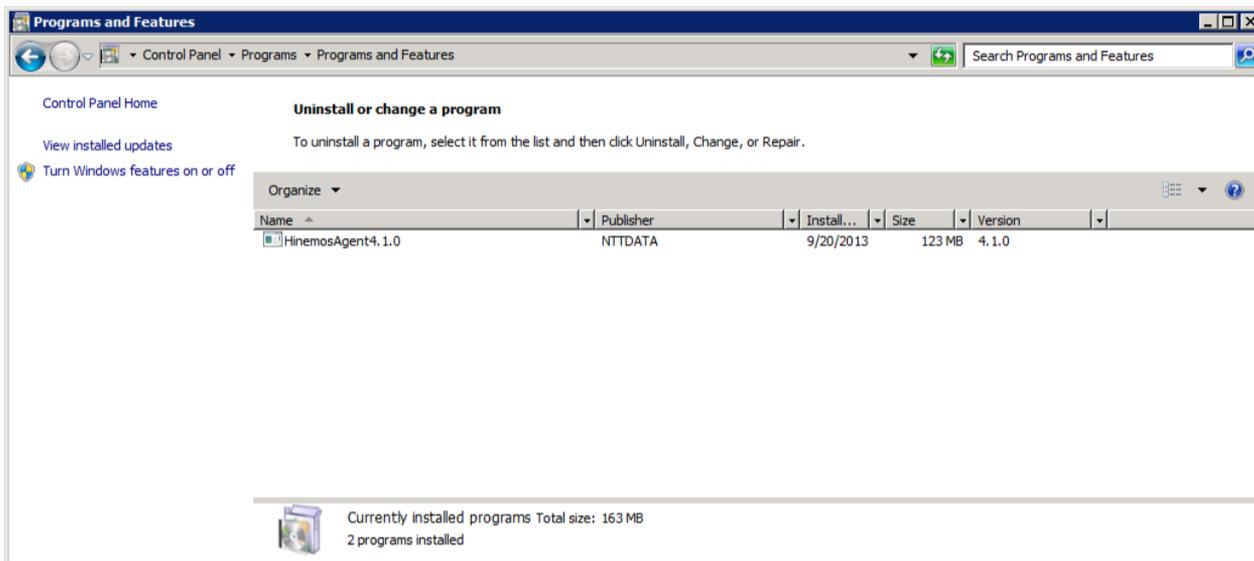


Figure 5-28 Removing the Windows Agent 1

5. Click the "Yes" button in the "Programs and Features" dialog.

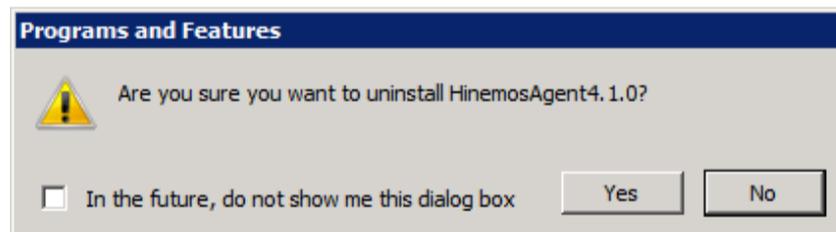


Figure 5-29 Removing the Windows Agent 2

5.4.2 Uninstalling Windows Agent Manually

1. If the Hinemos Agent is added as a service, remove the service. (Refer to 5.3.2.)
2. Delete the following keys from the registry.
 - For 32-bit

HKEY_LOCAL_MACHINE\SOFTWARE\HinemosAgent
 HKEY_LOCAL_MACHINE\SOFTWARE\SaberNet
 HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\SNMP\Parameters\ExtensionAgents

- For 64-bit

```
HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\HinemosAgent
HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\SaberNet
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\SNMP\Parameters\ExtensionAgents
```

3. Delete the installed files.

By default, all files are installed into "C:\Program Files (x86)\Hinemos", or "C:\Program Files\Hinemos" on 32-bit Windows.

The folder you should delete is "Agent4.1.x" under the above directory.

5.5 Working with Multiple Windows Agents

The Hinemos Agent Installer cannot install multiple instances of Windows Agent on the same OS. This section shows you how to install and start up multiple Windows Agents.

5.5.1 Duplicating an Windows Agent

1. Install a Hinemos Agent as shown in [Running Windows Agent Installer](#).
2. Copy the installed files to another folder.

For example, you can copy

```
C:\Program Files\Hinemos\Agent4.1.x
```

to

```
C:\Program Files\Hinemos\Agent4.1.x_copy
```

as destination folder.

3. Under "bin" folder in the copy destination, rename the executable file "HinemosAgentService.exe". For example, rename it to "HinemosAgentService_copy.exe".
4. Next, under the same "bin" folder, edit the batch file "RegistAgentService.bat".

Open "RegistAgentService.bat" with an text editor and modify the following 2 parameters.

- Modify the value of "AGENTHOME".

Change value to the destination folder.

(Do not omit the last separator "\")

```
@SET AGENTHOME=C:\Program Files\Hinemos\Agent4.1.x_copy\
```

- Modify the name of "HinemosAgentService" and the corresponding service name "HinemosAgent".

"HinemosAgentService_copy" is the name specified in 3. Also change the service name "HinemosAgent" to any others after the "-install" option. This service name will be registered to Windows service so it is required to be a unique name.

For example, (the later part is omitted in the following)

```
HinemosAgentService_copy -install HinemosAgent_copy "%JVM%" "-Dfile.encoding=UTF-8" ...
```

5. Under "bin" folder in the copy destination, edit the batch file "UnregistAgentService.bat".

Open "UnregistAgentService.bat" with a text editor and change the executable name of "HinemosAgentService" to "HinemosAgentService_copy". After the "-uninstall" option, change the service name "HinemosAgent" to the one specified in 4.

```
HinemosAgentService_copy -uninstall HinemosAgent_copy
```

6. Under "conf" folder in the copy destination, edit the parameter file "Agent.properties".

Open "Agent.properties" with a text editor, modify the parameter "AgentHome". In this example, it should be modified as below. (Note, the path delimiter must be double backslashes "\\" in .properties file.)

```
AgentHome=C:\\Program Files\\Hinemos\\Agent4.1.x_copy\\
```

7. Under "conf" folder in the copy destination, edit the parameter file "log4j.properties".

Open "log4j.properties" with a text editor, modify the parameter "log4j.appender.file.File". In this example, it should be modified as below. (Note, the path delimiter must be double backslashes "\\")

```
log4j.appender.file.File=C:\\Program Files\\Hinemos\\Agent4.1.x_copy\\var\\log\\agent.log
```

5.5.2 Installing and Removing the Copied Agent Service

To install Hinemos Agent as a service, run bin\\RegistAgentService.bat under the copy destination. To remove the service, run bin\\UnregistAgentService.bat.

For more information about other operations, see [Windows Agent as a Service](#) section.

5.5.3 Precautions

- No duplicate Facility ID on same server.

Generally, Hinemos Manager identifies agent nodes by their hostnames and IP addresses; however, if there are several agents on a single server and they are connected to same manager at the same time, Hinemos Manager will not be able to distinguish between agents without different Facility IDs. Therefore, you need to specify a unique Facility ID in that case.

To set a Facility ID, see Section 4.5, Hinemos Agent Facility ID Setting of Administrator's Guide.

- Do not uninstall the source agent.

In this section, how to run multiple Hinemos Agents on a single server is described above. However, all of the copied agents are using the same SNMP extension agent as the copy source, which is installed with Hinemos Agent Installer.

Therefore, if you uninstall Hinemos Agent according to [Uninstalling Windows Agent](#), the SNMP extension agent will also be uninstalled at the same time.

6 Managed Node (Linux Agent)

6.1 Installing Linux Agent

In the section, instructions for installing a Linux Agent is introduced. Both the installation and the startup/stop script are run as root user, but on the other hand, starting Hinemos Agent as a normal user can limit the permission of job execution.

6.1.1 Expanding Installation Files

Extract `hinemos_agent-4.1.x_rhel5-rhel6.tar.gz` into the appropriate directory. (In this chapter, RHEL5,6 version Hinemos Agent is used as an example to demonstrate the installation. Installation of RHEL4 and other versions are also the same. The destination directory for explanation is noted as `/tmp`, but you can also specify another appropriate destination directory instead.)

1. As root user, expand `hinemos_agent-4.1.x_rhel5-rhel6.tar.gz` within the `/tmp` directory.

```
# cd /tmp
# tar -zxvf hinemos_agent-4.1.x_rhel5-rhel6.tar.gz
```

A folder with the name `"Hinemos_Agent-4.1.x_rhel5-rhel6"` will be created under the `/tmp` directory.

2. Move into the extracted directory `Hinemos_Agent-4.1.x_rhel5-rhel6`.

```
# cd /tmp/Hinemos_Agent-4.1.x_rhel5-rhel6/
```

6.1.2 Running Linux Agent Installer (Installation)

The installer performs the following processes.

- Check the `net-snmp` package
- Check the package used for the collective run feature
- Configure the destination Hinemos Manager
- Copy the required files

1. As root user, run the `agent_installer_EN.sh`.

```
# ./agent_installer_EN.sh
```

The menu is displayed.

```
-----
Welcome to the installation for Hinemos Agent
Version 4.1.x

Copyright (C) 2013 NTT DATA Corporation
-----

Verifying current user... [OK]

Checking SELinux... [OK]

Checking OpenJDK...
  java-1.7.0-openjdk... [OK]
  java-1.6.0-openjdk... [OK]
[OK]

--- Select install menu ---
  1) install Hinemos Agent
  2) uninstall Hinemos Agent
  9) exit installer

==>
```

2. Enter "1" at the prompt.

```
==> 1
```

3. When the confirmation message for the starting the installation is displayed, enter "Y".

```
Starting Hinemos Agent Installation? is that OK? (Y/N default:Y) : Y
```

4. You must confirm the installation directory.

It is possible to specify the identifier of the agent to be installed. By specifying different identifiers for the same major version, it is possible to install multiple Hinemos Agents on one monitored node. (Please use only half-width alphanumeric characters and "-" or "_" for the identifier.)

```
Is it OK to install Hinemos Agent under /opt/hinemos_agent? (Y/N default:Y) :
```

If "Y" is entered

```
Is it OK to install Hinemos Agent under /opt/hinemos_agent? (Y/N default:Y) : Y
Checking the install directory /opt/hinemos_agent...
Install directory /opt/hinemos_agent is created.
```

If N is entered (when "1" is specified as an identifier)

```
Is it OK to install Hinemos Agent under /opt/hinemos_agent? (Y/N default:Y) : N
Please input an ID that identifies the installed directory. : 1
Is /opt/hinemos_agent_1 OK ? (Y/N default:Y) : Y

Checking install directory /opt/hinemos_agent_1...
Install directory /opt/hinemos_agent_1 is created.
```

The following message is displayed.

```
Verifying rpm package...
net-snmp... [OK]
net-snmp-libs... [OK]
net-snmp-5.3.1-19.el5... [OK]
net-snmp-libs-5.3.1-19.el5... [OK]
Verifying rpm package...
coreutils... [OK]
shadow-utils... [OK]
gawk... [OK]
grep... [OK]
sed... [OK]
krb5-workstation... [OK]
passwd... [OK]
openssh... [OK]
openssh-clients... [OK]
expect... [OK]
```

(If Net-SNMP is not installed)

If Net-SNMP is not installed, its dependent features (node auto-registration and resource/process/SNMP monitoring) will not be available. By installing the missing packages after Hinemos Agent installation, the above features can be made available. To continue with the installation, enter "Y".

```
Verifying rpm package...
net-snmp... [NG]
net-snmp-libs... [OK]
net-snmp-5.3.1-19.el5... [OK]
net-snmp-libs-5.3.1-19.el5... [OK]
Warning : Features (automatical node registration, performance/process/snmp monitoring,
performance collection) using net-snmp will not be able to use.
Please install the missing rpm packages following the manual
Continue installation? (Y/N default:N) : Y
Verifying rpm package...
coreutils... [OK]
shadow-utils... [OK]
gawk... [OK]
grep... [OK]
sed... [OK]
krb5-workstation... [OK]
passwd... [OK]
openssh... [OK]
openssh-clients... [OK]
expect... [OK]
```

5. The destination Hinemos Manager will be required. Enter the hostname or IP address. Installation of the required features will continue.

```
Please enter the IP address of Hinemos Manager.
For IPv6, enter [] before and after the IP address. : 192.168.0.1
192.168.0.1 Is this the right IP address? (Y/N default:Y) : Y
```

The following message is displayed.

```
Copying required files into install directory... [OK]

Configuring files (hinemos_agent.cfg, Agent.properties, log4j.properties)...
```

6. The JRE will be displayed as follows.

```
Hinemos Agent will use the JRE shown below.
-----
java version "1.7.0_09-icedtea"
OpenJDK Runtime Environment (rhel-2.3.4.1.el6_3-x86_64)
OpenJDK 64-Bit Server VM (build 23.2-b09, mixed mode)
-----
please change hinemos_agent.cfg if you want to use a different JRE.
[OK]

Createing configuration files...
[OK]
```

If it is RHEL4 version of Hinemos Agent, installation procedure of JRE will also be performed.

7. Confirmation of setting Service script for Hinemos Agent shows up.

```
Is it OK to set the Hinemos Agents service scripts under /etc/init.d/ directory ? (Y/N default:Y) : Y
```

The following message will be displayed.

```
Service scripts are set.
```

When the output is as follows and the menu is displayed again, installation of the agent is complete.

```
Installation of Hinemos Agent is completed.
```

8. When the installer menu is displayed, enter "9" at the prompt to exit the installer.

```
--- Select install menu ---
 1) install Hinemos Agent
 2) uninstall Hinemos Agent
 9) exit installer

==> 9
```

The following message is displayed.

```
Ending Hinemos Agent installer.
```

Installation of the Linux Agent is complete.

6.1.3 Running Hinemos Agent Installer (Auto-Install)

Installation script of Linux Agent also provides several convenient options to bypass all interactive questions.

Use the following options to automate installation.

Table 6-1 Installation script options for automating installation.

Option	Meaning	Required
-i	Automate installation (Assume default value for all interactive questions).	o
-m IPAddress	Specify the IP address or hostname of Hinemos Manager.	o
-d AgentID	Specify the ID of Hinemos Agent.	
-s	Determine whether or not to place service script for Hinemos Agent.	

Interactive installation will start if there is no option specified. See [Running Linux Agent Installer \(Installation\)](#) for details of interactive installation.

Example 1

Specify the hostname or IP address (e.g. 192.168.0.1) of Hinemos Manager.

```
# ./agent_installer_JP.sh -i -m *192.168.0.1*
```

If there is no agent id specified ("-d" option is not specified), Hinemos Agent will be installed to /opt/hinemos_agent/ by default.

Example 2

In addition to specifying Hinemos Manager, an ID (e.g. 1) for Hinemos Agent can also be specified as below. In this case, Hinemos Agent will be installed to /opt/hinemos_agent_*/ by default.

```
# ./agent_installer_JP.sh -i -m 192.168.0.1 -d *1* -s
```

6.2 Starting and Stopping Linux Agent

6.2.1 Starting Linux Agent

Run the following commands as root user.

```
# /opt/hinemos_agent/bin/agent_start.sh
```

The following message is displayed.

```
Hinemos Agent started.
```

6.2.2 Starting NET-SNMP

Run the following commands as root user.

```
# service snmpd start
```

The following message is displayed.

```
Starting snmpd: [ OK ]
```

Furthermore, snmpd is started by default on Red Hat Enterprise Linux, so there is no need to execute NET-SNMP startup command unless snmpd.conf has been modified.

6.2.3 Stopping Linux Agent

Run the following commands as root user.

```
# /opt/hinemos_agent/bin/agent_stop.sh
```

The following message is displayed.

```
Hinemos Agent stopped.
```

6.3 Linux Agent as a Service

With Hinemos Agent, a script is configured at the time of installation to start the service.

6.3.1 Starting Linux Agent Service

Start Hinemos Agent that is to be registered as a service.

Run the following command as root user.

```
# service hinemos_agent start
Starting hinemos_agent : Hinemos Agent started.
                               [ OK ]
```

6.3.2 topping Linux Agent Service

Stop Hinemos Agent, which was started as a service.

Run the following command as root user.

```
# service hinemos_agent stop
Stopping hinemos_agent :                               [ OK ]
```

6.3.3 Enabling and Disabling Auto-start

All the following commands require root privileges.

Enable Hinemos Agent to auto-start at boot as follows.

```
# chkconfig --add hinemos_agent
```

Confirm if Hinemos Agent is added to chkconfig management.

```
# chkconfig --list hinemos_agent
```

Remove Hinemos Agent from chkconfig management.

```
# chkconfig --del hinemos_agent
```

6.4 Uninstalling Linux Agent

The following procedure describes how to uninstall Linux Agent.

1. Run the script `agent_installer_EN.sh` (uninstall with the installation script).

6.4.1 Running Linux Agent Installer (Uninstallation)

The uninstaller performs the following tasks.

- Stops NET-SNMP
- Removes Hinemos Agent
- Restores configuration of the remote shell

1. Run `agent_installer_EN.sh` as root user

```
# /opt/hinemos_agent/sbin/agent_installer_EN.sh
```

2. The menu will be displayed as follows.

```

-----
Welcome to the installation for Hinemos Agent
Version 4.1.x

Copyright (C) 2013 NTT DATA Corporation
-----

Verifying current user... [OK]

Checking SELinux... [OK]

Checking OpenJDK...
  java-1.7.0-openjdk... [OK]
  java-1.6.0-openjdk... [OK]
[OK]

--- Select install menu ---
  2) uninstall Hinemos Agent
  9) exit installer

==>

```

Enter "2" at the prompt.

```
==> 2
```

3. Run the uninstallation. Enter "Y".

```
Hinemos Agent will be uninstalled. is that OK? (Y/N default:Y) : Y
```

4. Enter the uninstall directory

```

Hinemos Agent will be installed in the following directories.
/opt/hinemos_agent

Is it OK to uninstall the Hinemos Agents installed under
/opt/hinemos_agent (Y/N default:Y) : Y

```

The following message is displayed. If there are no problems, enter "Y".

```

Checking status of Hinemos Agent...
Remove install directory /opt/hinemos_agent? is that OK? (Y/N default:Y) : Y

```

The following message is displayed.

```

Deleted the service scripts of hinemos_agent.
Install directory /opt/hinemos_agent is removed.

```

Uninstallation is complete when the following message is displayed.

```

Uninstallation of Hinemos Agent is completed.
Revert snmpd.conf to its original settings referring the Manual.

```

The following message is displayed.

```
Ending Hinemos Agent installer.
```

Note: The following settings are not changed by the uninstaller because they may be used by programs other than Hinemos.

- Configuring /etc/snmp/snmpd.conf

The Hinemos Agent installer is added in /etc/snmp/snmpd.conf as follows.

```
view systemview included .1.3.6.1
```

- /etc/rsyslog.conf file settings

The Hinemos Agent installer is added in /etc/rsyslog.conf as follows.

```
# Hinemos Agent 4.1.x (for syslog monitoring)
#
*.info;mail.none;authpriv.none;cron.none @@${MANAGER_IP_ADDRESS}:514
```

6.4.2 Running Linux Agent Installer (Auto-Uninstall)

Installation script of Linux Agent provides 2 convenient options to bypass all interactive questions during uninstalla tion.

Use the following options to automate uninstallation.

Table 6-2 Installation script options for automating uninstallation.

Option	Meaning	Required
-u	Automate uninstallation (Assume default value for all interactive questions).	o
-d AgentID	Specify the ID of Hinemos Agent.	

Interactive mode will start if there is no option specified. See [Running Linux Agent Installer \(Uninstallation\)](#) for deta ils of interactive uninstallation.

Example 1

Use the "-u" option to uninstall the Linux Agent.

```
# /opt/hinemos_agent/sbin/agent_installer_EN.sh -u
```

If there is no agent id specified ("-d" option is not specified), the Hinemos Agent within /opt/hinemos_agent/ will b e uninstalled by default.

Example 2

To uninstall a specific Hinemos Agent, you need to specify its ID (e.g. 1) as below.

```
# ./agent_installer_EN.sh -u -d *1*
```

In this case, the Hinemos Agent within /opt/hinemos_agent_*/ will be uninstalled by default.

6.5 Precautions

- No duplicate Facility ID on same server.

Generally, Hinemos Manager identifies agent nodes by their hostnames and IP addresses; however, if there are several agents on a single server and they are connected to same manager at the same time, Hinemos Manager will not be able to distinguish between agents without different Facility IDs. Therefore, you need to specify a n unique Facility ID in that case.

To set a Facility ID, see Section 4.5, Hinemos Agent Facility ID Setting of Administrator's Guide.

7 Client

7.1 Installing Hinemos Client

7.1.1 Running Hinemos Client Installer

The installer performs the following processes.

- Create installation folder
- Copy necessary files to the installation folder

A demo installation is show below. Follow the following steps to install Hinemos Client (HinemosClientInstaller-4.1.x_[<OS>_<architecture>].msi). All the screenshots are taken using Windows 7.

1. Run HinemosClientInstaller-4.1.x_[<OS>_<architecture>].msi.
2. When the Setup Wizard of Hinemos Client shows up, click the "Next" button.

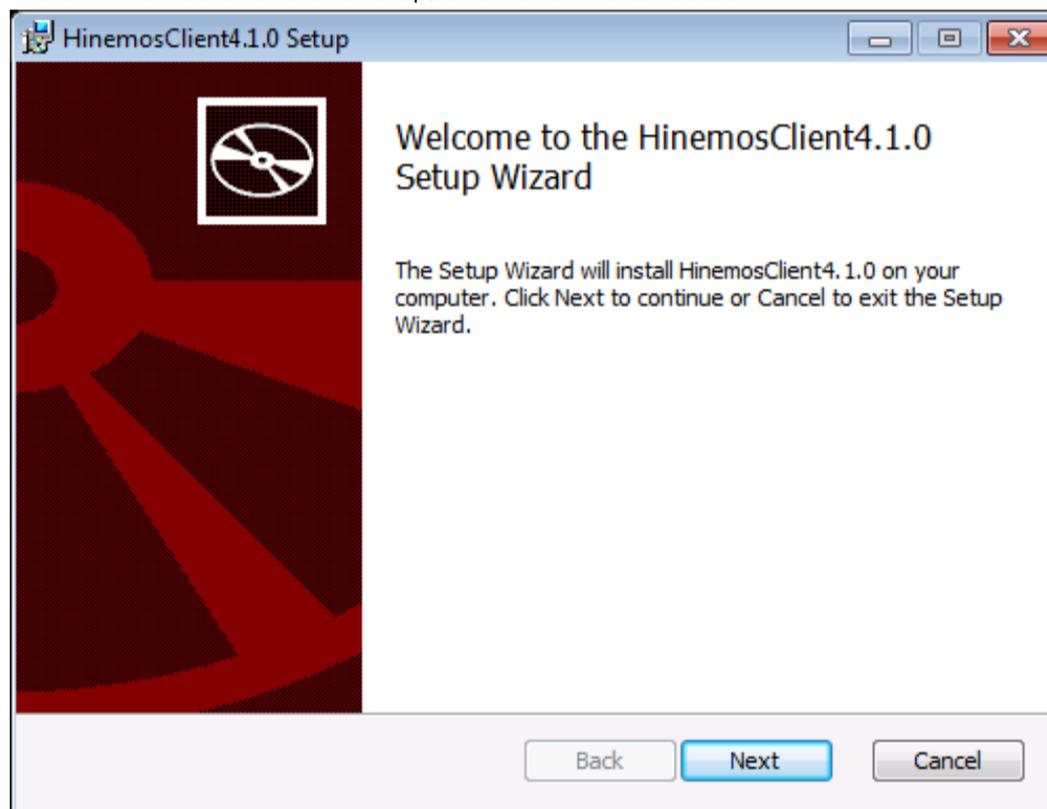


Figure 7-1 Hinemos Client Setup Wizard

3. Agree to the Software License Agreement.

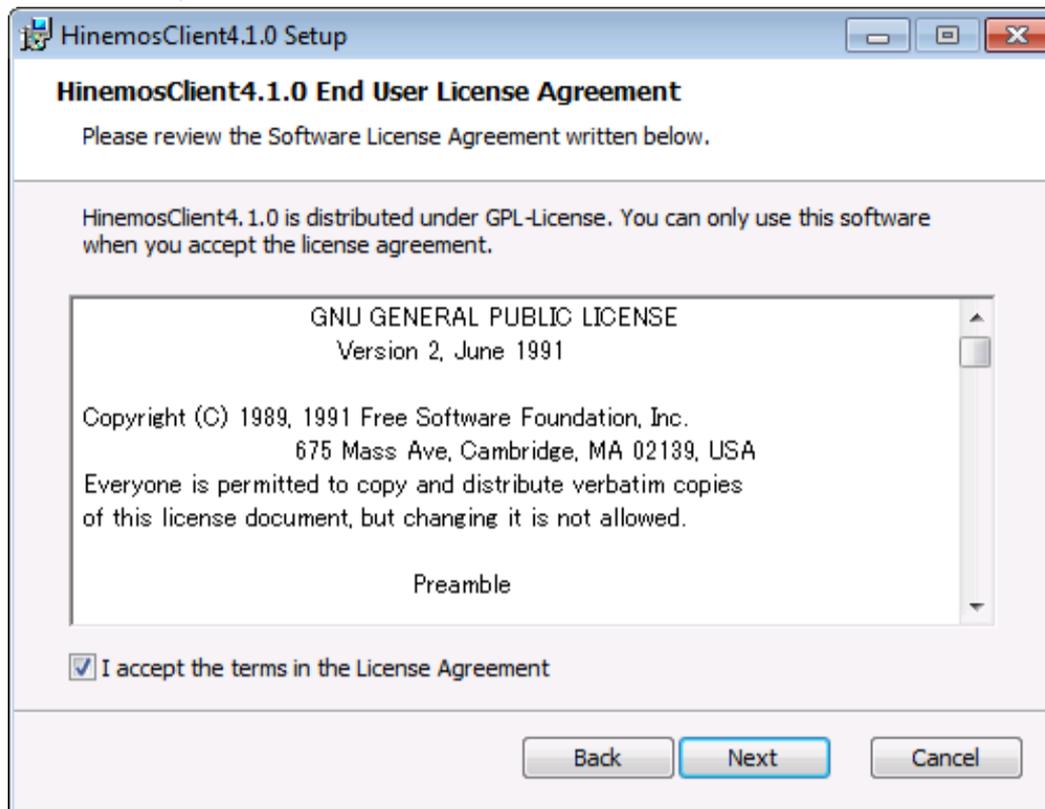


Figure 7-2 Hinemos Client License Agreement

4. Agree to the Oracle JRE License Agreement.

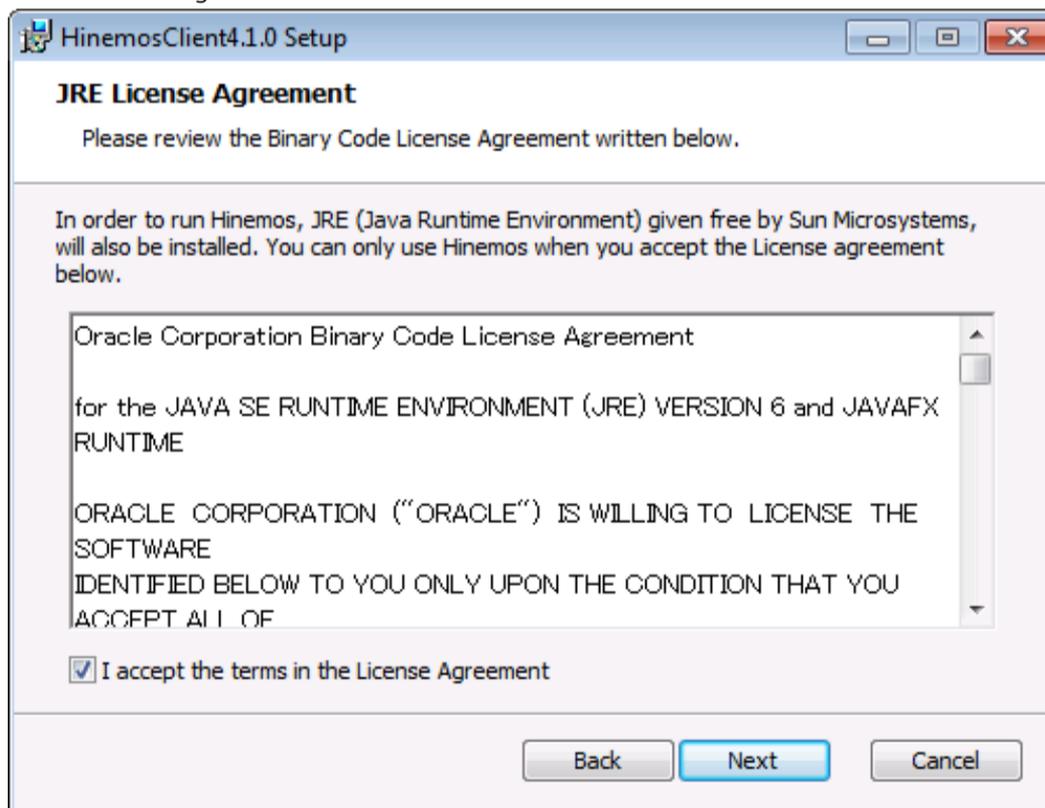


Figure 7-3 JRE License Agreement

5. Enter the destination folder for installation and click the "Next" button.

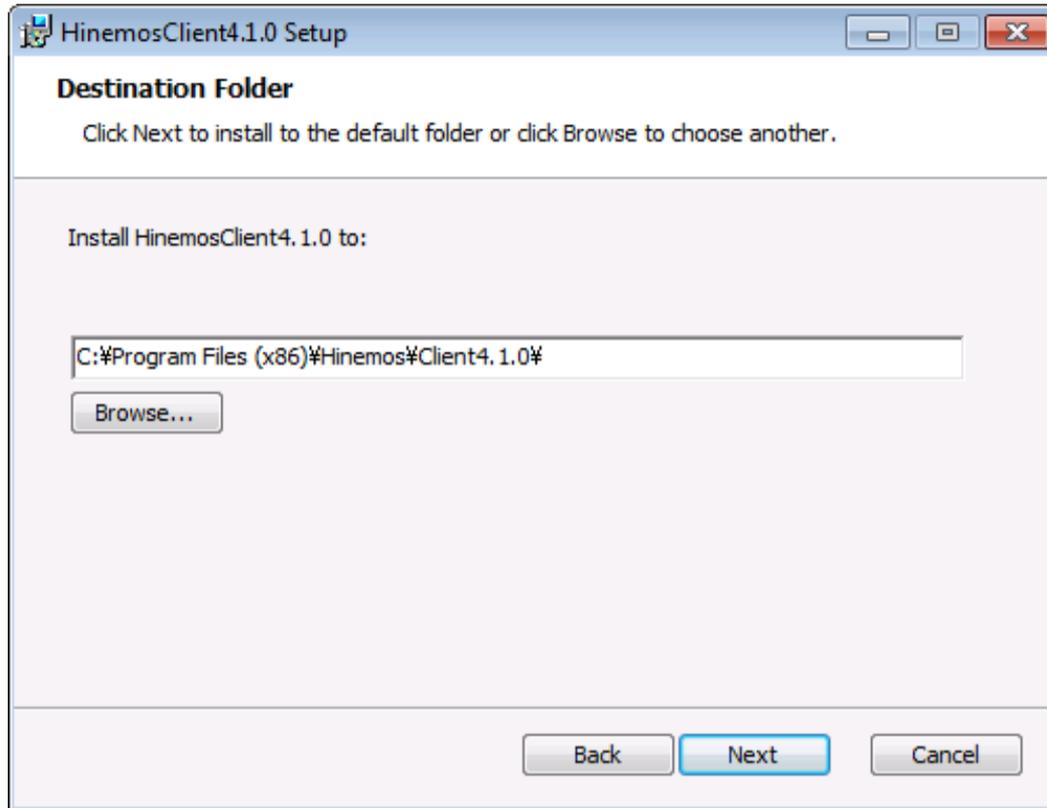


Figure 7-4 Configuring the Installation Folder

6. Click the "Install" button.

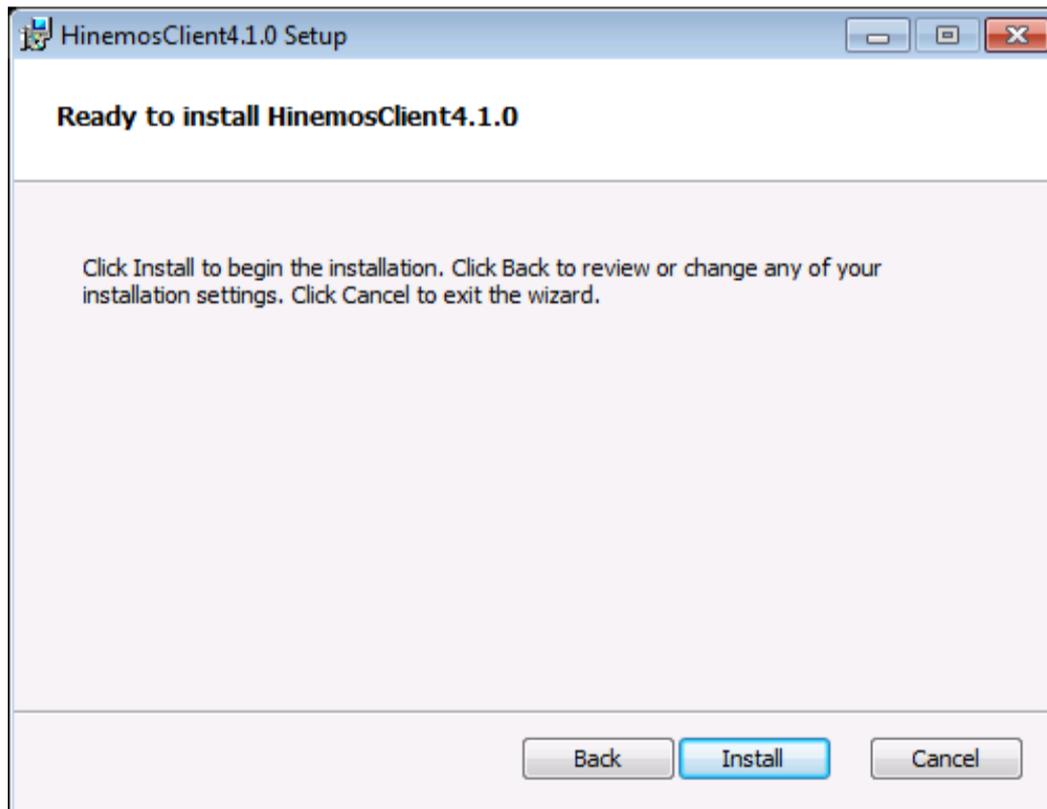


Figure 7-5 Starting Installation

7. (If working with Windows 7) Grant permission to install the application.

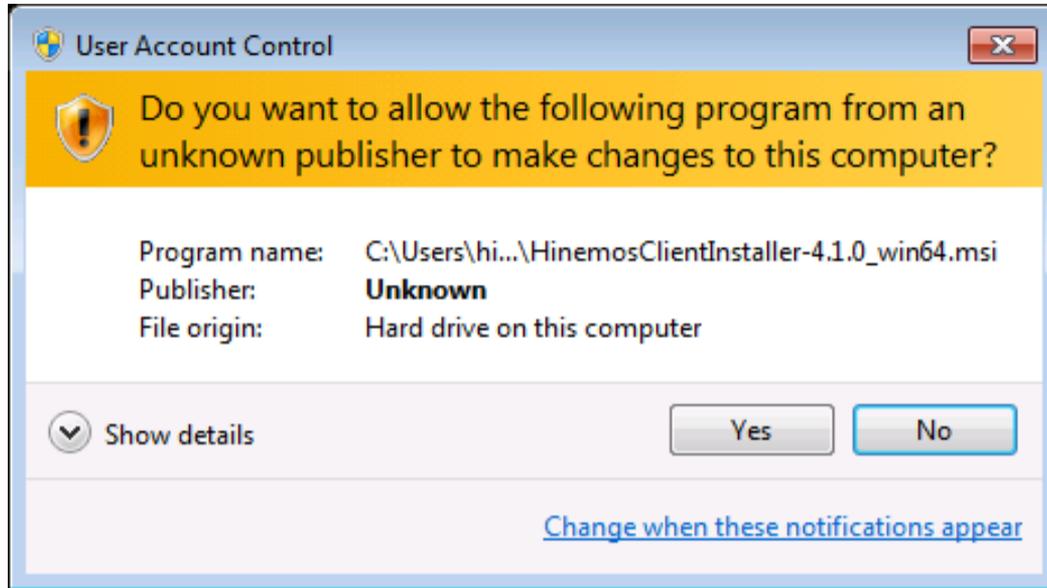


Figure 7-6 Warning Dialog when Installing Hinemos Client

8. When the installation is complete, the following message dialog is displayed. Click the "Finish" button to exit the wizard.

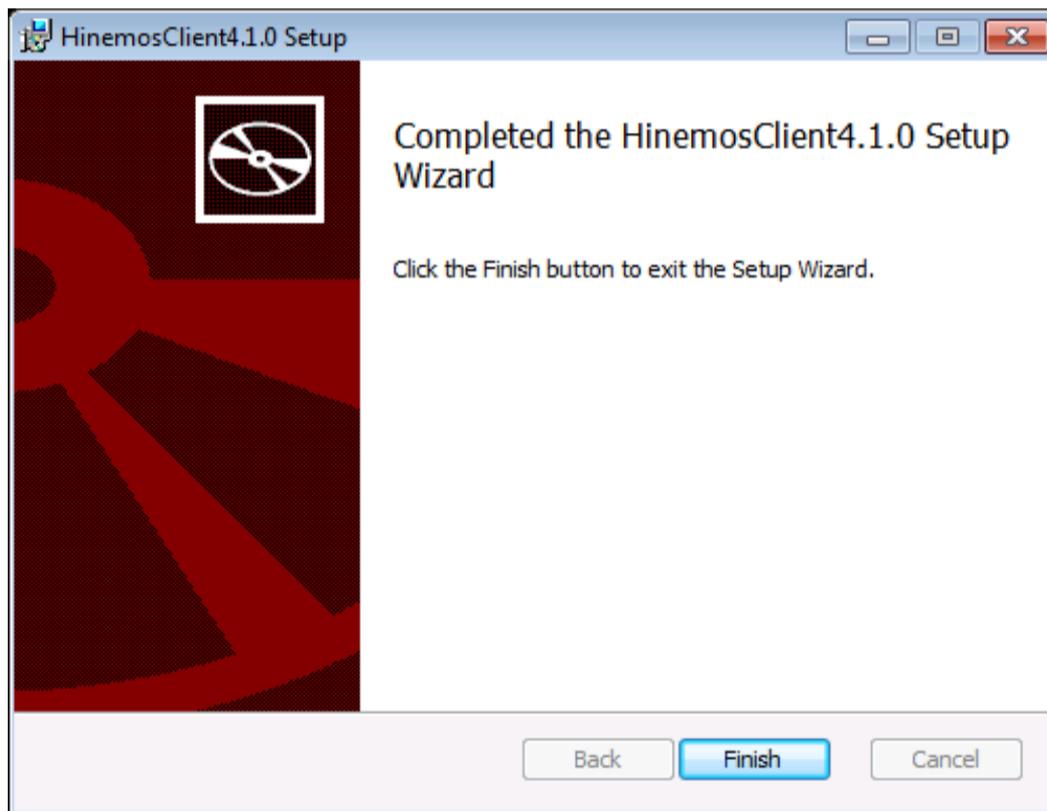


Figure 7-7 Completed Hinemos Client Setup Wizard

Installation of Hinemos Client is complete. The default installation location for Hinemos Client is C:\Program Files (x86)\Hinemos\Client4.1.x\ (In the case of 32bit, C:\Program Files\Hinemos\Client4.1.x\)

7.2 Starting Hinemos Client

1. Click "Start" - "All Programs" - "Hinemos" - "Client4.1.x" - "HinemosClient4.1.x".

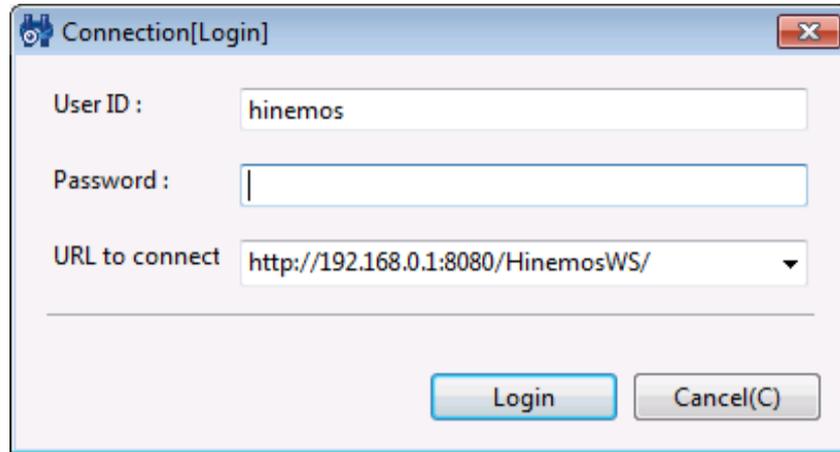


Figure 7-8 Login Screen

2. Right after installation, enter the following, and click on the "Login" button.

User ID: hinemos
Password: (password for hinemos user. Default is 'hinemos'.)
Destination URL: http://{hostname or IP address of Hinemos Manager}:8080/HinemosWS/

3. At the first boot, the welcome screen is displayed as shown in Figure 7-9.

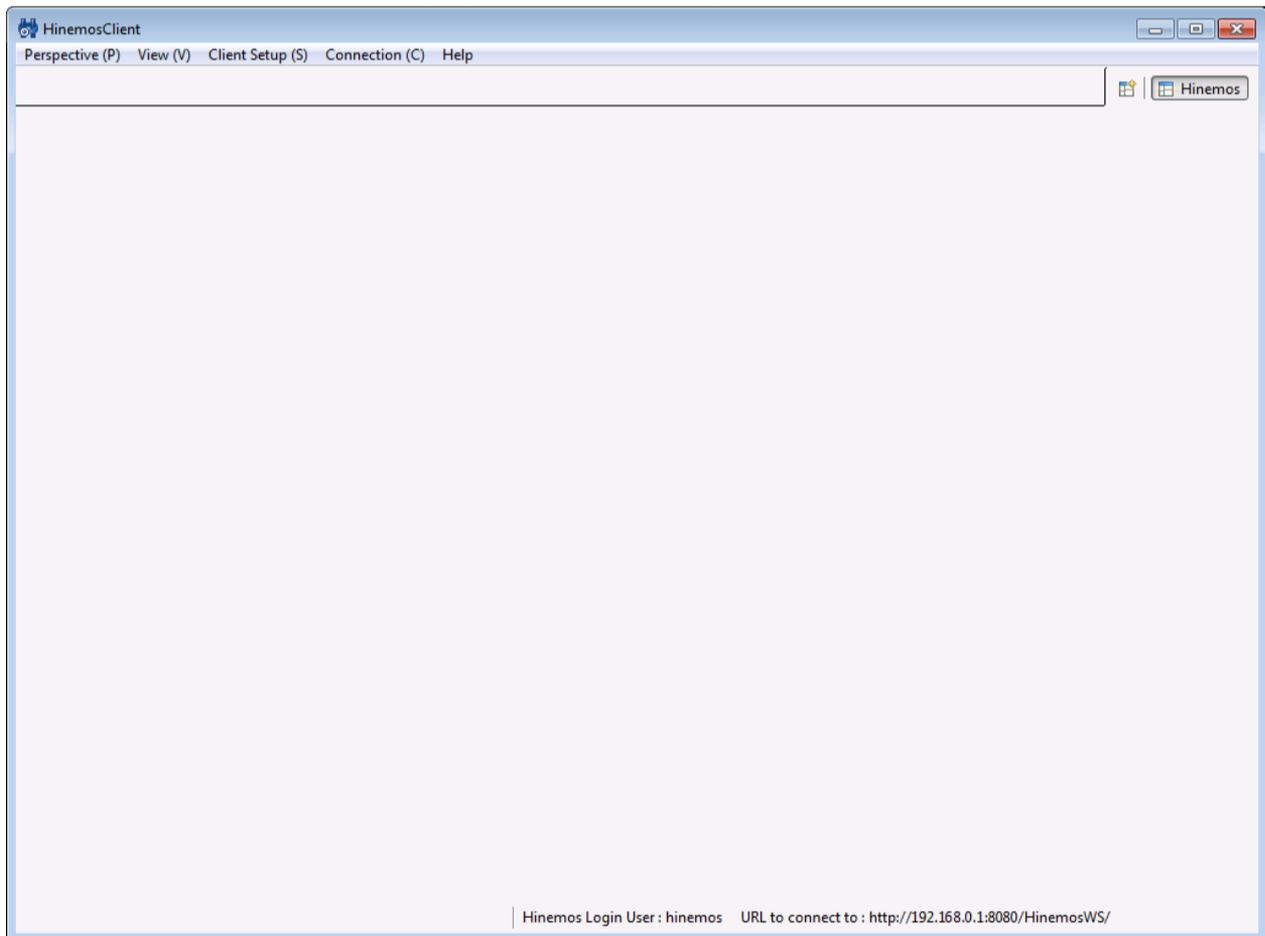


Figure 7-9 Welcome Screen

7.3 Uninstalling Hinemos Client

1. Go to "Control Panel" - "Programs and Features" to display the Programs and Features screen.

2. Select HinemosClient4.1.x from the program list and click "Uninstall".

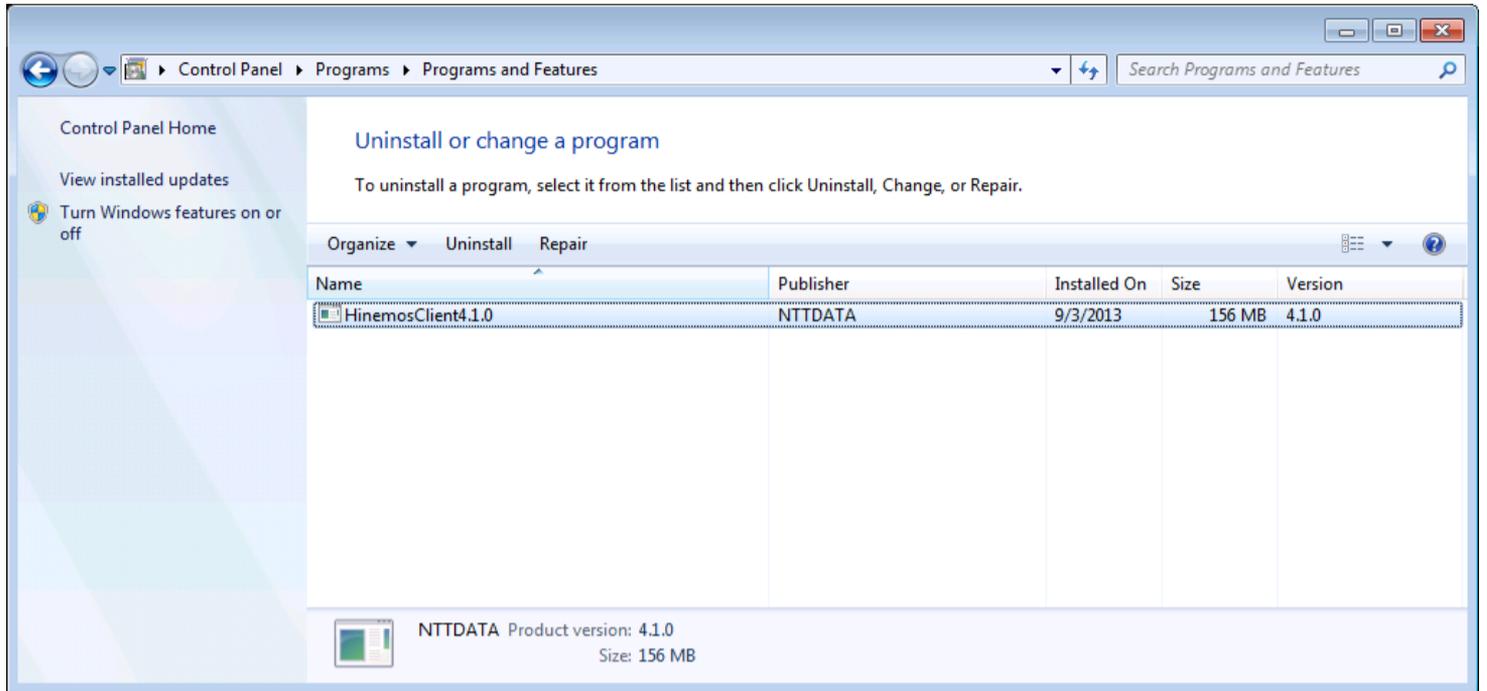


Figure 7-10 Removing Hinemos Client

8 ChangeLog

ChangeLog

Version	Date	Details
Edition 1.0	10/1/2013	First release

Hinemos Ver 4.1 Installation Manual

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