

Hinemos



**Hinemos ver.5.0**  
**Installation Manual, 2nd Edition**

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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 a GUI-based operation terminal used by the operator. Hinemos5.0 supplies a Rich Client, which will be installed to the operating terminal, and a Web client, which will be accessed by a browser via web. In this manual, software to be introduced to a client is called Hinemos Rich Client and software that is introduced as a Web Client service is called a Hinemos Web Client.

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

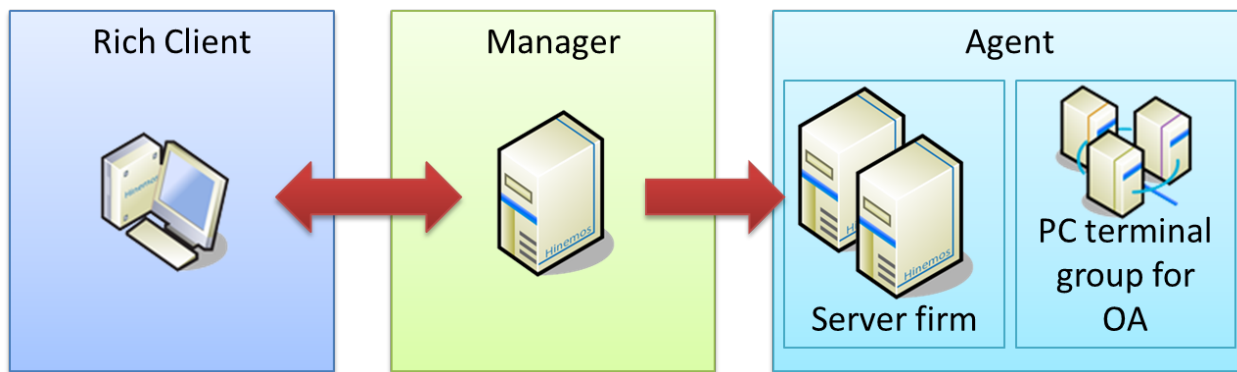


Figure 3-1 Role of Packages (Rich Client)

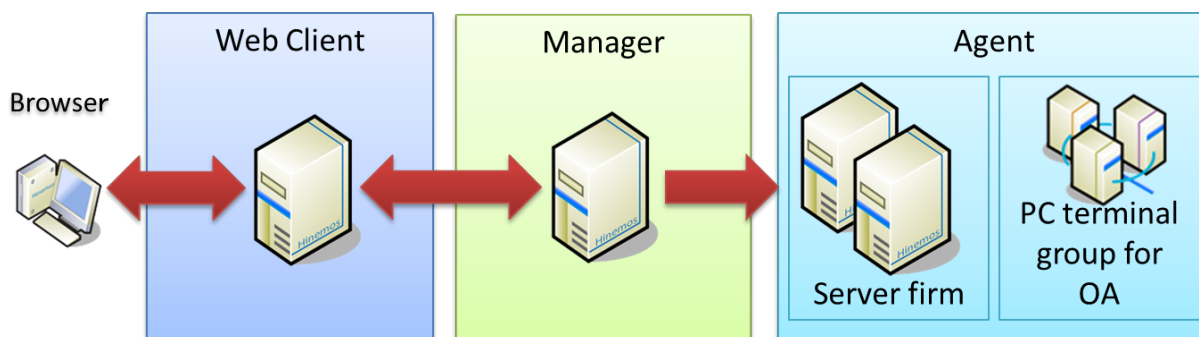


Figure 3-2 Role of Packages (Web Client)

#### 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 core or above
-----	-------------------------



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

When monitoring more than 100 units, follow the instructions in Section 4.2 "Java Heap Memory Settings(Hinemos Manager)" in the Hinemos Administrator's Guide to increase the JVM heap size.

**Table 3-2 Supported Platforms for Hinemos Manager**

Package	Platform
hinemos_manager-5.0.x-1.el7.x86_64.rpm	Red Hat Enterprise Linux 7
	Oracle Linux 7
	CentOS 7

The following packages are required by Hinemos Manager.

- java-1.7.0-openjdk
- rsyslog
- vim-common

Installing the following packages is recommended to run Hinemos manager:

- java-1.7.0-openjdk-devel
- net-snmp-utils
- sblim-wbemcli (to use WBEM for monitoring resources and processes)

### 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-5.0.x-1.el.noarch.rpm	Red Hat Enterprise Linux 5, 6 32-bit/64-bit Red Hat Enterprise Linux 7 64-bit
	Oracle Linux 5, 6, 7 32-bit/64-bit
	CentOS 5, 6, 7 32-bit/64-bit
HinemosAgentInstaller-5.0.x_win32.msi	Windows 7, 8, 8.1 32-bit *1
HinemosAgentInstaller-5.0.x_win64.msi	Windows 7, 8, 8.1 64-bit *1
	Windows Server 2008R2, 2012, 2012R2 64-bit *1,*2
HinemosAgentInstaller-5.0.x_win2008_32.msi	Windows Server 2008 32-bit *2
HinemosAgentInstaller-5.0.x_win2008_64.msi	Windows Server 2008 64-bit *2

\*1 Service Pack 1 or later is needed when Windows 7 or Windows Server 2008 R2 is used as the OS. With other Windows OS, any Service Pack may be used.

\*2 IA-64 server is not supported.

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

Solaris 10 (SPARC, x86)	○ *
Solaris 11 (SPARC, x86)	○ *
HP-UX 11i v2, v3	○ *
AIX 6.1, 7.1	○ *

\* For information about getting an Hinemos Agent for Commercial Unix, please contact us by email ([osdquery@nttdata.co.jp](mailto: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 feature and monitoring management features require that Hinemos 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-5.0.x-1.el.noarch.rpm
  - java-1.7.0-openjdk
  - java-1.6.0-openjdk

#### 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 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, 7, Oracle Linux 6, 7, CentOS 6, 7
  - 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 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
  - tog-pegasus
  - sblim-wbemcli
  - sblim-cmpi-base
  - sblim-cmpi-fsvol

- Red Hat Enterprise Linux 7, Oracle Linux 7, CentOS 7
  - tog-pegasus
  - sblim-wbemcli
  - sblim-cmpi-base
  - sblim-cmpi-fsvol
  - openlmi-storage

\* For instructions on how to switch to the WEBEM protocol, refer to Section 6.8.2 "Switching between SNMP and WBEM" in the Hinemos Administrator's Guide.

**When using the File Transfer Module(WinRM) of Infrastructure Management**

- Windows PowerShell (3.0 or above) \*1\*2
  - \*1 It is already installed in Windows 8, 8.1 and Windows Server 2012, 2012R2 by default. \*2 For Windows PowerShell 3.0, the following hotfix is required.
  - <https://support.microsoft.com/en-us/kb/2842230>

## 3.4 Client

### 3.4.1 Rich Client

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

**Table 3-6 Recommended Hardware Specifications for a Rich Client Machine**

CPU	2GHz, one core or above
Memory	1GB or above
HDD	1GB or above (dedicated for Hinemos)
Network controller	One or above
Display resolution	1280 x 1024 or above

**Table 3-7 Supported Platforms for Hinemos Rich Client**

Package	Platform
HinemosClientInstaller-5.0.x_win32.msi	Windows 7, 8, 8.1 32-bit
HinemosClientInstaller-5.0.x_win64.msi	Windows Server 2008R2, 2012, 2012R2 64-bit
	Windows 7, 8, 8.1 64-bit

\*1 Service Pack 1 or later is needed when Windows 7 or Windows Server 2008 R2 is used as the OS. With other Windows OS, any Service Pack may be used.

### 3.4.2 Web Client

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

**Table 3-8 Recommended Hardware Specifications for a Web Client Service Machine**

CPU	2GHz, one core or above
Memory	1GB or above
HDD	1GB or above
Network controller	One or above

**Table 3-9 Supported Platforms for Web Client Service**

Package	Platform
hinemos_web-5.0.x-1.el7.x86_64.rpm	Red Hat Enterprise Linux 7
	Oracle Linux 7
	CentOS 7

The following packages are required by Hinemos Web Client Service.

- java-1.7.0-openjdk
- unzip

Installing the following packages is recommended to run Hinemos Web Client Service:

- java-1.7.0-openjdk-devel

**Table 3-10 Supported Platforms for Hinemos Client**

Platform
Windows Server 2008 32-bit
Windows 7, 8, 8.1 32-bit
Windows Server 2008, 2008R2, 2012, 2012R2 64-bit
Windows 7, 8, 8.1 64-bit

\* Windows Service Pack is not required.

**Table 3-11 Supported Web Browsers for Hinemos Web Client**

Web Browser
Microsoft Internet Explorer 9, 10, 11
Mozilla FireFox version 29 or later
Google Chrome version 35 or later

\* The size of the browser screen is recommended to be 1280 x 1024 or above.

## 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 3-12, "Connections in Manager Server". Please make sure that the listen port listed in the table does not conflict with other products.

**Table 3-12 Connections in Manager Server**

Component	Feature	Listen ports
rsyslog *1	System Log Monitor	TCP 514
		UDP 514
JAVA	General	TCP 8080, 8081
		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 3-13 Connections to Manager Server.

**Table 3-13 Connections to Manager Server**

Source node	Source component	Feature	Destination port
Client	Hinemos Client	General	TCP 8080
Management Target Node	Hinemos Agent	General	TCP 8081
	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 [3.5.6 Precautions when Using Multiple NW Segments or Address Translation \(e.g. NAT, NAPT\)](#) , 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 3-14 Connections from Manager Server. Further, in addition to Table 3-14, the port number set up for service port monitoring will be a destination port.

**Table 3-14 Connections from Manager Server**

Destination node	Destination component	Feature	Destination port
Management 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 Environment construction	TCP 80(HTTP, WinRM1.1) 443(HTTPS, WinRM1.1) 5985(HTTP, WinRM2.0) 5986(HTTPS, WinRM2.0)
	sshd	Environment construction	TCP 22
<b>Other Manager Server</b>	Other Hinemos Manager	Log Escalation Notification	UDP 514

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

In addition to using the following features, extra communications besides [3.5.1 Connections in Manager Server](#) , [3.5.2 Connections to Manager Server](#) and [3.5.3 Connections from Manager Server](#) could also occur.

- Job Management Feature (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 Connections to Web Client

Connections from web browsers to Web Client are listed in Table 3-15 Connections from Web Client.

**Table 3-15 Connections from Web Client**

Destination node	Destination component	Feature	Destination port
Web Client Server	Hinemos Web Client Service	General	TCP 80

### 3.5.5 Precautions When Using Firewall or 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 3-13, "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.

### 3.5.6 Precautions when Using Multiple NW Segments or Address Translation (e.g. NAT, 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 3-16, 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 3-16 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 "Specifying Facility ID for Hinemos Agent" in the Hinemos Administrator's Guide for det.

- 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 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 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.

- Rich Client
  - Oracle Java Runtime Environment 8**  
<http://www.java.com/>
  - Eclipse 4.4**  
<http://www.eclipse.org/>
  - jfreechart 1.0**  
<http://www.jfree.org/>
  - Mergely 3.3**  
<http://www.mergely.com/>
- Web Client
  - Apache Tomcat 8.0**  
<http://tomcat.apache.org/>
  - Remote Application Platform 2.3**  
<http://www.eclipse.org/rap/>

- Manager
  - PostgreSQL 9.3**  
<http://www.postgresql.org/>
  - PostgreSQL JDBC Driver 9.3**  
<http://jdbc.postgresql.org/>
  - SNMP4J 2.3**  
<http://www.snmp4j.org/>
  - fping 2.4**  
<http://fping.sourceforge.net/>  
(Modifications were made to the base distributed source code and used)
  - Apache Commons HttpClient 4.3**  
<http://hc.apache.org/httpcomponents-client-ga/>
  - Apache Commons Net 3.3**  
<http://commons.apache.org/net/>
  - Apache Commons Codec 1.9**  
<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 1.2**  
<http://commons.apache.org/logging/>
- Windows Agent
  - Oracle Java Runtime Environment 7, 8**  
<http://www.java.com/>
  - Apache Commons Logging 1.2**  
<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.



### 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 Hinemos Web Client Service should be installed in English OS environment.

Both the Japanese OS and English OS can display Japanese on Hinemos Rich Client. To use the English OS, the setup file must be changed after installing the OS.

The setup file is immediately below the install directory. The default installation location for Hinemos Rich Client is C:\Program Files (x86)\Hinemos\Client5.0.x\ (In the case of 32-bit, C:\Program Files\Hinemos\Client5.0.x\)

(Setup file) · client\_start.vbs

```
eclipseLocale="-Duser.language=ja -Duser.country=JP" Delete " " comment-out at the beginning.
```

After changing the setup file, start the Hinemos Rich Client. To use the Japanese OS, no additional setting change is needed.

- If English is used for the display language of Hinemos Client,

All of Hinemos Manager, Agent and Hinemos Web Client Service should be installed in English OS environment.

Both the Japanese OS and English OS can display English on Hinemos Rich Client. To use the Japanese OS, the setup file must be changed after installing the OS.

The setup file is immediately below the install directory. The default installation location for Hinemos Rich Client is C:\Program Files (x86)\Hinemos\Client5.0.x\ (In the case of 32-bit, C:\Program Files\Hinemos\Client5.0.x\)

(Setup file) · client\_start.vbs

```
eclipseLocale="-Duser.language=en -Duser.country=US" Delete " " comment-out at the beginning.
```

After changing the setup file, start the Hinemos Rich Client. To use the English OS, no additional setting change is needed.

- If using Hinemos in English environment,

- Linux (Hinemos Manager, Linux Agent, Hinemos Web Client Service)

All components of Hinemos Manager/Agent/Hinemos Web Client Service 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 Rich Client)

One or more of the following conditions are required.

- Hinemos Rich Client must be installed in an English version of Windows.
- Hinemos Rich Client must be installed in a Japanese version of Windows and the above setup file has been changed.

- Installer

Installer of all components of Hinemos Manager, Agent and Client contains both English and Japanese resources. Please use the same installer as that for Japanese environment to install the components 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. Place `hinemos_manager-5.0.x-1.el7.x86_64.rpm` into an appropriate directory. (In this document, the explanation use installation on RHEL7 server as an example. The directory to which the Hinemos Manager is to be placed is assumed to be `/tmp`.)
2. Run the installer.

#### 4.1.1 Running Hinemos Client Installer

The locale of Hinemos is set in Japanese only if the locale of OS is `"LANG=ja_JP.UTF-8"`; otherwise, it will be set in English. Therefore, confirm the locale of the OS before installing the Hinemos Manager.

```
# locale
LANG=en_US.UTF-8
```

Install the Hinemos Manager by using the `rpm` command as a root user. 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 `rsyslog/syslogd` and restart;
- Configure `snmpd` and start up;
- Create and initialize DB for Hinemos.

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

```
# cd /tmp
# rpm -ivh hinemos_manager-5.0.x-1.el7.x86_64.rpm
```

When the following message appears, installation is complete.

```
Getting ready... ##### [100%]
Updating/Installing...
 1:hinemos-manager-0:5.0.0-1.el7 ##### [100%]
Redirecting to /bin/systemctl restart rsyslog.service
```

Finally, open the following file and confirm that the locale setting has been set as expected.

```
/opt/hinemos/etc/hinemos.cfg
```

```
### Environment Attributes
export LANG=en_US.UTF-8
```

Now the installation of Hinemos Manager is completed.

Please note that with only the above initial installation, Hinemos Manager might not be sufficiently secure. To adjust security-related settings, refer to Section 9 "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.

```
# service hinemos_manager start
```

Hinemos Manager startup is completed when the following messages are displayed.

```
Starting hinemos_manager (via systemctl): [ OK ]
```

### 4.2.2 Checking Running 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.

```
# 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)
```

Another alternative is to use ps command to see whether proper 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  
java ... com.clustercontrol.HinemosManagerMain

With Hinemos5.0, use of hinemos\_start.sh is not recommended. If hinemos\_start.sh is used by mistake, stop the Hinemos Manager by using hinemos\_stop.sh and then start the Hinemos Manager by using the service command.

## 4.3 Stopping Hinemos Manager

### 4.3.1 Running Manager Stop Script

Login as root user and run the following command.

```
# service hinemos_manager stop
```

Stopping of Hinemos Web Client is completed when the following messages are displayed and entry at the prompt is possible.

```
Stopping hinemos_manager (via systemctl): [ OK ]
```

### 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.

```
# service hinemos_manager status
Hinemos Manager is stopped.
```

```
- Java VM Process ID : (stopped)
- PostgreSQL Process ID : (stopped)
```

#### 4.3.2.1 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 [4.2.2 Checking Running Status on Manager](#) section have stopped properly.

With Hinemos5.0, use of `hinemos_stop.sh` is not recommended. If `hinemos_stop.sh` is used by mistake, start the Hinemos Manager by using `hinemos_start.sh` and then stop the Hinemos Manager by using the service command.

## 4.4 Auto-start Configuration

The auto-start configuration is setup automatically at the time of installation. 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 rpm command.

### 4.5.1 Running RPM Command

The uninstaller performs the following tasks.

- If PostgreSQL or Hinemos Manager is running, stop it
- Deletes the Hinemos Manager file (below /opt/hinemos directory)
- Invalidating the setting file of rsyslog
- Deletes the user "hinemos"

1. Run rpm command as root user.

```
# rpm -e hinemos-manager
```

The Hinemos Manager has been uninstalled successfully if the command is terminated without an error message displayed. If the command is executed while PostgreSQL and Hinemos Manager are running, however, the following message is displayed:

```
Stopping Hinemos Manager and PostgreSQL
Hinemos Manager and PostgreSQL are stopped
Stopping hinemos_manager (via systemctl):          [ OK ]
Redirecting to /bin/systemctl status rsyslog.service
rsyslog.service - System Logging Service
   Loaded: loaded (/usr/lib/systemd/system/rsyslog.service; enabled)
   Active: active (running) since Tue 2015-02-10 15:06:10 JST; 6 days ago
 Main PID: 599 (rsyslogd)
   CGroup: /system.slice/rsyslog.service
           mq599 /usr/sbin/rsyslogd -n

Feb. 10 15:06:10 template_rhel7 systemd[1]: Started System Logging Service.
Redirecting to /bin/systemctl restart rsyslog.service
```

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
```

## 4.6 Precautions

### 4.6.1 Precautions for Installing Anti-Virus Softwares

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 OS.

The setup for the Windows Agent is explained in this chapter. The following screenshots are taken from Windows Server 2012 R2.

#### 5.1.1 Installation Prerequisites

##### User Permission for the Installer

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

- For Windows Server 2008, 2008 R2, Windows 7

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

- For Windows Server 2012, 2012 R2, Windows 8, 8.1

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 [3.5 Network Requirements](#) section for more details.)

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

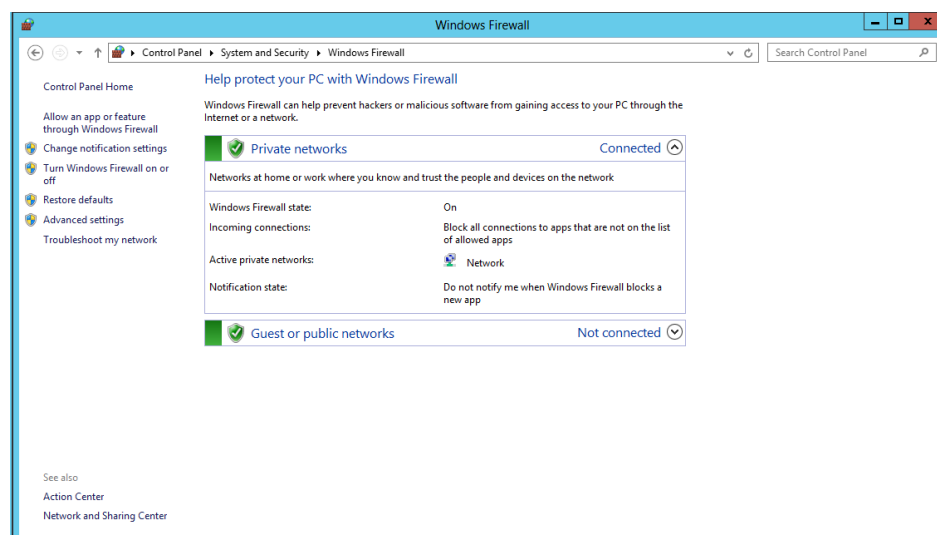


Figure 5-1 Windows Firewall

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

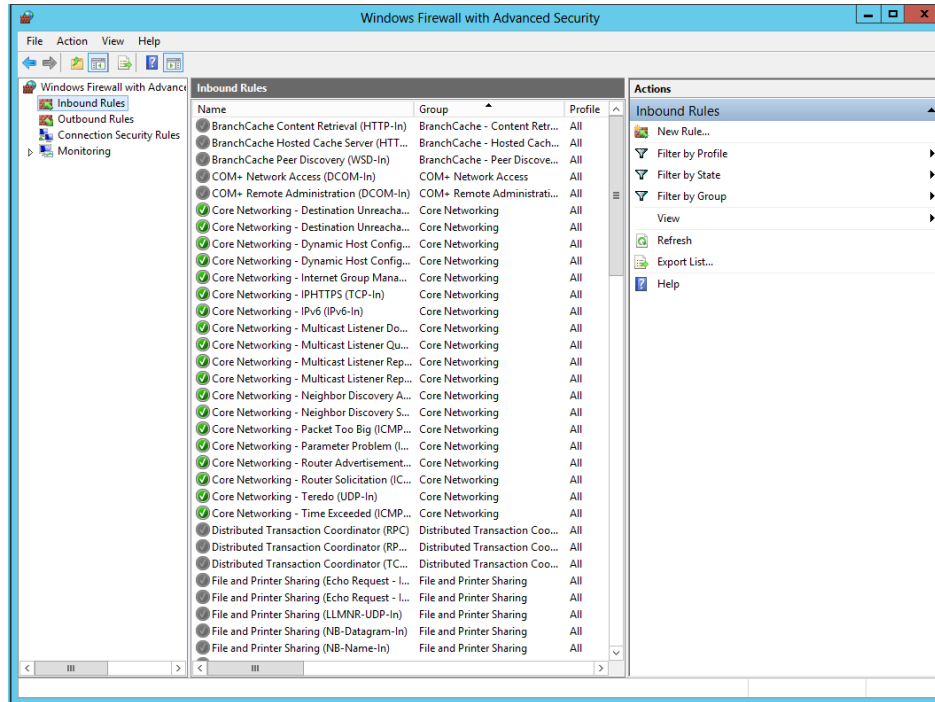


Figure 5-2 Windows Firewall with Advanced Security

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

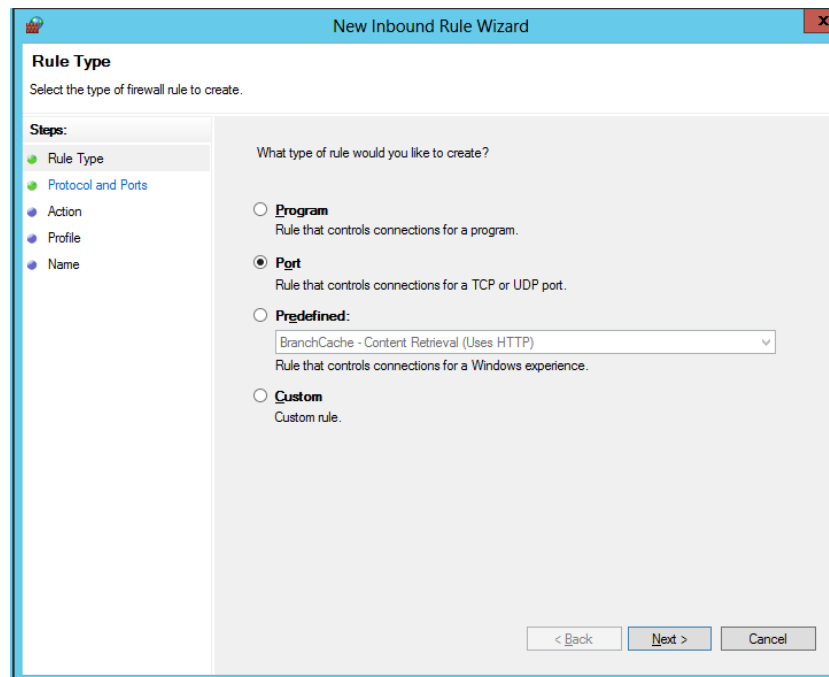


Figure 5-3 New Inbound Rule Wizard (Rule Type)

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

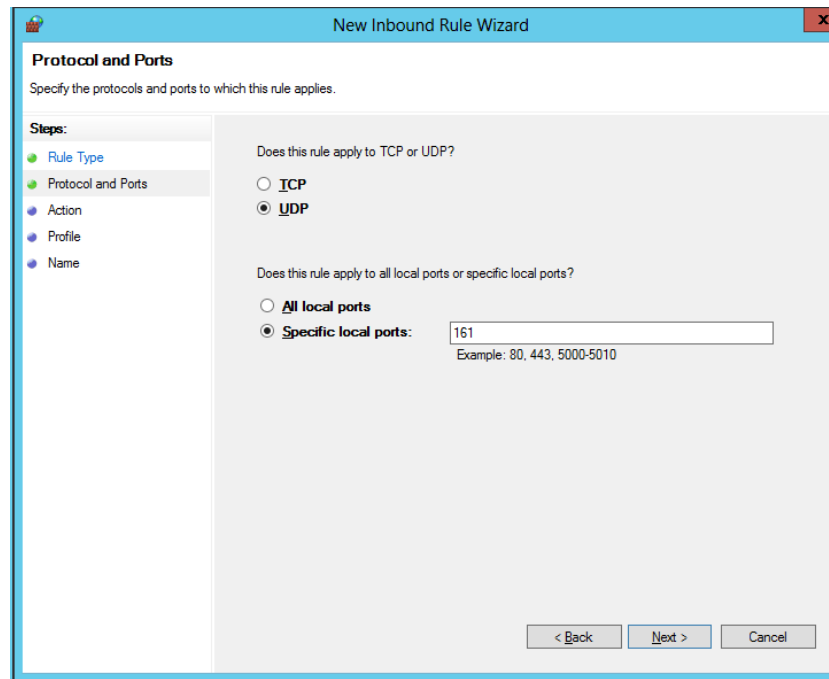


Figure 5-4 Firewall Settings Dialog (Protocol and Ports)

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

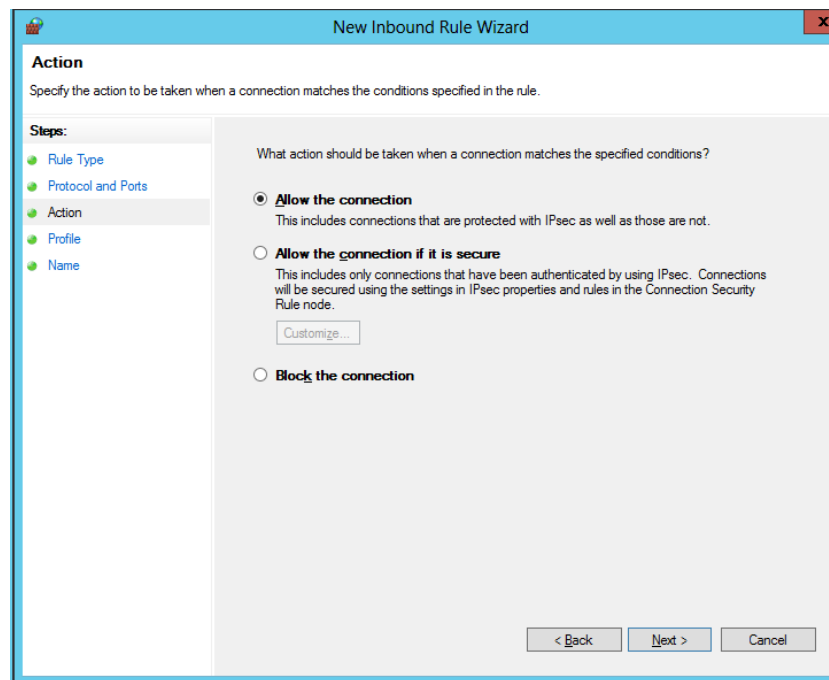


Figure 5-5 Firewall Settings Dialog (Action)



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

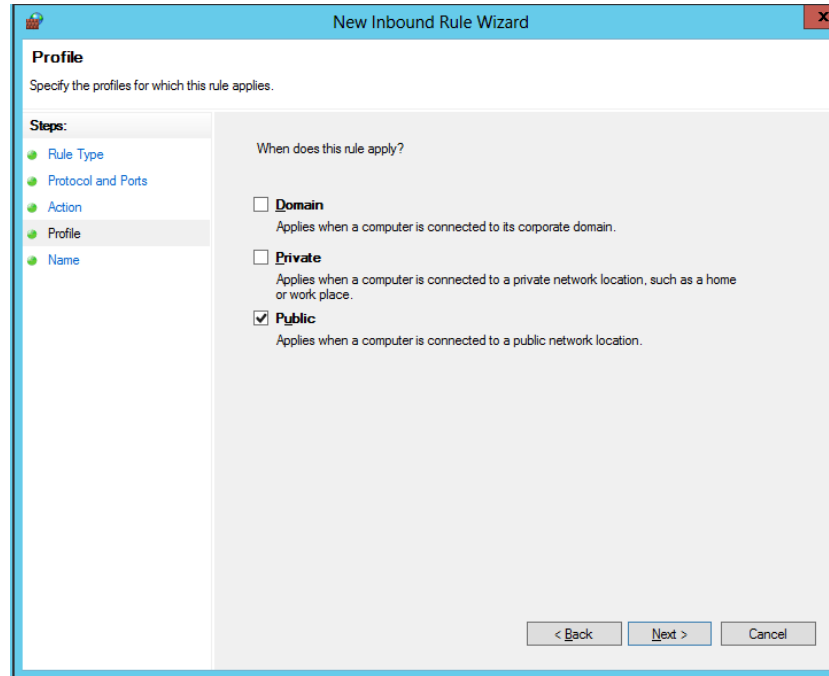


Figure 5-6 Firewall Settings Dialog (Profile)

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

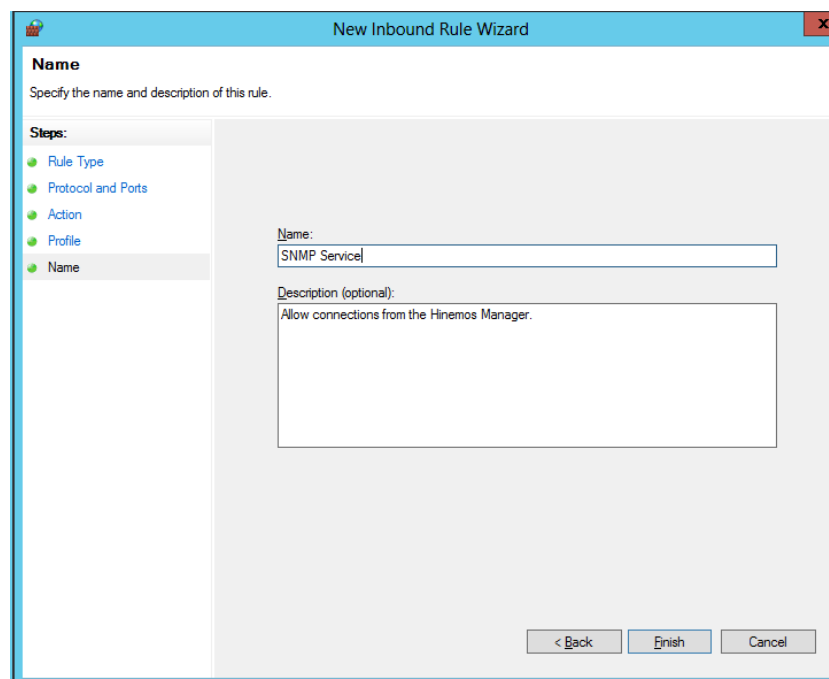


Figure 5-7 Firewall Settings Dialog (Name)

### 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-5.0.x\_[<OS>\_<architecture>]. msi) from the Hinemos project page hosted on OSDN.
2. Open the downloaded installer.

3. When the Setup Wizard for the Hinemos Agent starts, click the "Next" button.

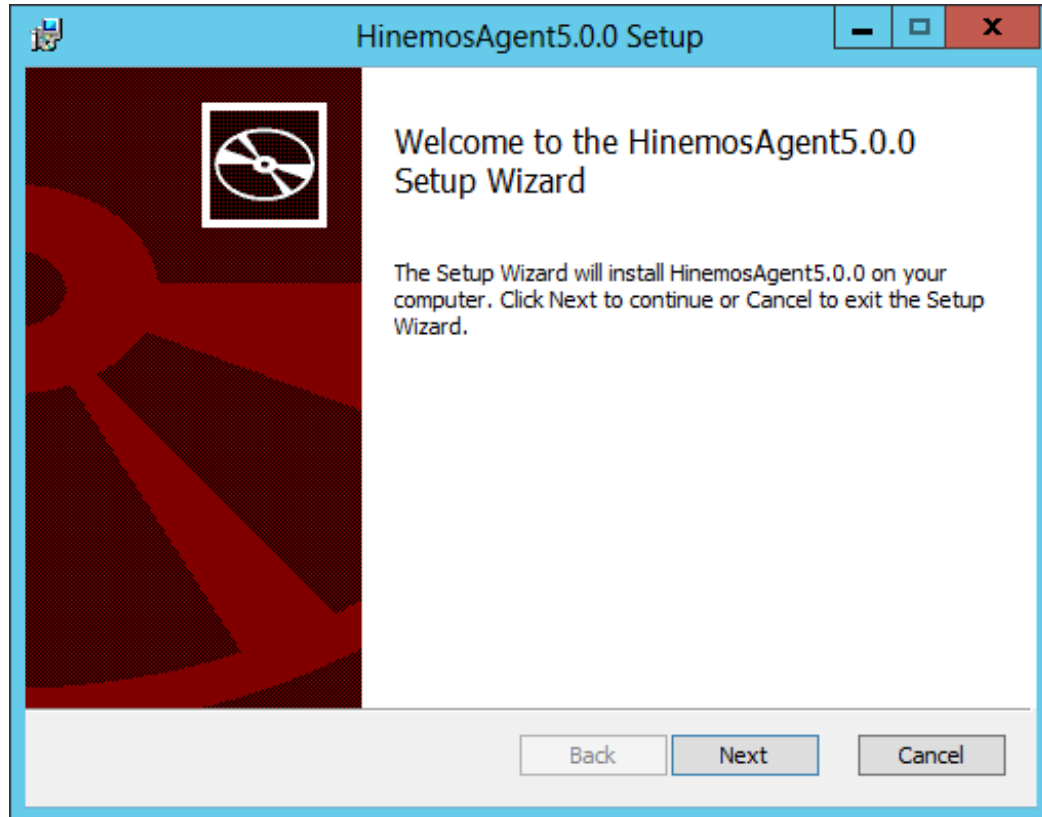


Figure 5-8 Hinemos Agent Setup Wizard

4. Agree to the Software License Agreement.

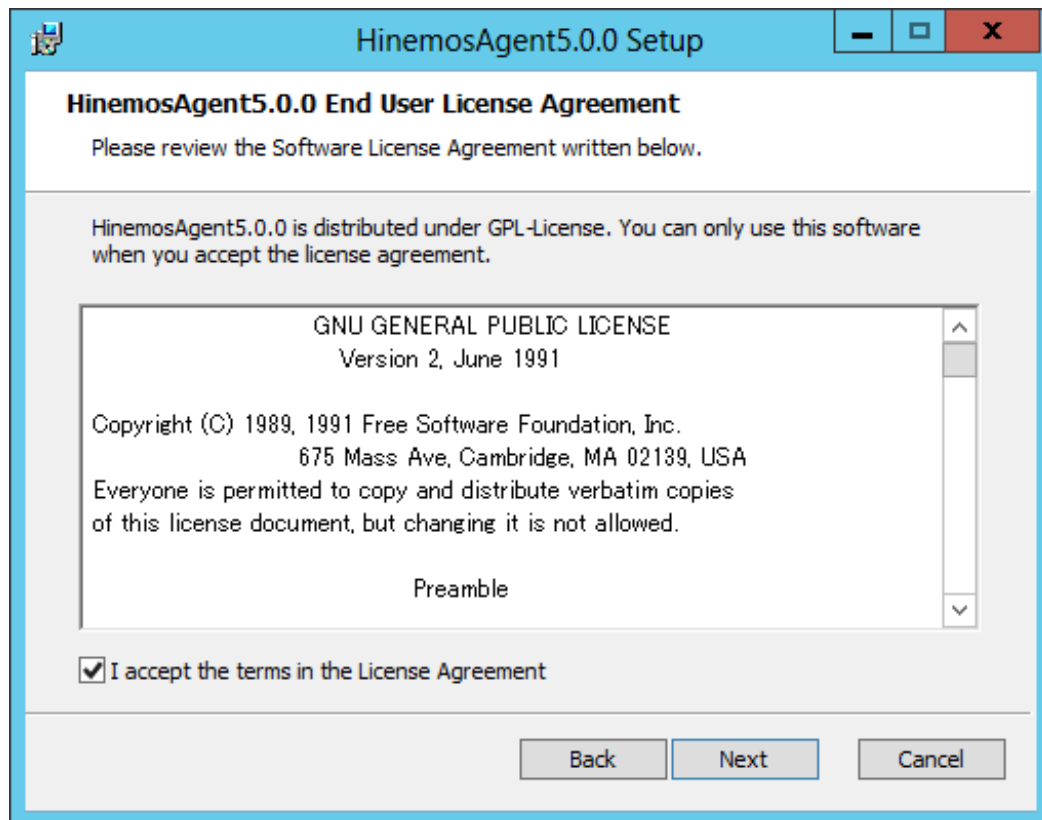


Figure 5-9 Hinemos Agent License Agreement

5. Agree to the Oracle JRE License Agreement.

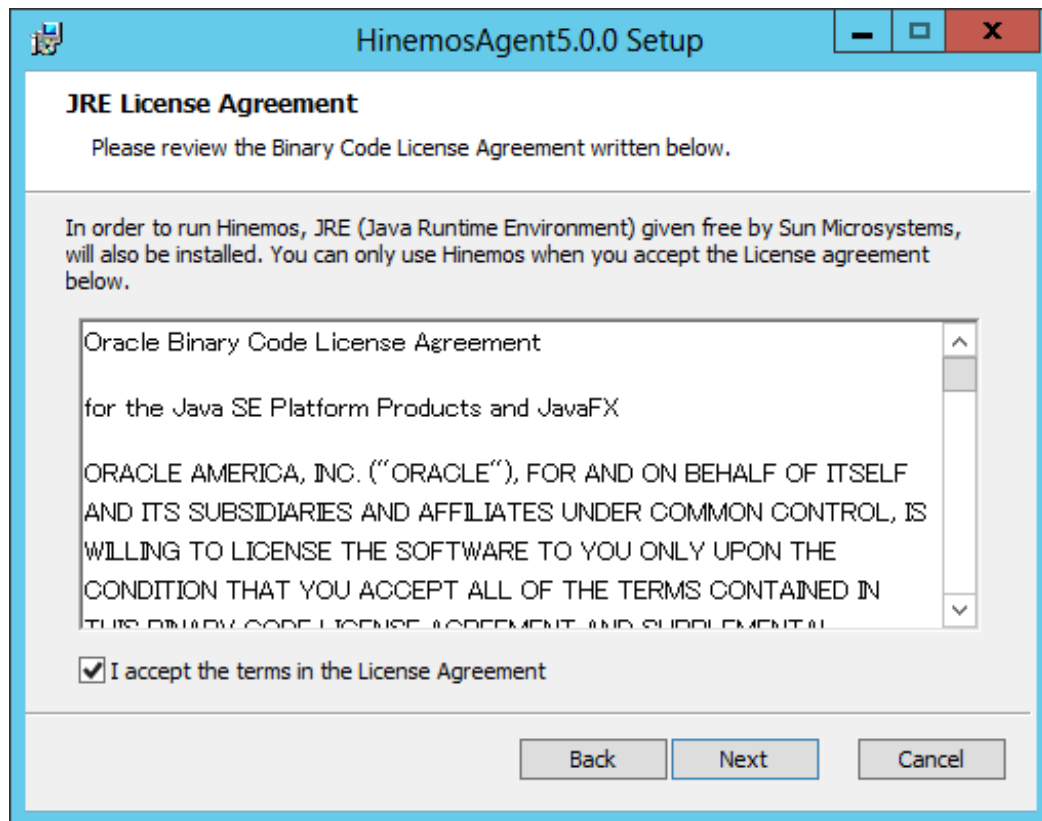


Figure 5-10 JRE License Agreement

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.

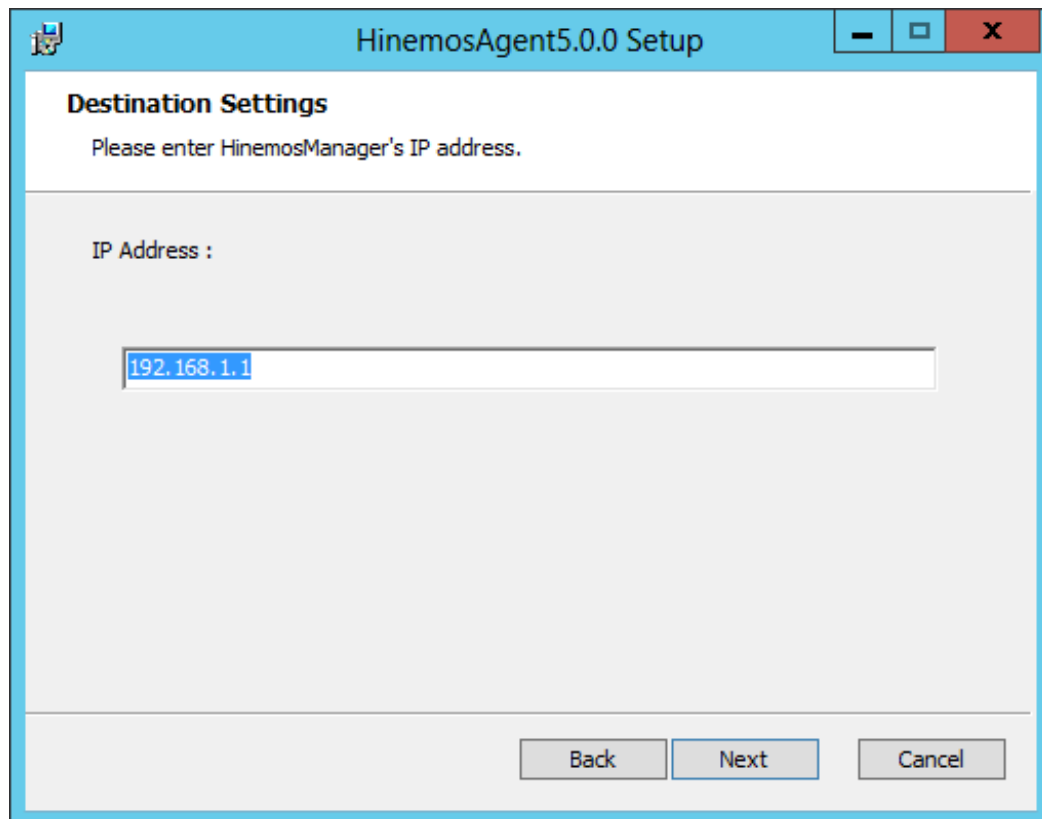


Figure 5-11 Configuring the Destination Hinemos Manager

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.)

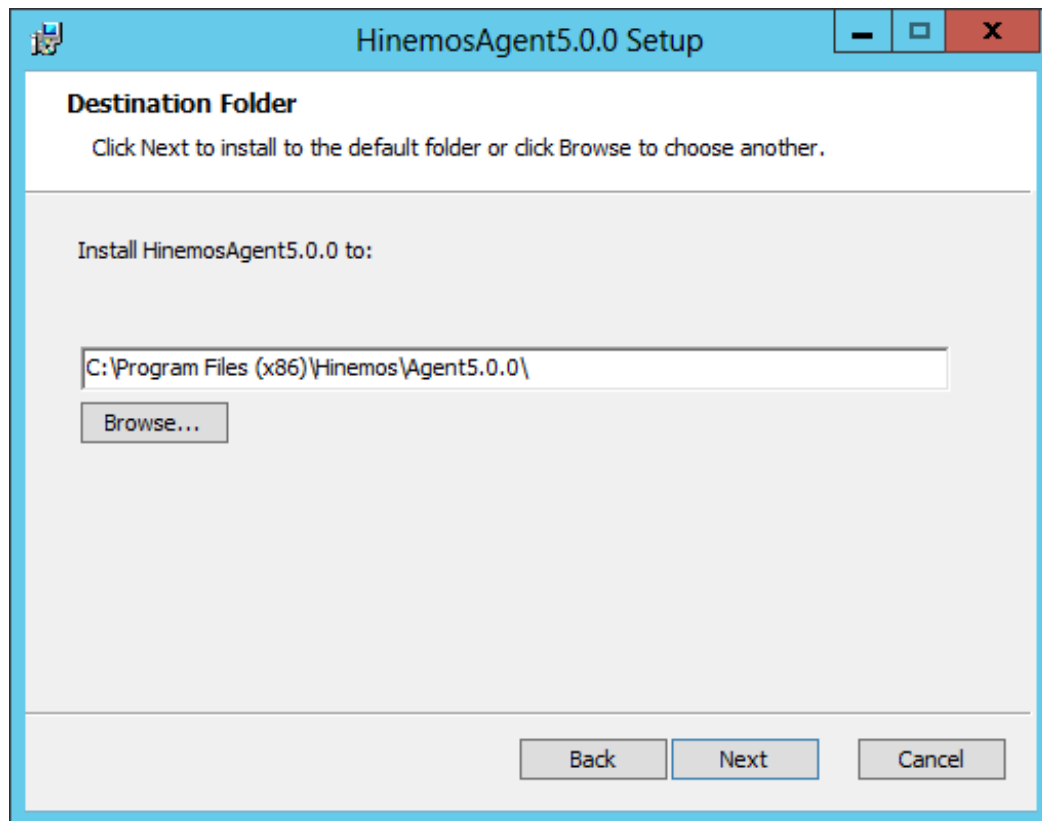


Figure 5-12 Configuring the Installation Directory

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

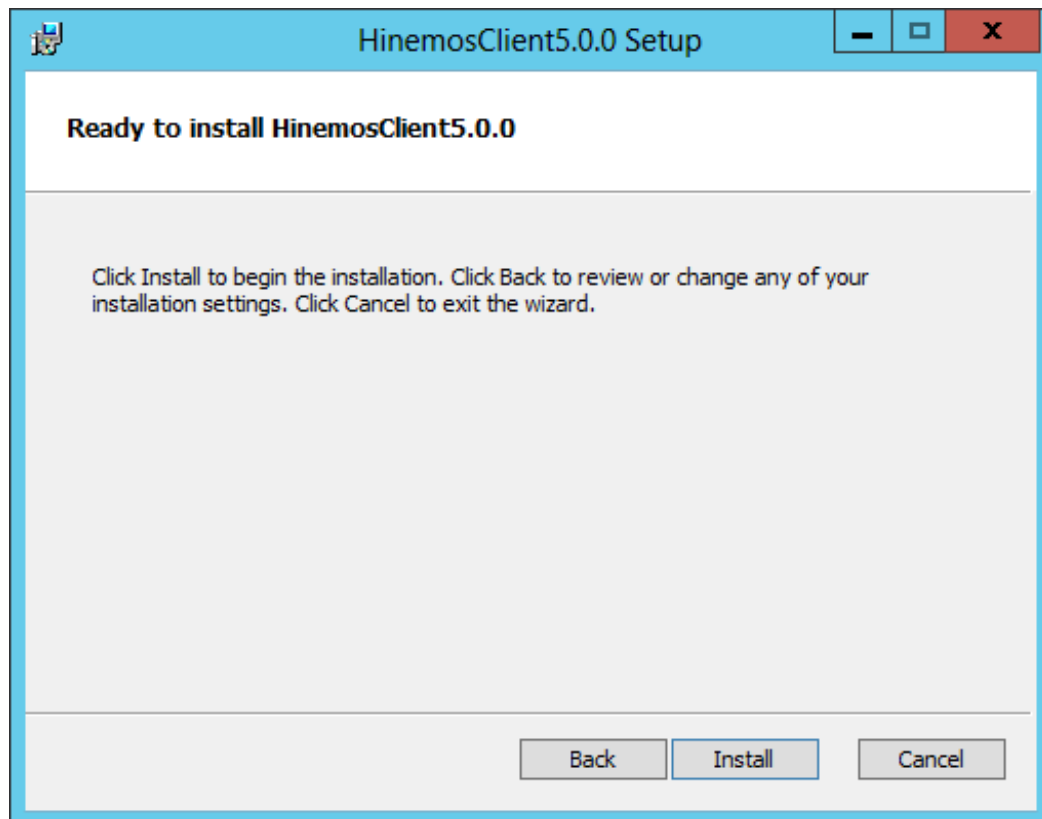


Figure 5-13 Starting the installations

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

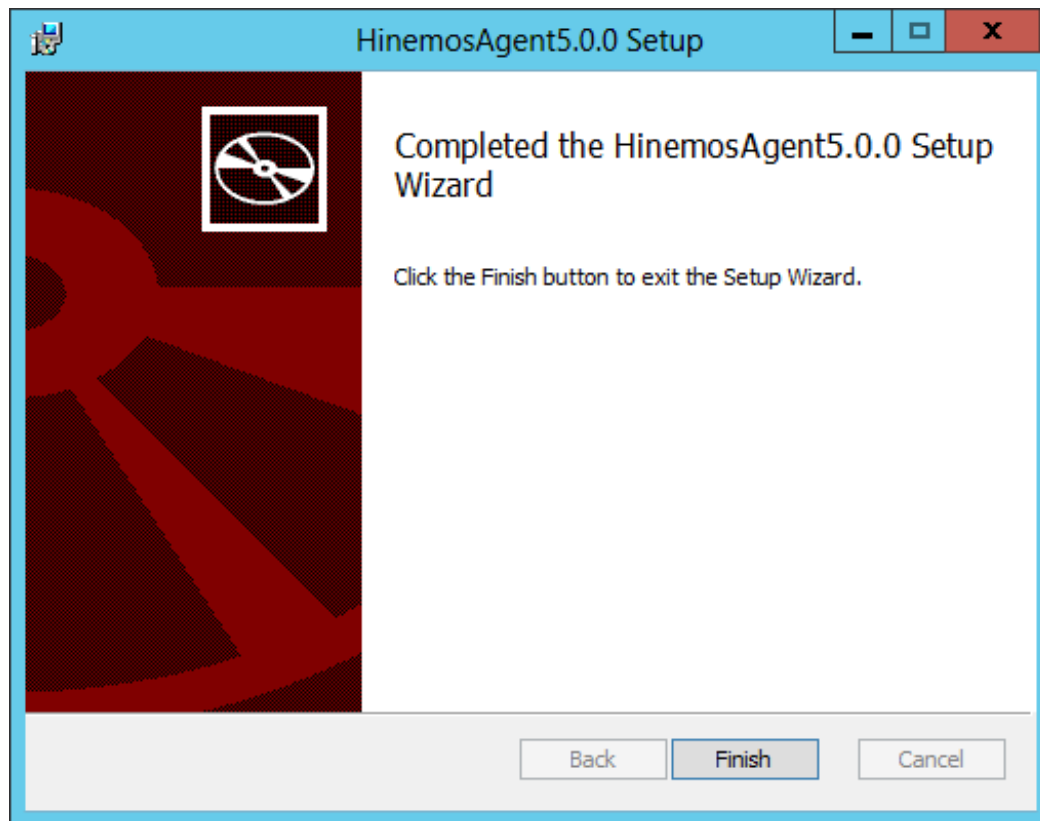


Figure 5-14 Completed Hinemos Agent Setup Wizard

10. 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.

### 5.1.3 Running Windows Agent Installer (Non-interactive install)

When specifying command line arguments for Hinemos Agent Installer for Windows, it can also be installed non-interactively.

This section explains how to run Hinemos Agent Installer for Windows non-interactively. (In this document, the explanation use installation on a 64-bit version of Windows as an example. The directory to which the installer is placed is assumed to be "C:\".)

1. **Start command prompt as an user with permission to run installer.**

For details about the user permission for running installer, see [5.1.1 Installation Prerequisites](#) section.

2. Run the following command at the command prompt.

```
msiexec.exe /quiet /i C:\HinemosAgentInstaller-5.0.x_win64.msi HINEMOS_MANAGER=[IP address of manager server]
```

## 5.2 Starting and Stopping Windows Agent

### 5.2.1 Starting Linux Agent

The Hinemos Agent (for Windows) is registered as a Windows Service, and starts and stops as a Windows Service. Refer to [5.3 Windows Agent as a Service](#) section for details.

For information about starting SNMP Service, go to [5.2.2 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. Click "Add Roles and Features" from "Server Manager".

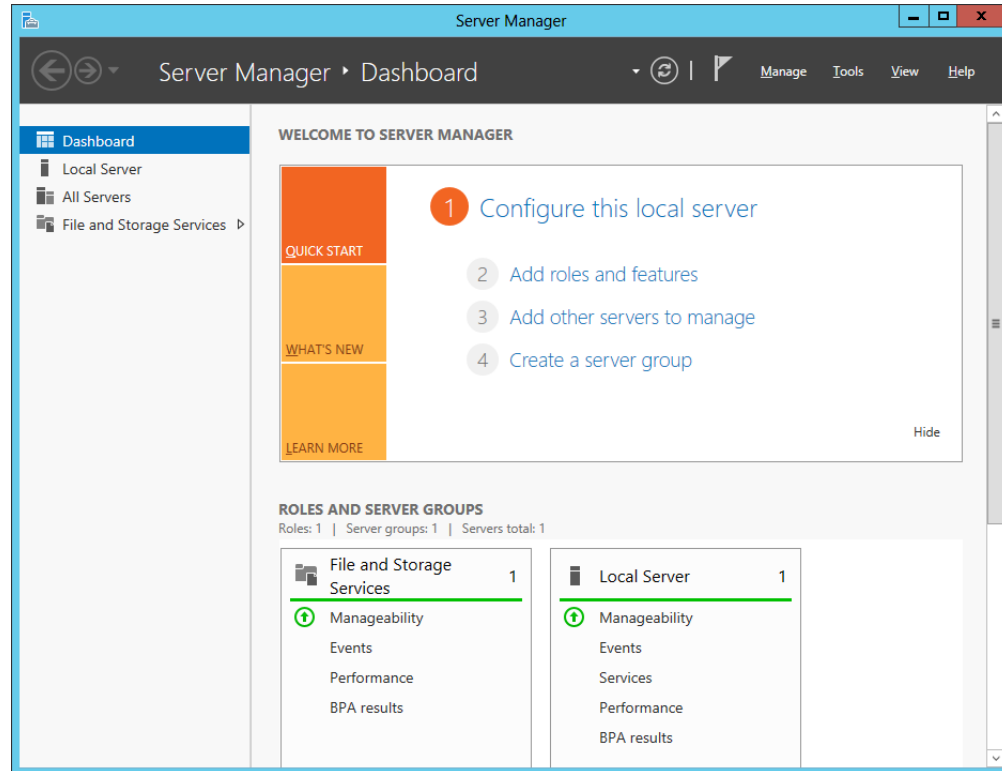


Figure 5-15 Server Manager

2. Click the "Next" button.

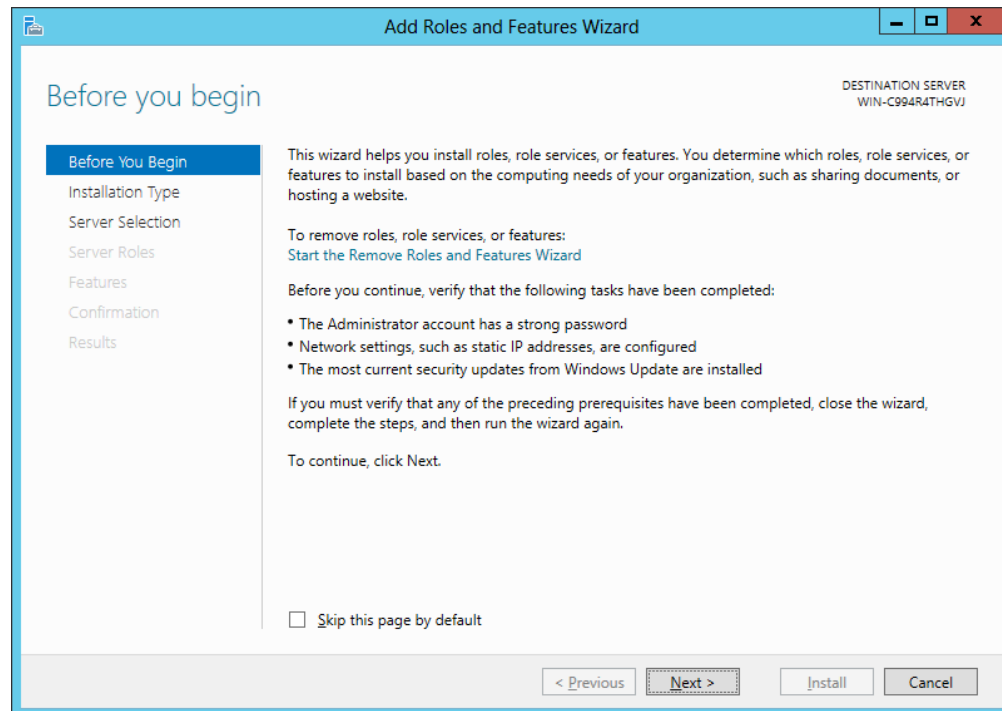


Figure 5-16 Add Roles and Features Wizard (Before You Begin)

3. Select "Role-based or feature-based installation" and click "Next" button.

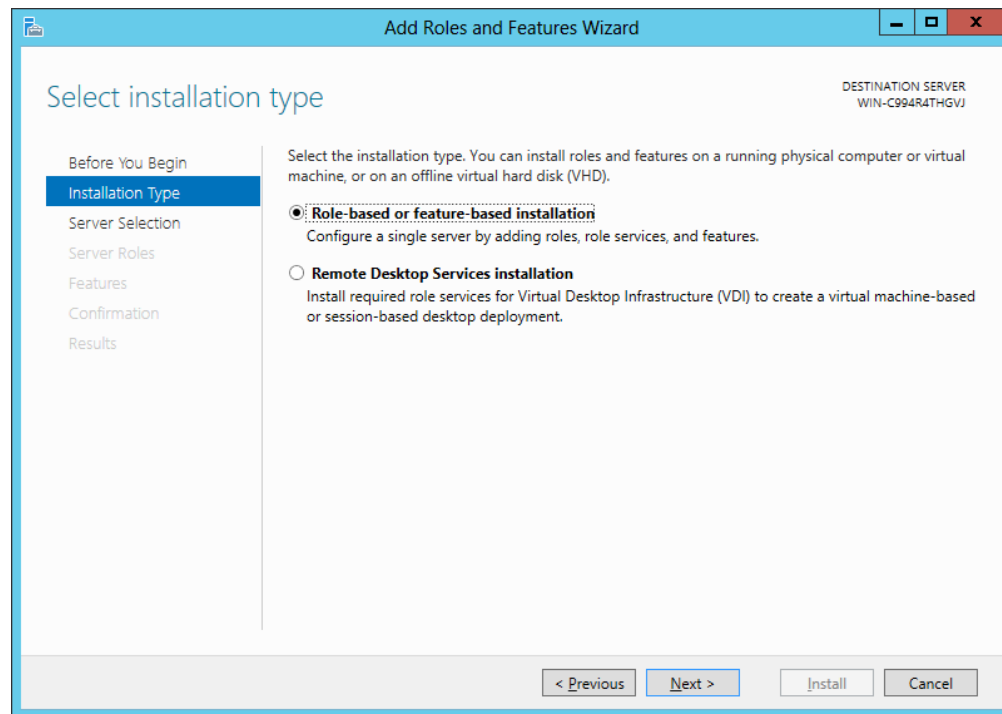


Figure 5-17 Add Roles and Features Wizard (Installation Type)

4. Select a server or a virtual hard disk to install the roles and features to.

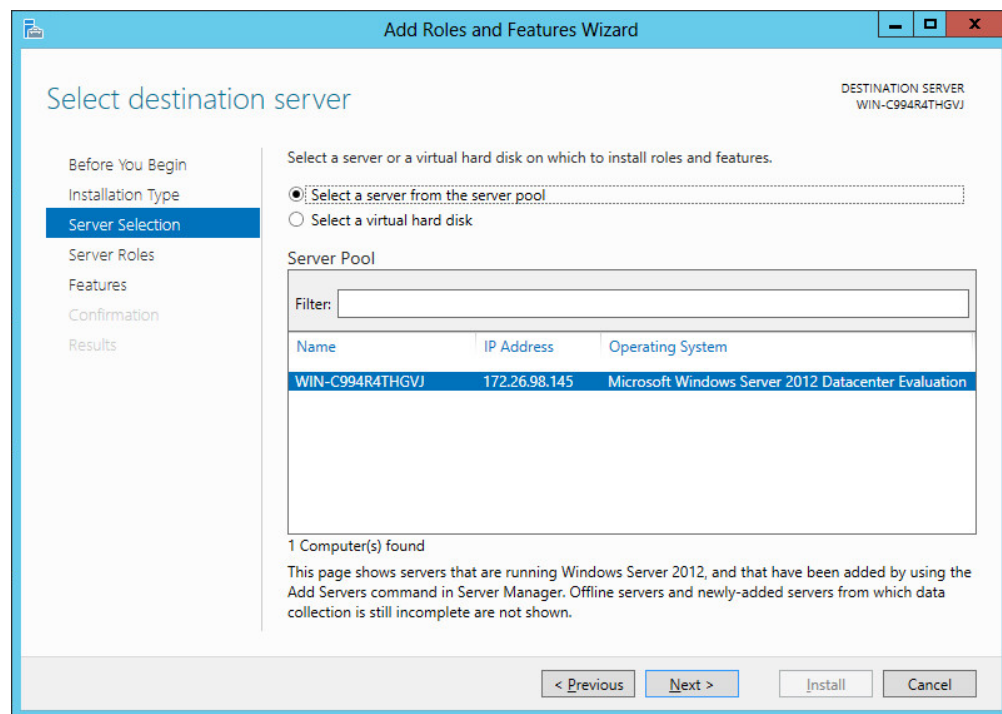


Figure 5-18 Add Roles and Features Wizard (Server Selection)

5. Click "Next" button without doing anything.

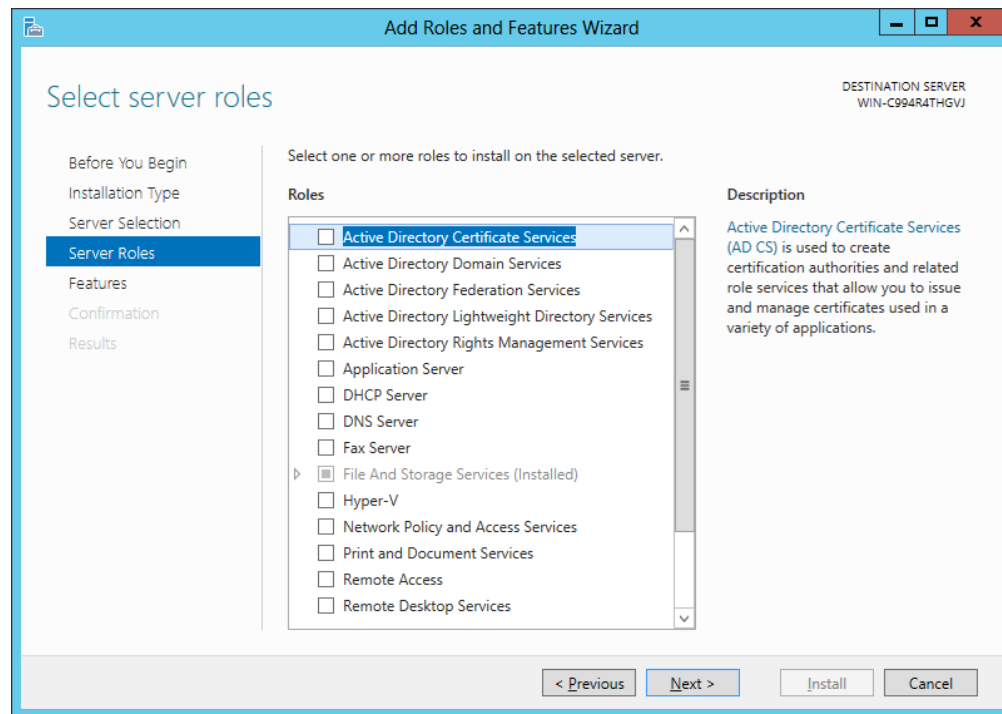


Figure 5-19 Add Roles and Features Wizard (Server Roles)

6. Select SNMP service and click "Next" button.

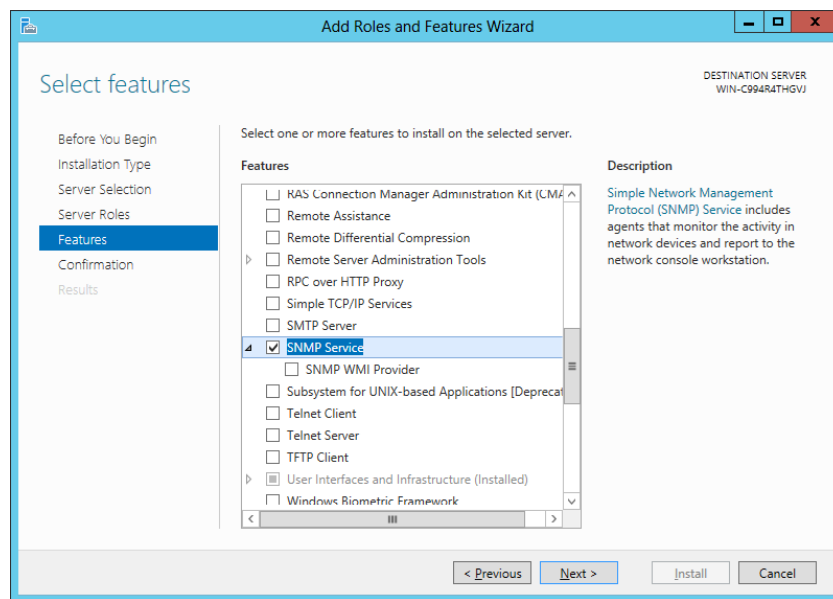
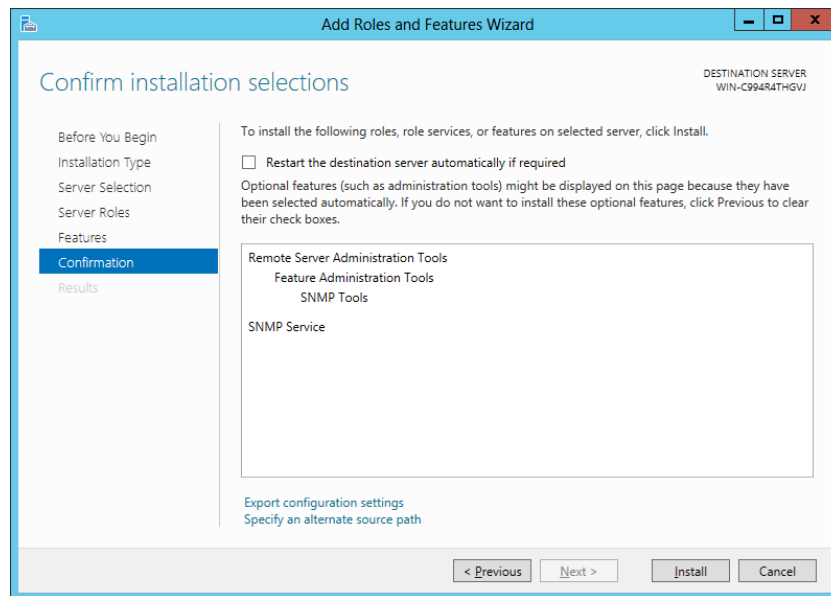


Figure 5-20 Add Roles and Features Wizard (Features)

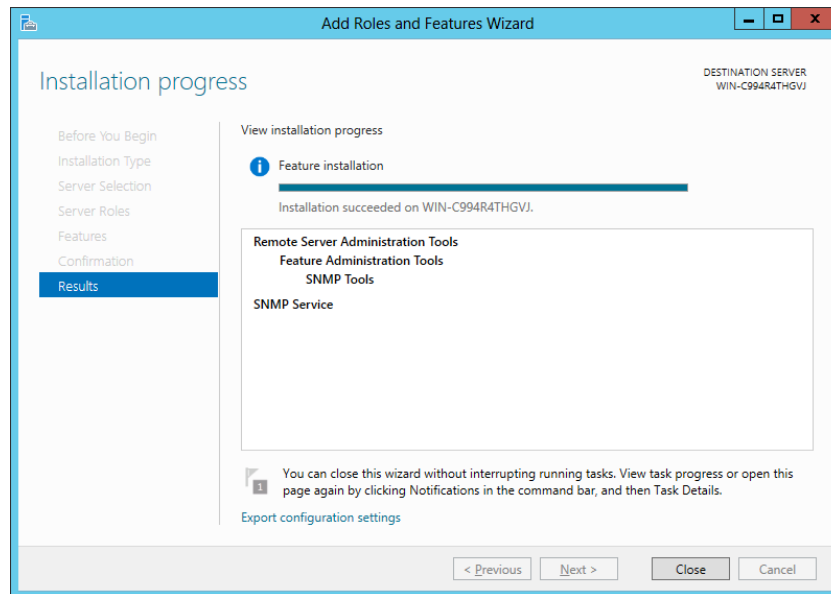
7. Click the "Install" button.





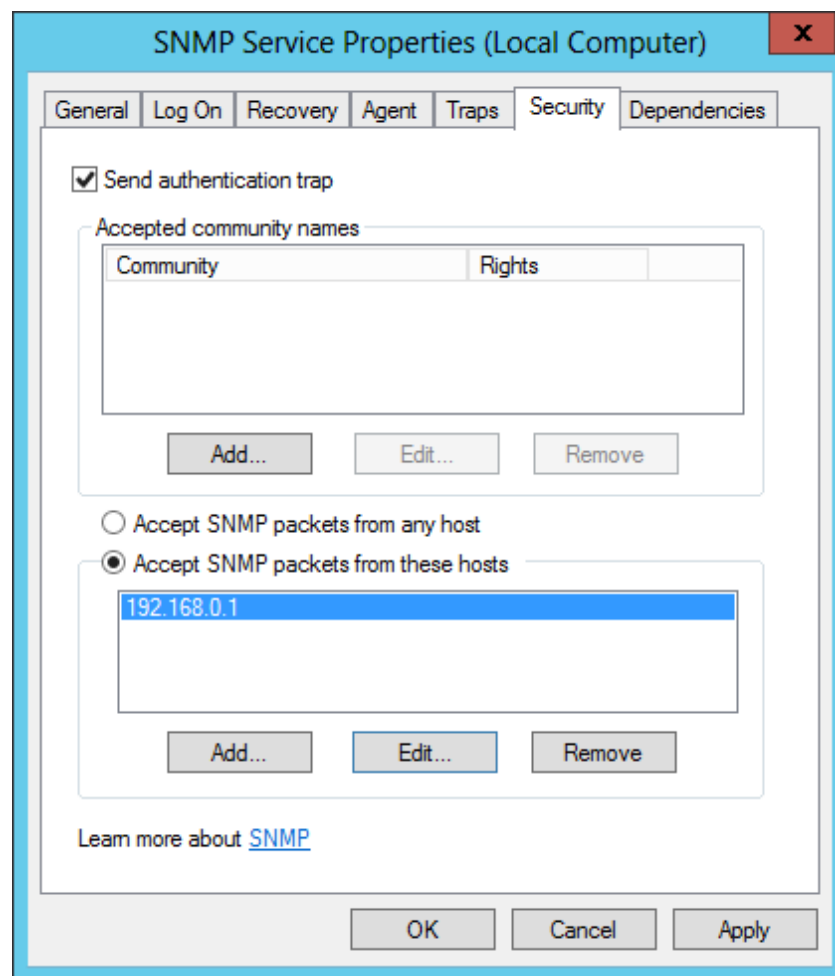
**Figure 5-21 Add Roles and Features Wizard (Confirmation)**

8. Click the "Close" button.



**Figure 5-22 Add Roles and Features Wizard (Results)**

9. 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**

10. 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.
11. Confirm that the SNMP polling (udp 161) can communicate with the Windows Firewall.

### 5.2.3 Settings for Resource Monitoring

UCD-MIB (1.3.6.1.5.0.2021) 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 (1.3.6.1.5.0.2021). Therefore, in Hinemos, the resource information is obtained by extending the SNMP agent.

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

The SNMP extension agent 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(32-bit)	HKEY_LOCAL_MACHINE\SOFTWARE\HinemosAgent\SNMPExtAgent
Registry Key(64-bit)	HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\HinemosAgent\SNMPExtAgent
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(32-bit)	HKEY_LOCAL_MACHINE\SOFTWARE\HinemosAgent\SNMPExtAgent
Registry Key(64-bit)	HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\HinemosAgent\SNMPExtAgent
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(32-bit)	HKEY_LOCAL_MACHINE\SOFTWARE\HinemosAgent\SNMPExtAgent
Registry Key(64-bit)	HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\HinemosAgent\SNMPExtAgent
Name	ErrorEventLevel
Type	REG_DWORD
Value	Event level *1

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

#### **5.2.4 Settings for Windows Service Monitoring**

The monitoring feature of Hinemos Windows Service obtains information by using WinRM.

To allow Hinemos to obtain information from WinRM, WinRM must be set for remote control. If the WinRM version is 1.1, check in advance if "Windows Firewall/Internet Connection Sharing (ICS)" service is valid.

With WinRM version 2.0 or later, there is no need to check the above.

## 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 [6.3 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.

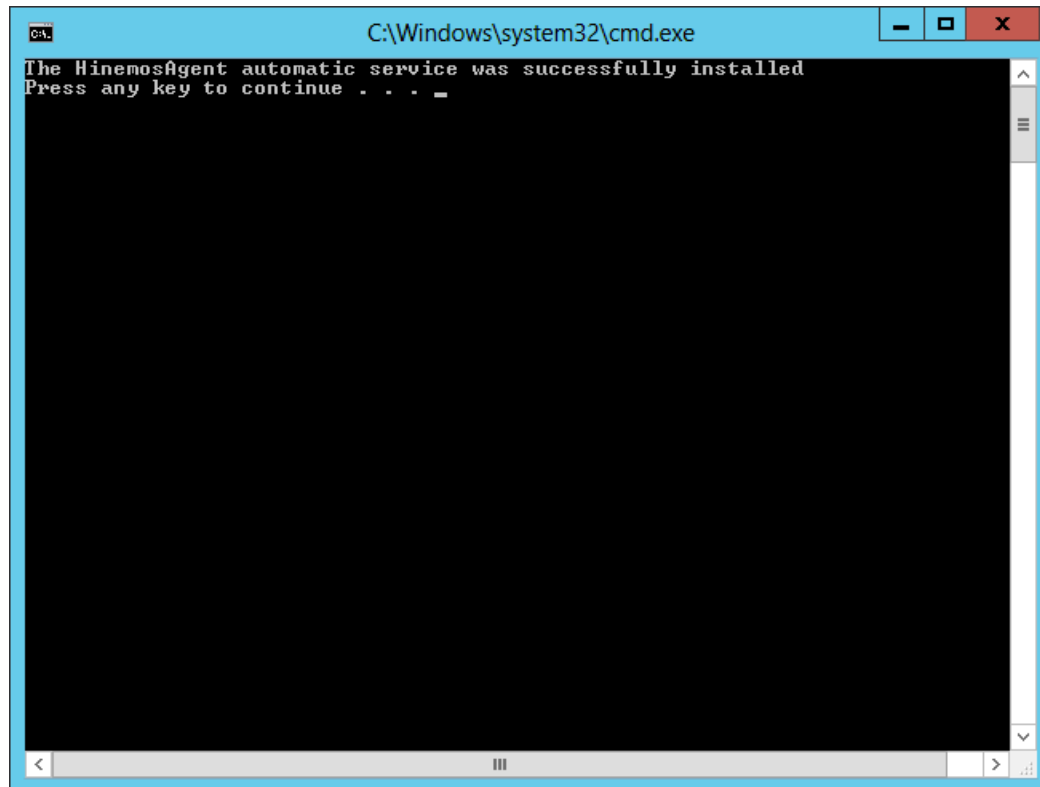
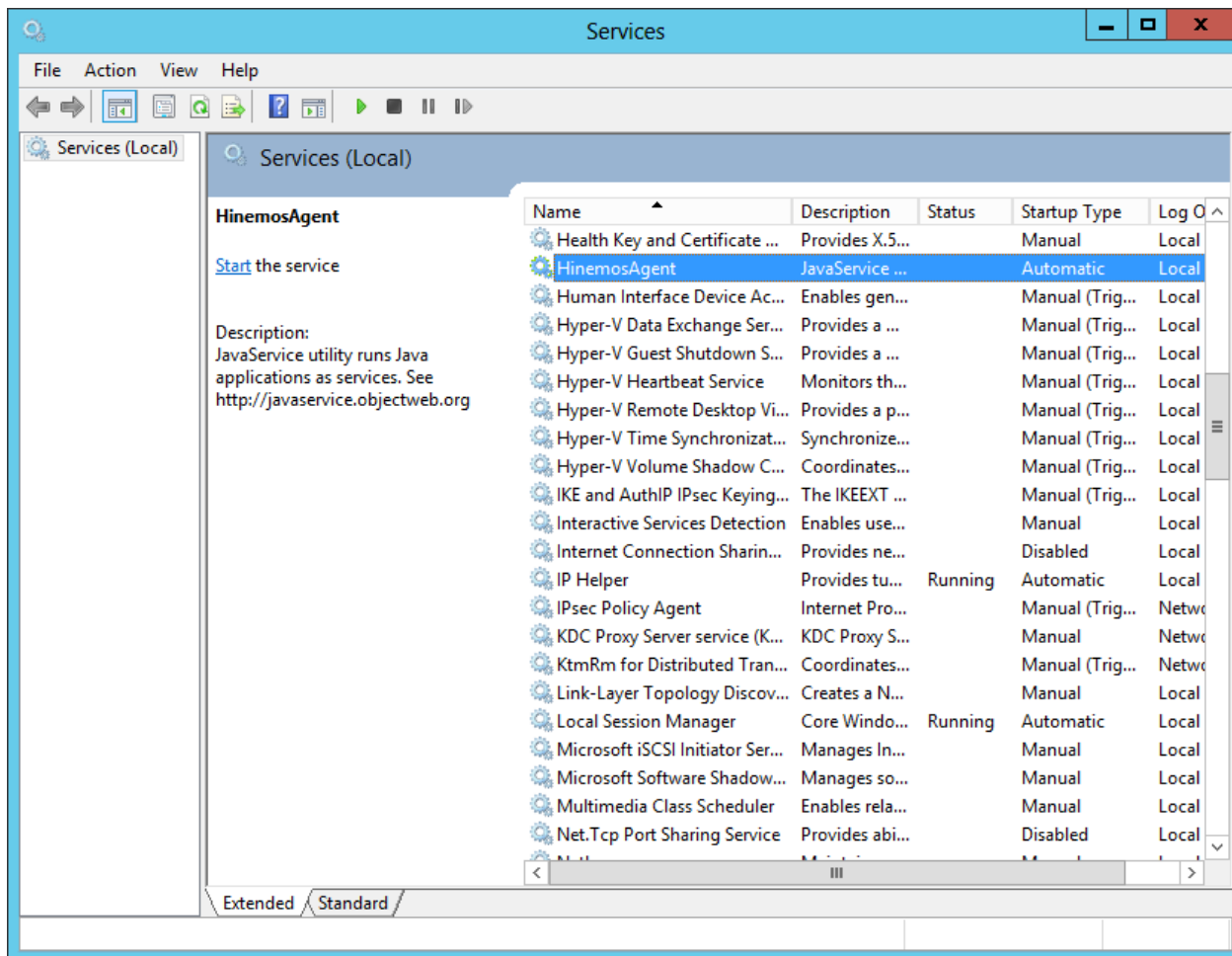


Figure 5-24 Hinemos Agent as a Service

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.

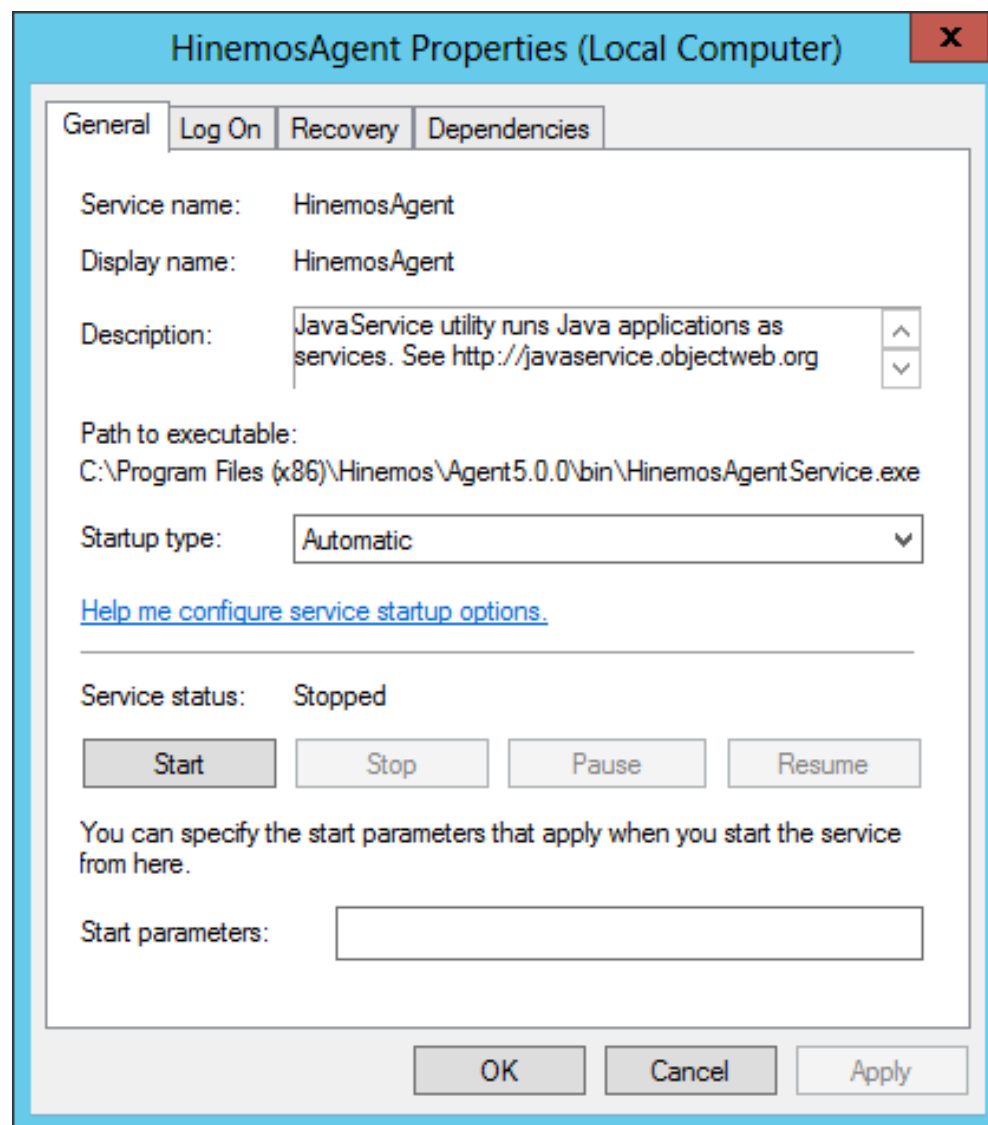


Figure 5-26 Hinemos Agent Service Properties

### 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.

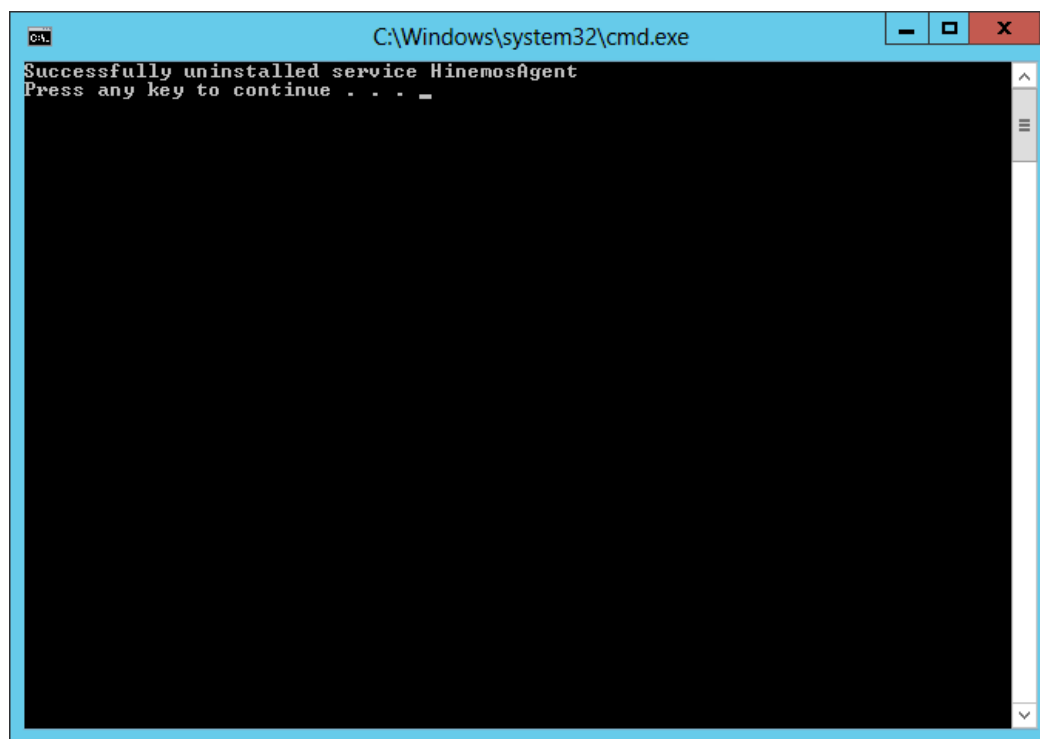


Figure 5-27 Removing the Agent Service

## 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 HinemosAgent5.0.x from the program list and click "Uninstall".



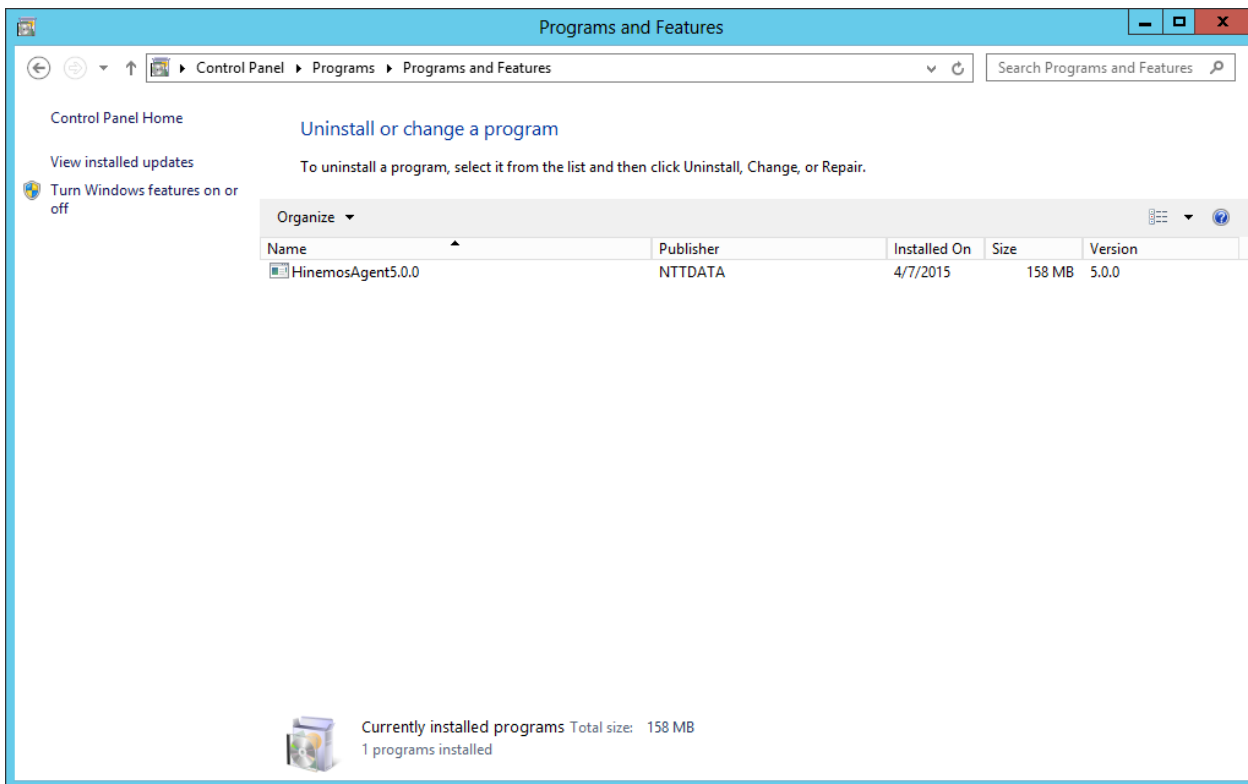


Figure 5-28 Removing Hinemos Agent 1

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

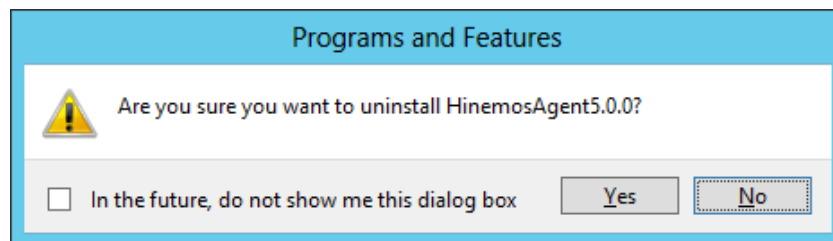


Figure 5-29 Removing Hinemos Agent 2

### 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
```

- For 64-bit

```
HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\HinemosAgent
HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\SaberNet
```

3. Delete the following values from the registry.
  - For both 32- and 64-bit

```
(key)
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\SNMP\Parameters\ExtensionAgents

(value)
Character string (REG_SZ) with name "hinemos_agent"
```

4. 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 "Agent5.0.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 Making a Duplicate of Windows Agent

1. Install a Hinemos Agent as shown in [5.1.2 Running Windows Agent Installer](#).
2. Copy the installed files to another folder.

For example, you can copy

```
C:\Program Files\Hinemos\Agent5.0.x
```

to

```
C:\Program Files\Hinemos\Agent5.0.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. In this example, it should be modified as below. (Do not omit the last separator "\")

```
@SET AGENTHOME=C:\Program Files\Hinemos\Agent5.0.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 an unique name. In this example, it should be modified as below. (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 an 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. In this example, it should be modified as below.

```
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\\Agent5.0.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\\Agent5.0.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 [5.3 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 an unique Facility ID in that case.

To set a Facility ID, see Section 4.5 "Specifying Facility ID for Hinemos Agent" in the 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 [5.4 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.

The following steps describe how to install a Linux Agent.

1. Place `hinemos_agent-5.0.x-1.el.noarch.rpm` into the appropriate directory. (This document describes the installation procedure, taking RHEL7 agent as an example. The directory to which the agent is to be placed is assumed to be `/tmp`.)
2. Run the installer.

#### 6.1.1 Running Linux Agent Installer

The locale of Hinemos is set in Japanese only if the locale of OS is `"LANG=ja_JP.UTF-8"`; otherwise, it will be set in English. Therefore, confirm the locale of the OS before installing the Linux Agent.

```
# locale
LANG=en_US.UTF-8
```

Run `rpm` command as root user to install. The installer performs the following steps.

- Modify the configuration file for `net-snmp`(`snmpd.conf`);
- Configure Hinemos Manager connection;
- Configure `rsyslog/syslog` daemon and restart;
- Copy installation files.

```
# cd /tmp
# rpm -ivh hinemos-agent-5.0.x-1.el.noarch.rpm
```

The following message will be displayed after installation completed.

```
Getting ready... ##### [100%]
Updating/Installing...
 1:hinemos-agent-0:5.0.0-1.el ##### [100%]
Redirecting to /bin/systemctl status rsyslog.service
Redirecting to /bin/systemctl restart rsyslog.service
```

Finally, open the following file and confirm that the locale setting has been set as expected.

- `/opt/hinemos/etc/hinemos.cfg`

```
### Environment Attributes
export LANG=en_US.UTF-8
```

(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.

#### 6.1.2 Setting for Hinemos Manager Connection

Modify the following configuration file to specify the IP address/host name of the Hinemos Manager.

- /opt/hinemos\_agent/conf/Agent.properties

```
(Before)managerAddress=http://127.0.0.1:8081/HinemosWS/  
(After )managerAddress=http://[IP address/host name of Hinemos Manager server]:8081/HinemosWS/
```

\* Moreover, you can specify the Manager Connection for the installation in advance as shown below.

```
# HINEMOS_MANAGER=[IP address/host name of Hinemos Manager server] rpm -ivh hinemos-agent-5.0.x-1.el.noarch.rpm
```

## 6.2 Starting and Stopping Linux Agent

### 6.2.1 Starting Linux Agent

Run the following commands as root user.

```
# service hinemos_agent start
```

The following message is displayed.

```
Starting hinemos_agent (via systemctl):          [ OK ]
```

With Hinemos5.0, use of agent\_start.sh is not recommended. If agent\_start.sh is used by mistake, stop the Hinemos Agent by using agent\_stop.sh and start it again by using the service command.

### 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.

```
# service hinemos_agent stop
```

The following message is displayed.

```
Stopping hinemos_agent (via systemctl):         [ OK ]
```

With Hinemos5.0, use of agent\_stop.sh is not recommended. If agent\_stop.sh is used by mistake, start the Hinemos Agent by using agent\_start.sh and stop it again by using the service command.

## 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 Enabling and Disabling Auto-Start

The auto-start configuration is setup automatically at the time of installation. Run the following command as root user to confirm whether Hinemos Manager has been added as an OS service.

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

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

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

## 6.4 Uninstalling Linux Agent

The following steps describe how to uninstall Linux Agent.

1. Execution of rpm command

### 6.4.1 Running Linux Agent Installer (Uninstallation)

The uninstaller performs the following tasks.

- The installer stops when the Hinemos Agent is running.
  - Removing Hinemos Agent
  - Invalidating the setting file of rsyslog
1. Run rpm command as root user.

```
# rpm -e hinemos-agent
```

The Hinemos Agent has been uninstalled successfully if the command is terminated without an error message displayed. If the command is executed while Hinemos Agent are running, however, the following message is displayed:

```
Stopping Hinemos Agent
Hinemos Agent are stopped
Stopping hinemos_agent (via systemctl):          [ OK ]
```

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
```

- Setting of run level of snmpd service

Set the run level of the snmpd service as follows:

```
chkconfig --level 2345 snmpd on
```

- /etc/syslog.conf file settings

The Hinemos Agent installer is added in /etc/syslog.conf as follows. (The Hinemos Agent installer is not added if rsyslog is used.)

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

## 6.5 Installing Multiple Linux Agents

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

### 6.5.1 Making a Duplicate of Linux Agent

1. Install a Hinemos Agent as shown in **6.1.2 Running Windows Agent Installer**.
2. Run the agent copy script as root user. Specify the identifier of the agent and the IP address/host name of the Hinemos Manager as arguments. (Please use only half-width alphanumeric characters and "-" or "\_" for the identifier.)

For example, the identifier of the agent copied is assumed to be "copy" and the IP address of the Hinemos Manager is assumed to be "192.168.0.1" in this section.

```
# cd /opt/hinemos_agent/sbin/mng/  
# ./copy_hinemos_agent.sh copy 192.168.0.1
```

The following message is outputted.

```
The new agent with ID [copy] was created. The information of the new agent is as followings.  
  
Folder: /opt/hinemos_agent_copy  
Service file: /etc/init.d/hinemos_agent_copy
```

The agent copy script performs the following processes.

- Copy the install folder of the Hinemos Agent  
The install folder of the copied Hinemos Agent is /opt/hinemos\_agent\_"identifier".
- Copy the service script for Hinemos Manager  
Service hinemos\_agent\_"identifier" will be registered.
- Configure the destination Hinemos Manager
- Configure rsyslog

3. Restart rsyslog when rsyslog is used.

When syslog is used, add the setting to transfer to the manager server to /etc/syslog.conf as follows and restart syslog.

```
*. info;mail.none;authpriv.none;cron.none @IP address of Manager:514
```

### 6.5.2 Starting and Stopping the Copied Agent Service

To start the copied Hinemos Agent, execute the following command as a root user (if "copy" is specified as the identifier).

```
# service hinemos_agent_copy start
```

To stop the copied Hinemos Agent, execute the following command as a root user (if "copy" is specified as the identifier).

```
# service hinemos_agent_copy stop
```

### 6.5.3 Uninstalling the Copied Agent

To uninstall the copied Hinemos Agent, execute the following command as a root user (if "copy" is specified as the identifier).

1. Execute the following command to delete the setting to automatically start the service.

```
# chkconfig --del hinemos_agent_copy
```

2. Delete the service script for Hinemos Agent

```
# rm /etc/init.d/hinemos_agent_copy
```

3. Invalidate the setup file of rsyslog/syslog.

When rsyslog is used, delete the file created when the Agent was copied and restart rsyslog.

```
# rm /etc/rsyslog.d/rsyslog_hinemos_agent_copy.conf  
# service rsyslog restart
```

Delete the copied installation directory for the Hinemos Agent.

4. Delete the copied installation directory for the Hinemos Agent.

```
# rm -rf /opt/hinemos_agent_copy
```

#### 6.5.4 Precautions

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 "Specifying Facility ID for Hinemos Agent" in the Administrator's Guide.



## 7 Rich Client

### 7.1 Installing Hinemos Rich Client

#### 7.1.1 Overall configuration

The configuration of connection with only one Manager (single manager connection) is as shown below.

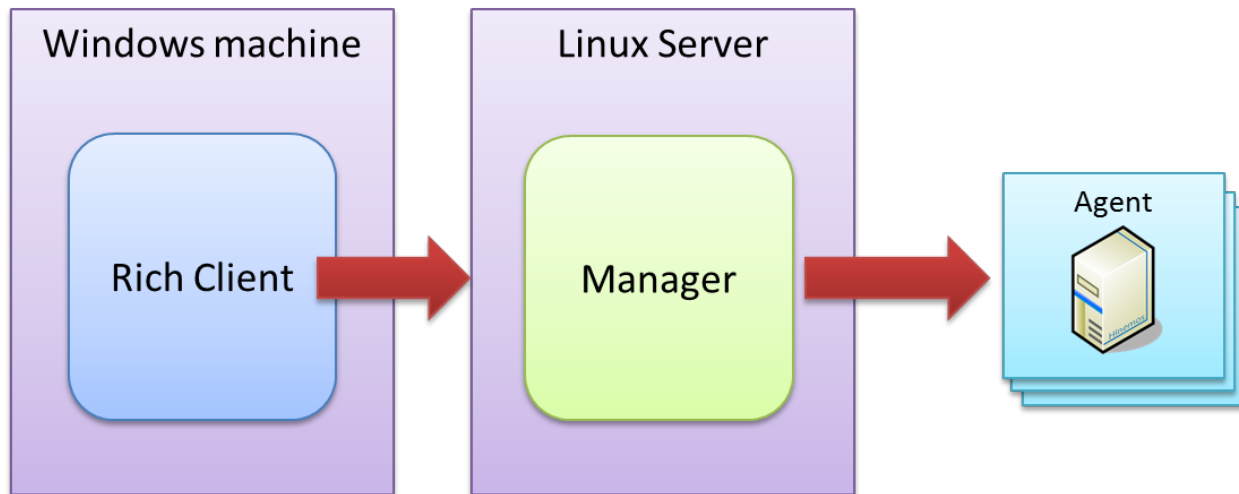


Figure 7-1 Overall Configuration (Rich Client) with a Single Manager Connected

The configuration of connection with two or more Managers (multi-Manager connection) is as shown below.

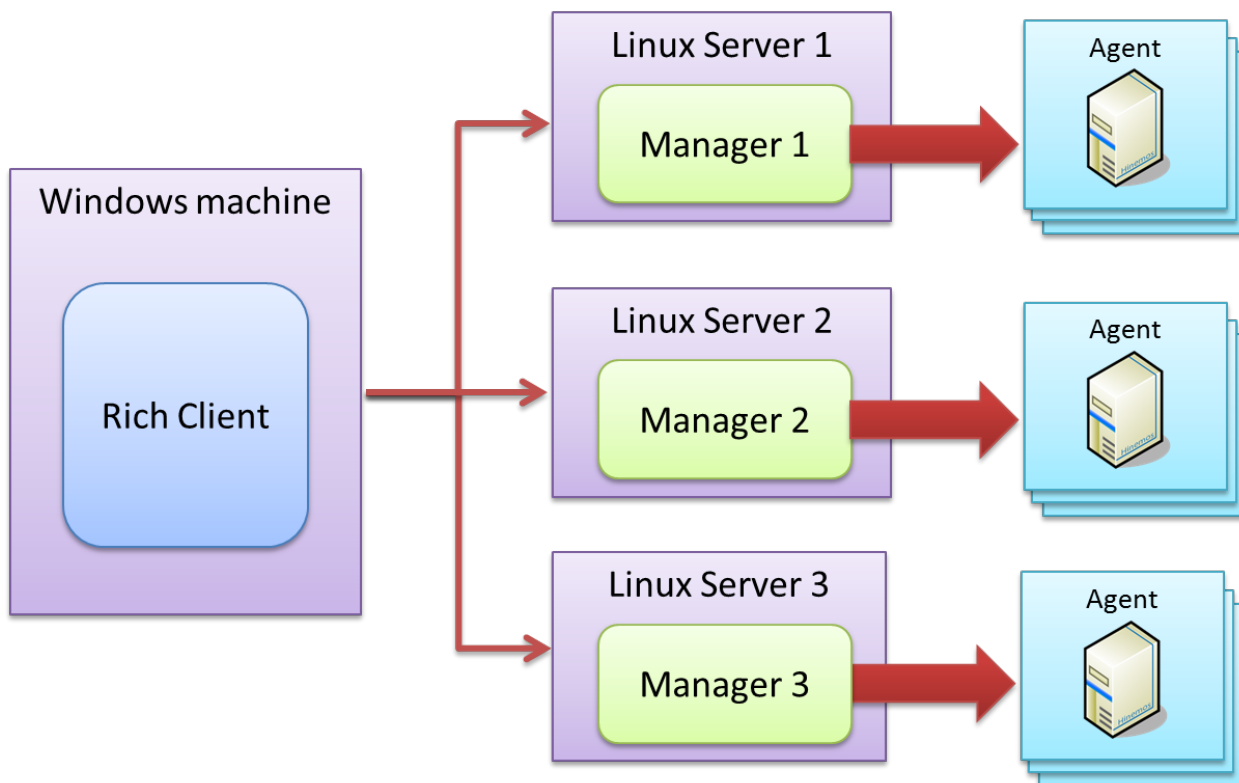


Figure 7-2 Overall Configuration (Rich Client) with Multiple Manager Connected

#### 7.1.2 Running Hinemos Rich 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-5.0.x\_[<OS>\_<architecture>]. msi). All the screenshots are taken using Windows 7.

1. Run HinemosClientInstaller-5.0.x\_[<OS>\_<architecture>]. msi.
2. When the Setup Wizard of Hinemos Rich Client shows up, click the "Next" button.

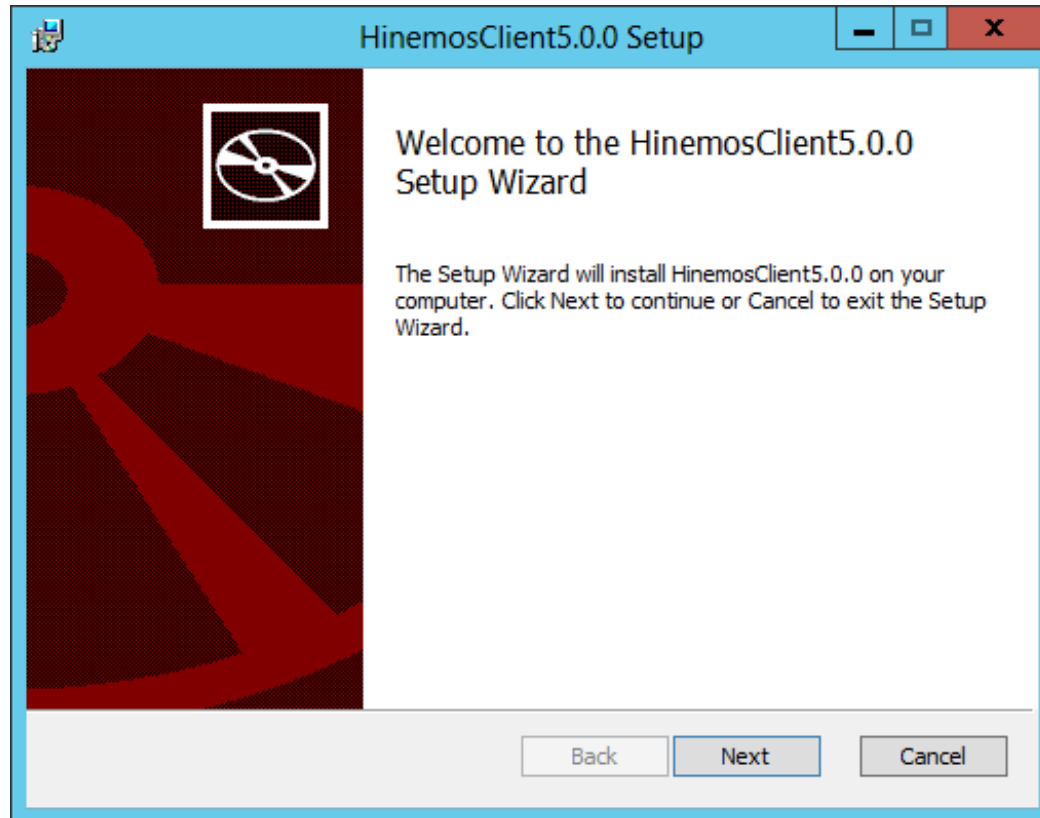


Figure 7-1 Setup Wizard for the Hinemos Rich Client

3. Agree to the Software License Agreement.

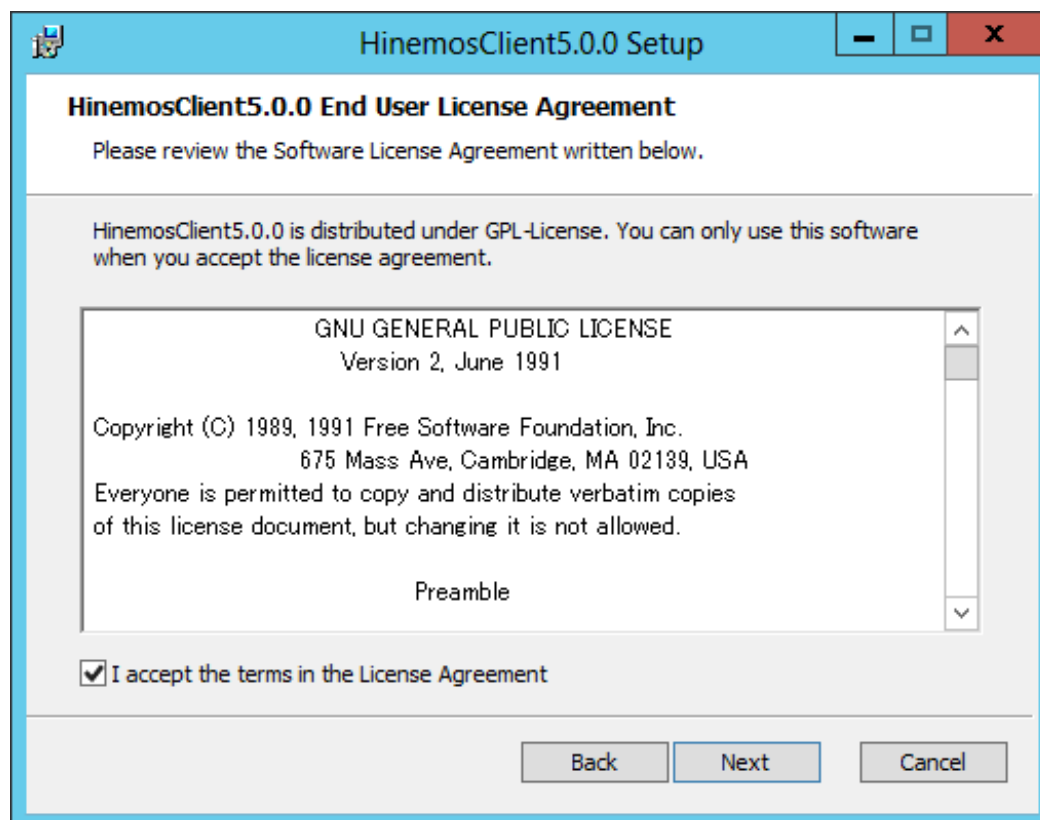


Figure 7-2 Hinemos Rich Client License Agreement

4. Agree to the Oracle JRE License Agreement.

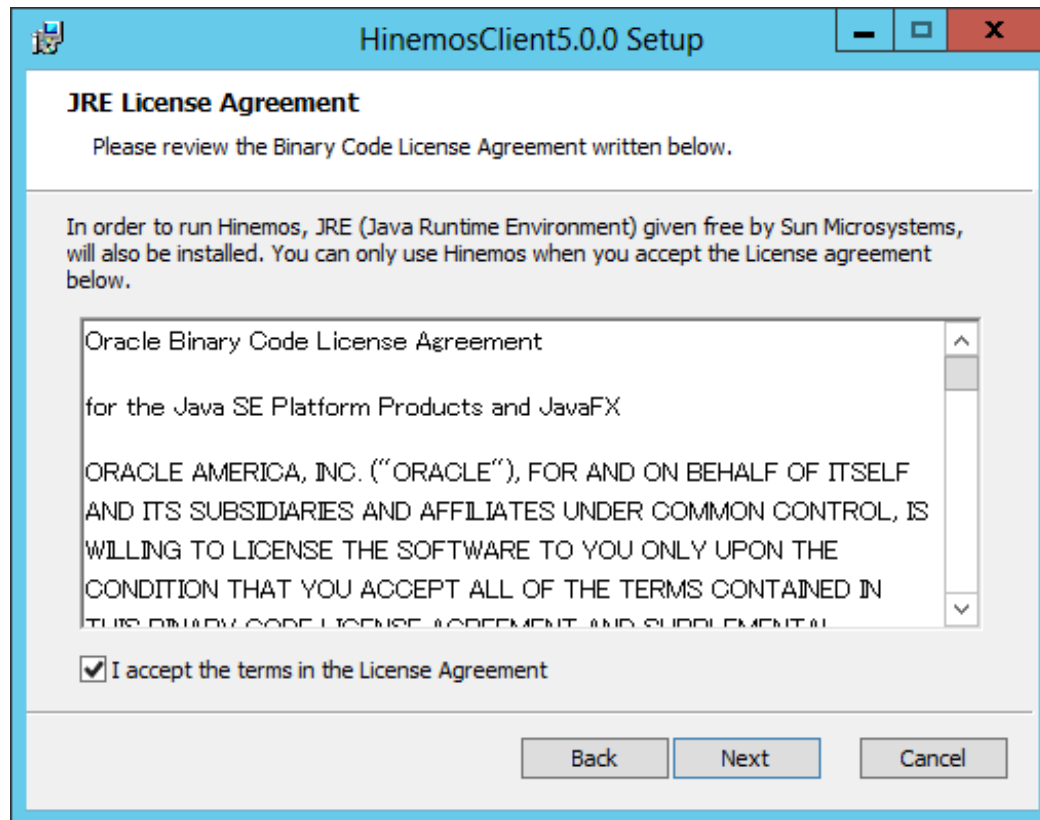


Figure 7-3 JRE License Agreement

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

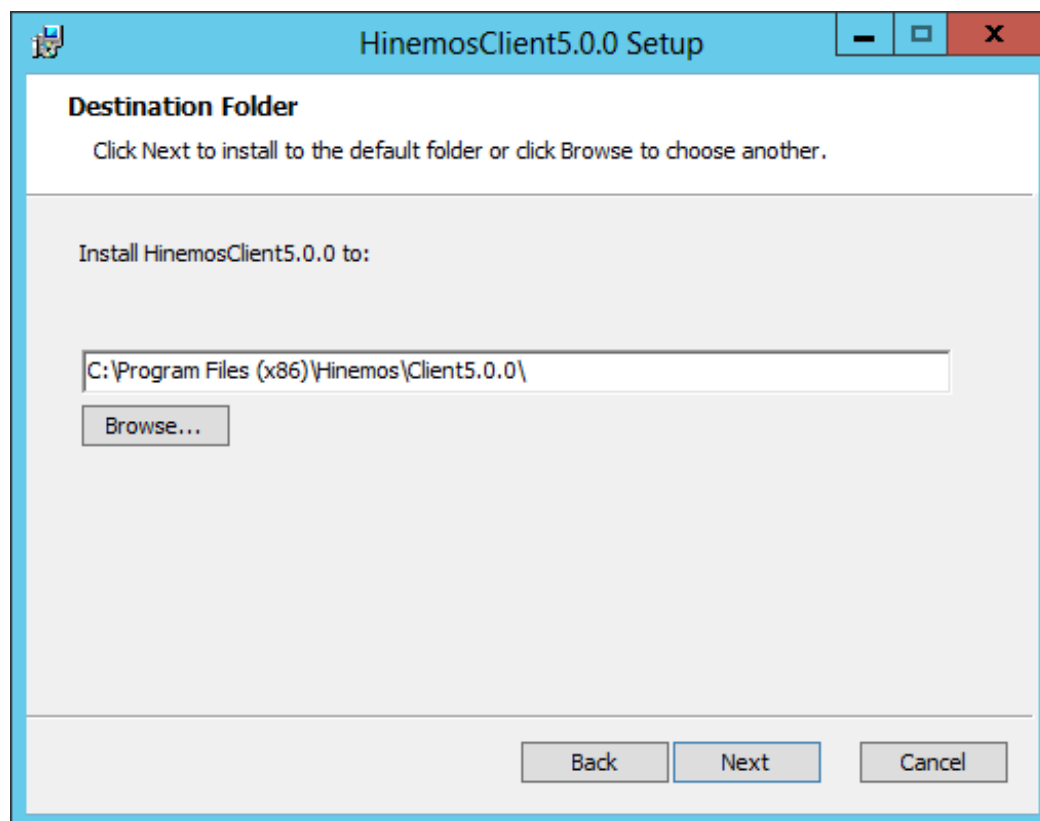


Figure 7-4 Configuring the Installation Folder

6. Click the "Install" button.

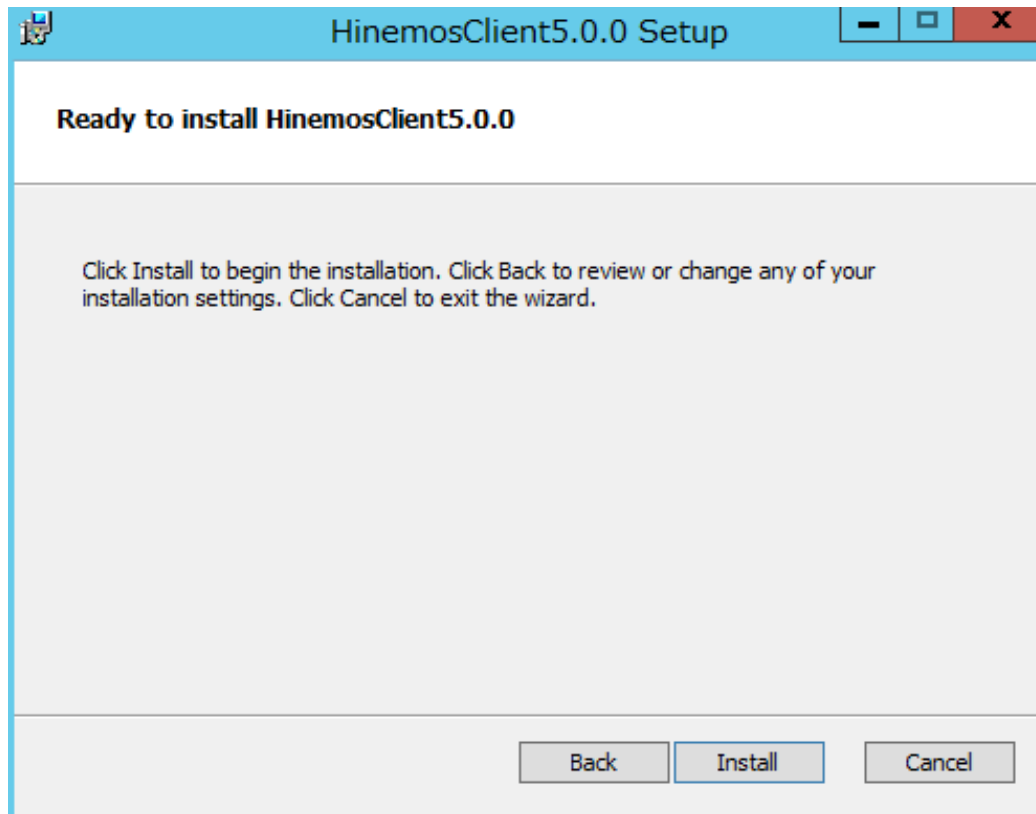


Figure 7-5 Starting the Installations

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

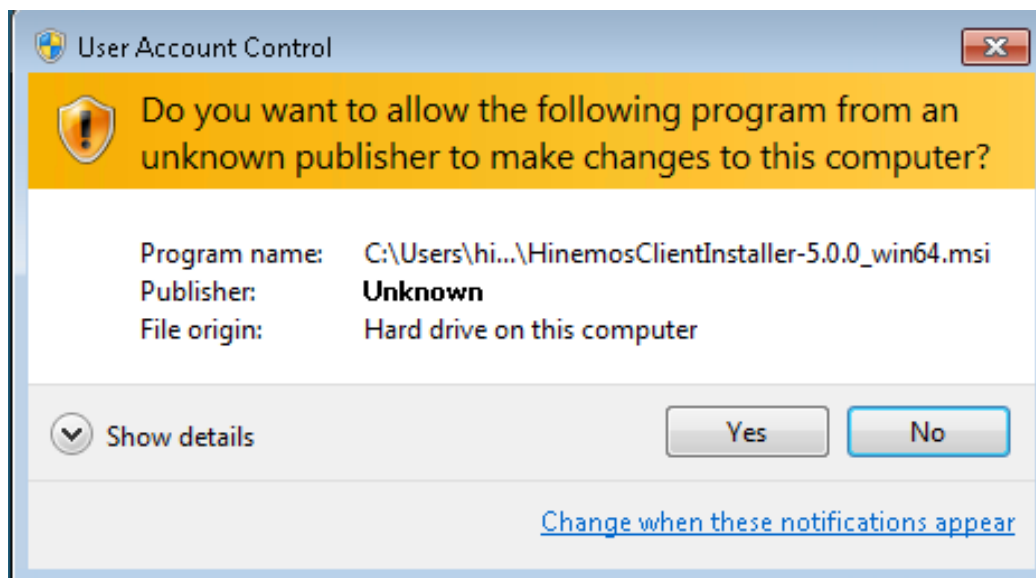
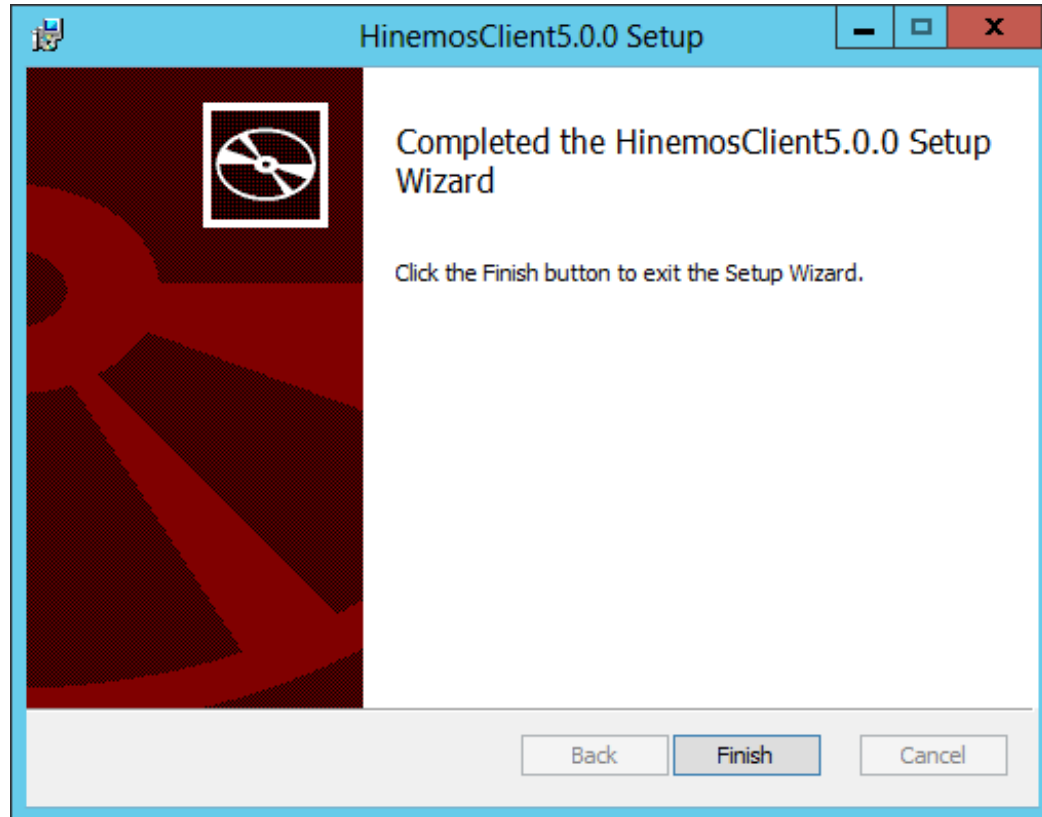


Figure 7-6 Warning Dialog when Installing Hinemos Rich Client

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

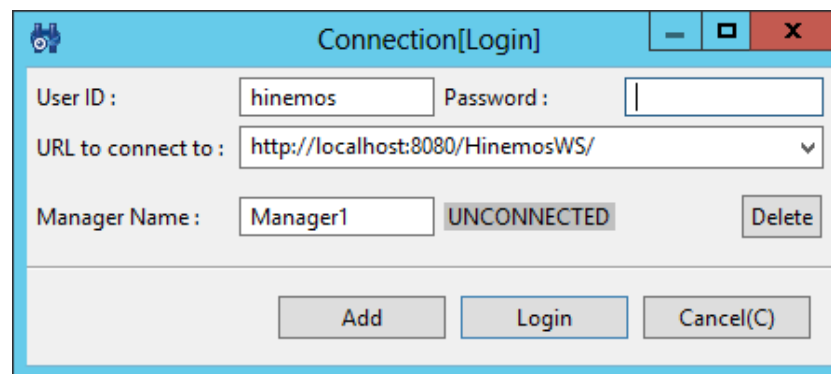


**Figure 7-7 Complete Hinemos Rich Client Setup Wizard**

Installation of Hinemos Rich Client is complete. The default installation location for Hinemos Rich Client is C:\Program Files (x86)\Hinemos\Client5.0.x\ (In the case of 32-bit, C:\Program Files\Hinemos\Client5.0.x\)

## 7.2 Starting Hinemos Rich Client

- Click "Start" - "All Programs" - "Hinemos" - "Client5.0.x" - "HinemosClient5.0.x".



**Figure 7-8 Login Screen**

- 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.

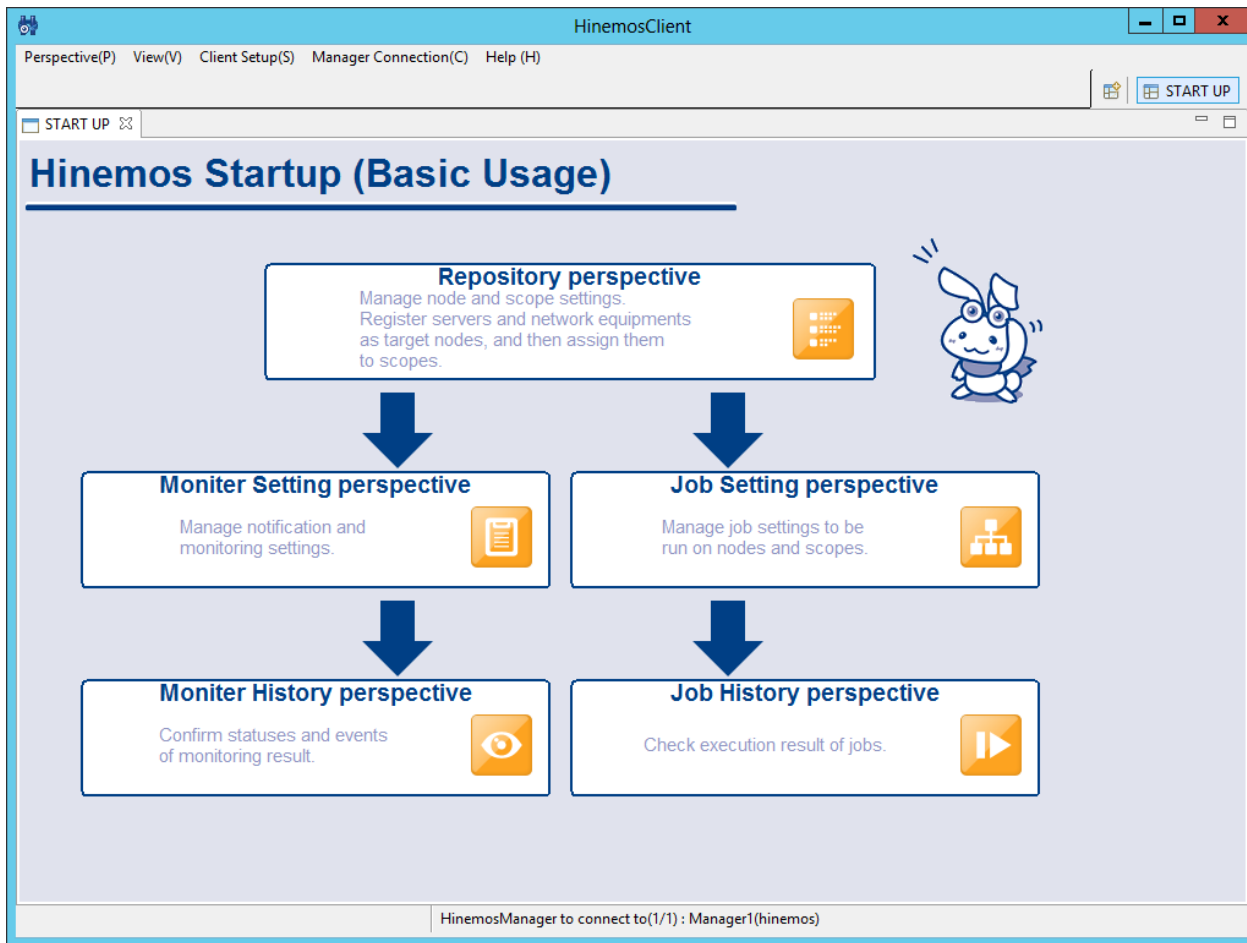


Figure 7-9 Welcome Screen

### 7.3 Uninstalling Hinemos Rich Client

1. Go to "Control Panel" - "Program and Features". A list of programs and features on your computer will be shown.

2. Select HinemosClient5.0.x from the program list and click "Uninstall".

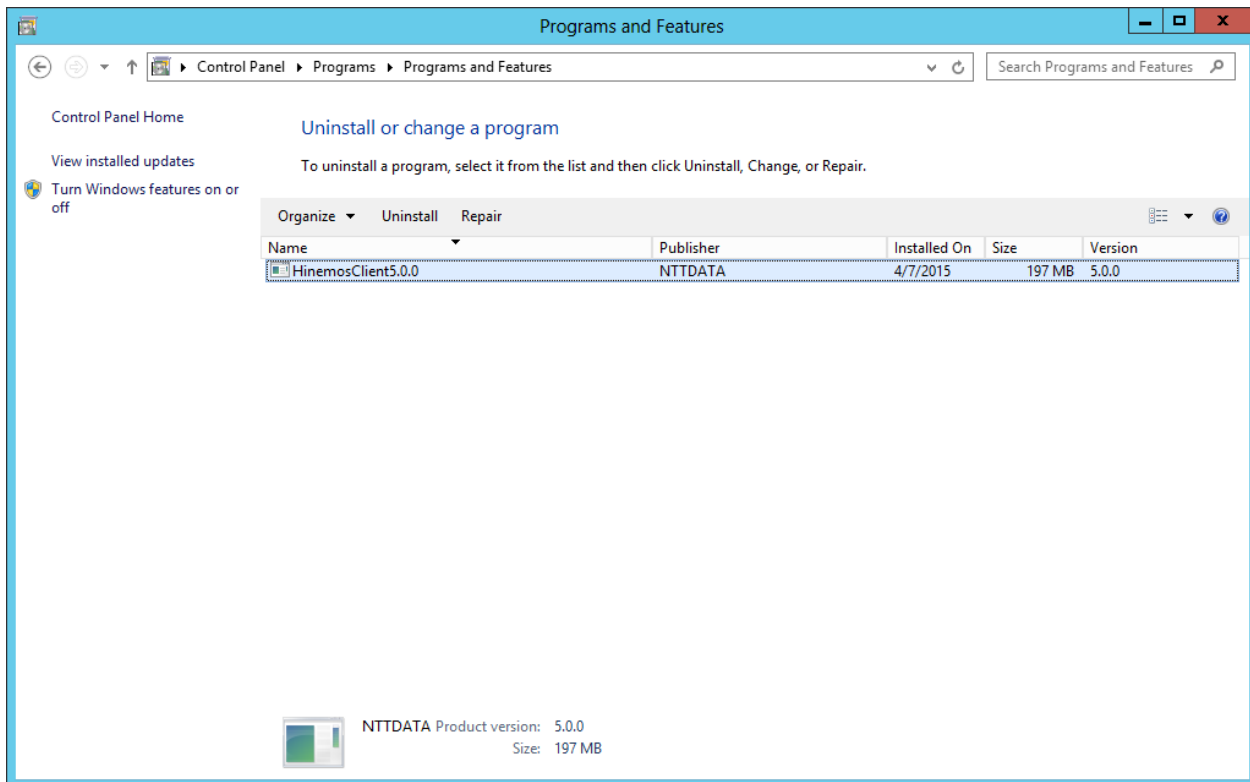


Figure 7-10 Removing Hinemos Rich Client

3. Delete the following files under <Hinemos Rich Client Installation directory>\eclipse-rcp\configuration.

- org.eclipse.core.runtime
- org.eclipse.e4.ui.css.swt.theme
- org.eclipse.equinox.app
- org.eclipse.osgi

**\* For non-Administrator user who do not have enough permissions to delete files in Hinemos Rich Client Installation directory,**

delete the following folder under C:\Users\<<Username>\.eclipse instead.

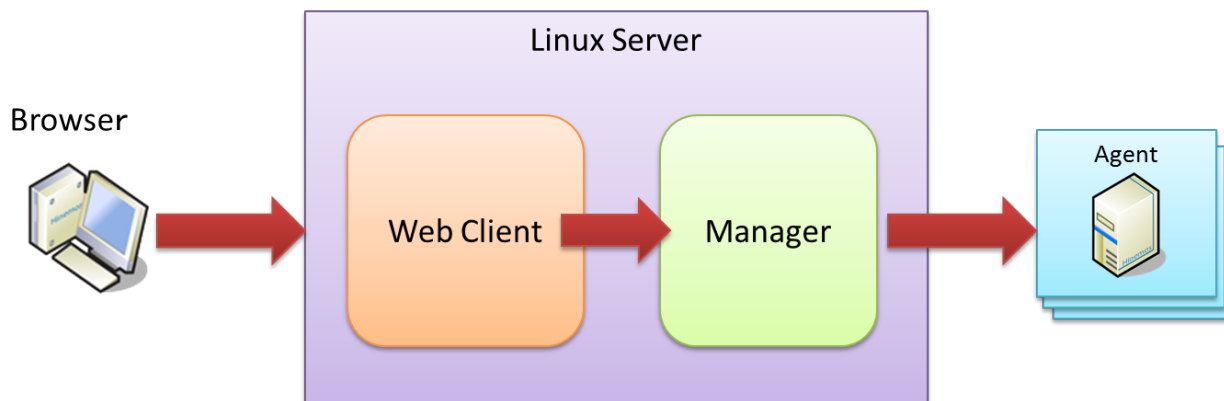
- com.clustercontrol.hinemos\_5.0.x\_xxxxxxxx\_win32\_win32\_x86 (32-bit version)
- com.clustercontrol.hinemos\_5.0.x\_xxxxxxxx\_win32\_win32\_x86\_64 (64-bit version)

## 8 Web Client

### 8.1 Installing Hinemos Web Client

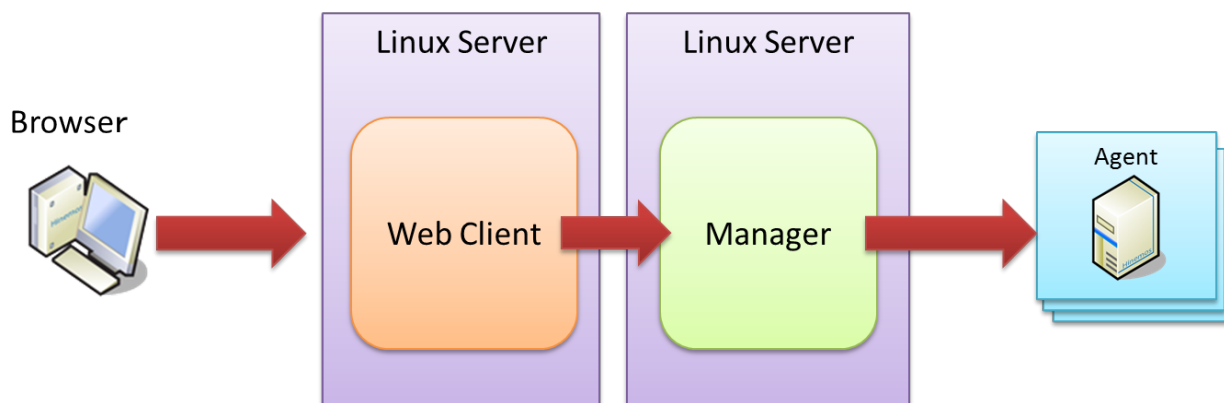
#### 8.1.1 Overall configuration

The configuration is as follows where the Web Client and Manager are on the same Linux server and only one Manager is connected (single-manager connection):



**Figure 8-1 Overall Configuration (Web Client) with a Single Manager Connected \*Web Client and Manager coexist.**

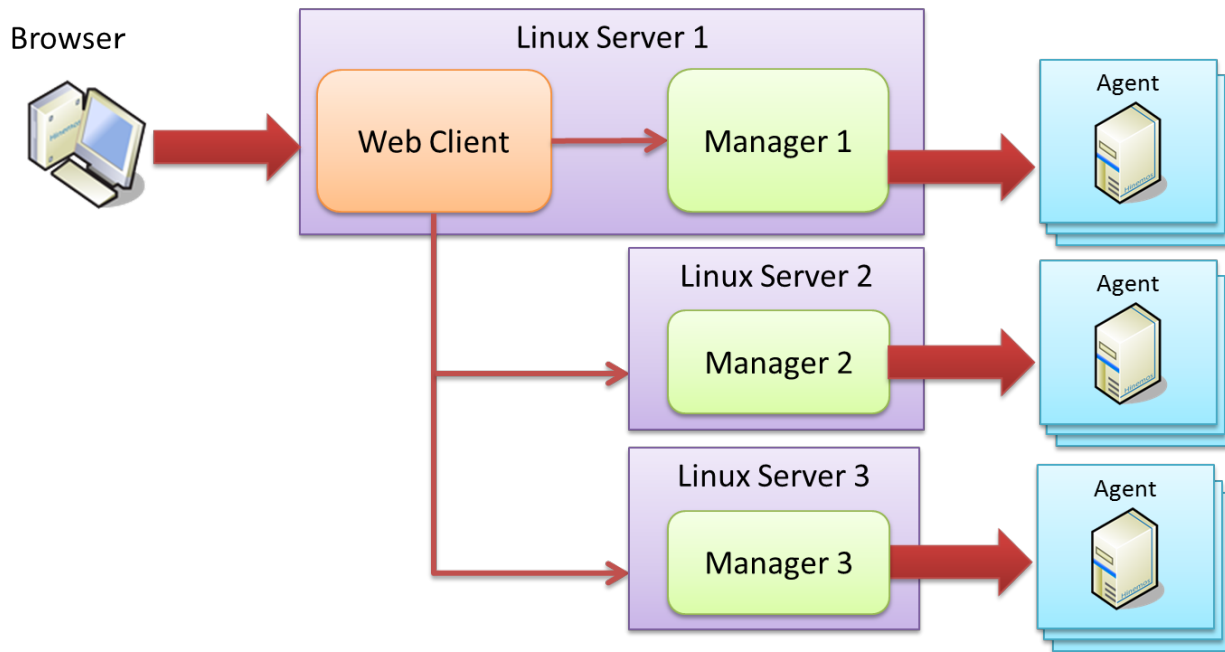
The configuration is as follows where the Web Client and Manager are on separate Linux servers and only one Manager is connected (single-manager connection):



**Figure 8-2 Overall Configuration (Web Client) with a Single Manager Connected \*Web Client and Manager are separated.**

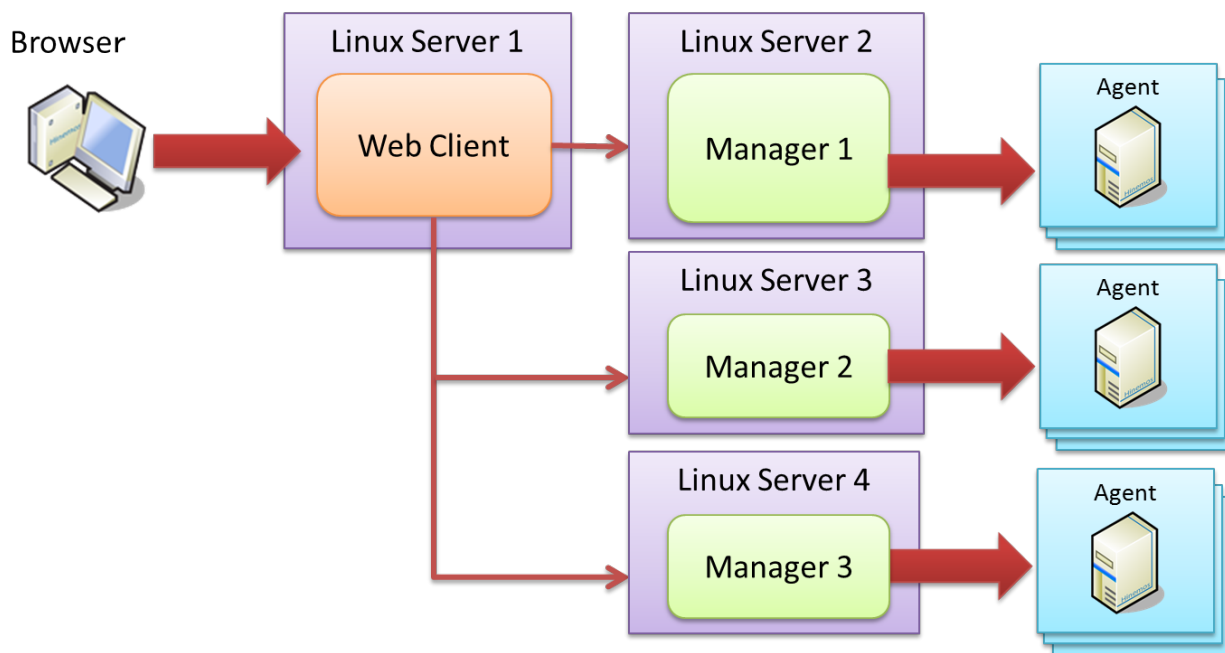


The configuration is as follows where the Web Client and Manager are on the same Linux server and two or more Managers are connected (multi-Manager connection):



**Figure 8-3 Overall Configuration (Web Client) with Multiple Managers Connected \*Web Client and Managers coexist.**

The configuration is as follows where the Web Client and Manager are on separate Linux servers and two or more Managers are connected (multi-Manager connection):



**Figure 8-4 Overall Configuration (Web Client) with Multiple Managers connected \*Web Client and Managers are separated.**

### 8.1.2 Running Hinemos Web Client Installer

The locale of Hinemos is set in Japanese only if the locale of OS is "LANG=ja\_JP.UTF-8"; otherwise, it will be set in English.

Therefore, confirm the locale of the OS before installing the Hinemos Client.

```
# locale
LANG=ja_JP.UTF-8
```

The Hinemos Web Client installation procedures are described below.

1. Place `hinemos-web-5.0.x-1.el7.x86_64` into the appropriate directory. (In this document, the explanation use installation on RHEL7 server as an example. The directory to which the Hinemos Manager is to be placed is assumed to be `/tmp`.)
2. Install the Hinemos Manager by using the `rpm` command as a root user.

The installer performs the following processes.

- Perform pre-installation environment check for SELinux, OS version and RPM Package Dependencies;
- Create directory `/opt/hinemos_web`;
- Copy necessary files to `/opt/hinemos_web`.

```
# cd /tmp
# rpm -ivh hinemos_web-5.0.x-1.el7.x86_64.rpm
```

When the following message appears, installation is complete.

```
Getting ready... ##### [100%]
Updating/Installing ...
1:hinemos-web-0:5.0.0-1.el7 ##### [100%]
```

Finally, open the following file and confirm that the locale setting has been set as expected.

- `/opt/hinemos/etc/hinemos.cfg`

```
### Environment Attributes
export LANG=ja_JP.UTF-8
```

## 8.2 Starting Hinemos Web Client

### 8.2.1 Running Manager Startup Script

Login as root user and run the following command.

```
# service hinemos_web start
```

Hinemos Web Client startup is completed when the following message is displayed.

```
Starting hinemos_web (via systemctl):          [ OK ]
```

### 8.2.2 Confirming startup of Hinemos Web Client

Open a browser and access the server where Hinemos Web Client installed from it.

```
http://[IP address of Web Client]
```

Confirm that a login screen is displayed.

The URL to which the Hinemos Manager is connected is displayed as follows when you log in, if the Hinemos Web Client has been installed in the same Linux server as the Hinemos Manager.

```
http://localhost:8080/HinemosWS/
```

It will be as follows if the Hinemos Web Client has been installed to a Linux server different from the Hinemos Manager.

```
http://[IP address of Hinemos Manager]:8080/HinemosWS/
```

The process ID can also be checked by executing the following command as a root user:

```
# service hinemos_web status
Hinemos WebClient (PID ###) is running...
```

When seeing whether processes are running or not with ps command, use the following command.

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

Confirm that the following process is running.

- Java  
java ... org.apache.catalina.startup.Bootstrap start

## 8.3 Stopping of Hinemos Web Client

### 8.3.1 Stop Script

Login as root user and run the following command.

```
# service hinemos_web stop
```

Stopping of Hinemos Web Client is completed when the following messages are displayed and entry at the prompt is possible.

```
Stopping hinemos_web (via systemctl):          [ OK ]
```

### 8.3.2 Checking Stopped Status

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

```
# service hinemos_web status
Hinemos WebClient is stopped
```

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

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

Confirm that the process has stopped properly.

## 8.4 Auto-Start Configuration

The auto-start configuration is setup automatically at the time of installation. Run the following command as root user to confirm whether Hinemos Web Client has been added as an OS service.

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

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

```
# chkconfig --del hinemos_web
```

## 8.5 Uninstalling Hinemos Web Client

The following procedure is for uninstalling Hinemos Web Client.

1. Run rpm command.

### 8.5.1 Running RPM Command

The uninstaller performs the following tasks.

- If Hinemos Web Client is running, stop it
  - Deletes the Hinemos Web Client file (below /opt/hinemos\_web directory)
1. Run rpm command as root user.

```
# rpm -e hinemos-web
```

The Hinemos Manager has been uninstalled successfully if the command is terminated without an error message displayed. If the command is executed while Hinemos Web Client are running, however, the following message is displayed:

```
Hinemos WebClient are stopped  
Stopping hinemos_web (via systemctl):          [ OK ]
```

## 8.6 Hinemos Web Client Limitations

This section explains the limitations of Hinemos Web Client.

1. "Program execution" function that executes any program on the Client cannot be used. (For details of program execution, refer to Section 3.2.2 "Repository[Node] View" of the User's Manual.)
2. The size of the view can be changed when the screen layout (perspective) is customized but the position of the view cannot be changed. Nor can the screen be divided.
3. On "Performance[Graph] View", a graph cannot be zoomed in or out by dragging and dropping, and the menu displayed by right clicking (zoom in/out, automatic adjustment, and printing) are not available.

## 9 ChangeLog

### ChangeLog

Version	Date	Details
1st Edition	06/01/2015	First release
2nd Edition	09/18/2015	Second release

Hinemos ver.5.0 Installation Manual

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