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Preface

This document provides instructions for downloading and configuring HP Insight Management Agents on HP Integrity servers running Linux. As of this publication, these agents work with Red Hat Enterprise Linux (RHEL) and SUSE LINUX Enterprise Server (SLES).

Based on the Simple Network Management Protocol (SNMP), HP Insight Management Agents allow you to remotely monitor configuration information and system status on your Integrity server from any SNMP browser. A central management server using HP Insight Manager 7 or HP Systems Insight Manager gathers and organizes the raw agent information from the browser for display in reports, allowing you to monitor system use and troubleshoot problems.

**IMPORTANT:** HP recommends that you review the “Release Notes” (page 23) section of this document prior to installing and configuring the HP Insight Management Agents. The release notes contain important information pertaining to the current release of the management agents.

Intended Audience

This document is intended for use by system administrators responsible for installing, configuring, and managing Linux systems. Administrators are expected to have knowledge of Linux operating system and SNMP concepts, commands, and configuration.

Typographic Conventions

This document uses the following typographical conventions.

- **Command**
  A command name or qualified command phrase.

- **ComputerOut**
  Text displayed by the computer.

- **Ctrl-x**
  A key sequence. A sequence such as Ctrl-x indicates that you must hold down the key labeled Ctrl while you press another key or button.

- **ENVIRONVAR**
  The name of an environment variable, for example, PATH.

- **[ERRORNAME]**
  The name of an error, usually returned in the errno variable.

- **Key**
  The name of a keyboard key. Return and Enter both refer to the same key.

- **Term**
  The defined use of an important word or phrase.

- **UserInput**
  Commands and other text that you type.

- **Variable**
  The name of a placeholder in a command, function, or other syntax display that you replace with an actual value.

- **[]**
  The contents are optional in formats and command descriptions. If the contents are a list separated by |, you must choose one of the items.

- **{}**
  The contents are required in formats and command descriptions. If the contents are a list separated by |, you must choose one of the items.

- **...**
  The preceding element can be repeated an arbitrary number of times.

- **|**
  Separates items in a list of choices.
Publishing History

The document publishing date and part number indicate the current edition of the document. The publishing date changes when a new edition is printed. Minor changes might be made at reprint without changing the publishing date. The document part number changes when extensive changes are made. Document updates might be issued between editions to correct errors or document product changes. To ensure that you receive the updated or new editions, subscribe to the appropriate product support service. See your HP sales representative for details. For the latest version of this document online, see the HP Technical Documentation Web site at:

http://docs.hp.com/

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<td>RHEL3U8 and RHEL4U4 and earlier SLES8 (Smart Setup media only) and SLES9SP3</td>
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<td>September 2006</td>
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Related Information

— HP Integrity Essentials Foundation Pack for Linux Web site is located at:
  http://www.hp.com/go/integritylinuxessentials

— HP Integrity Essentials Foundation Pack for Linux documentation is located at:
  http://docs.hp.com/en/linuxredhat.html#HP%20Integrity%20Essentials%20Foundation%20Pack%20for%20Linux

— The HP Systems Insight Manager Web site is located at:
  http://www.hp.com/go/hpsim

— The Net-SNMP Web site is located at:
  http://www.net-snmp.net

— The HP Integrity server technical support information is located at:
  http://www.hp.com/support/itaniumservers/

— For additional information on HP products and services, visit:
  http://www.hp.com

— For the location of the nearest sales office, call:

  In the United States: +1 800 637 7740
  In Canada: +1 905 206 4725
  In Japan: +81 3 3331 6111
  In Latin America: +1 305 267 4220
  In Australia/New Zealand: +61 3 9272 2895
For product information, contact any of the HP worldwide sales offices or HP Channel Partners (in the United States, call 1 800 637 7740).

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feedback@fc.hp.com

Include the document title, manufacturing part number, and any comment, error found, or suggestion for improvement you have concerning this document.
1 Overview

The HP Insight Management Agents provide system status information that you can monitor your system using HP Systems Insight Manager (SIM). The System Management Homepage is software that provides an interface between the management agents and the manageability tools, organizing information from HP Insight Management Agents for display in a Web page.

You can install and configure HP Insight Management Agents on your Integrity server after installing a supported Linux operating system—either RHEL or SLES. See the “Preface” (page 5) for directions about accessing the operating system support matrix.

The rest of this chapter provides more information about HP Manageability Tools, HP Insight Management Agents, the HP System Management Homepage, and HP Management Base.

**NOTE:** If HP Insight Management Agents are already installed on your system, see the “Reconfiguring HP Insight Management Agents” (page 15) section.

**HP Manageability Tools**

HP manageability tools are used to monitor the system status information that is provided by HP Insight Management Agents.

**HP Systems Insight Manager**

HP SIM is a multiple operating system application for managing HP ProLiant, HP Integrity, and HP 9000 systems running HP Insight Management Agents in a Microsoft Windows, Linux, or HP-UX environment.

HP SIM offers event monitoring and analysis. It delivers the capabilities required to manage all HP platforms from a central management server (CMS) and can be extended to provide custom device management.

For more information, see the following Web site:

http://www.hp.com/go/hpsim

**HP Insight Management Agents**

The HP Insight Management Agents package is made of multiple components that monitor various aspects of system health and inventory. These components and their functions are:

- **Foundation Agents:** Provide event monitoring, installed software inventory, system utilization information, alarm thresholds.
- **Server Agents:** Provide event monitoring, system inventory, CPUs, PCI, memory, cellular information, LED states.
- **NIC Agents:** Provide event monitoring, network statistics, configuration reporting.
- **Storage Agents:** Provide event monitoring, storage statistics, configuration reporting.

HP Insight Management Agents are based on SNMP. Once the agents are installed on your HP Integrity server, you can remotely monitor configuration information and system status on that server from any SNMP browser.

A CMS using HP SIM integrates with HP System Management Homepage to collect agent information for display in reports, allowing you to monitor system use and to troubleshoot problems.

You do not need a thorough understanding of SNMP to use HP's manageability tools or HP Insight Management Agents; however, more details on the SNMP protocol are available at the following Web site:

http://www.net-snmp.net
Obtaining the HP Insight Management Agent Package

If you are running HP Insight Management Version 2.3 and later, you must obtain your agent updates from the HP Support Pack media of the HP Integrity Essentials Foundation Pack for Linux. For information regarding downloading the agent package and installation instructions, see the HP Integrity Essentials Foundation Pack for Linux Web site at:

http://www.hp.com/go/integritylinuxessentials

**NOTE:** For HP Insight Management Version 2.3 and earlier, you must obtain the agent package from the HP Software Depot at:

http://www.hp.com/go/softwaredepot

On the HP Software Depot page, select the **Linux** link, and then select the **HP Server Agents for Linux on the Itanium Processor** link.

HP System Management Homepage

HP System Management Homepage is software that provides an interface between the HP Insight Management Agents and HP manageability tools. The System Management Homepage software organizes data from HP Insight Management Agents installed on a server into easy-to-read tables, which it displays in a Web interface. For more information about System Management Homepage, see the following Web page:


HP System Management Homepage documentation is located in the `/docs` directory on the HP Support Pack media of the HP Integrity Essentials Foundation Pack for Linux.

HP Management Base

HP Management Base for HP Integrity Servers installs an Open intelligent platform management interface (IPMI) driver appropriate for the target system and several utilities for baseboard management controller (BMC) management. These items are needed by other management products, such as HP Insight Management SNMP Agents and HP WBEM Providers. HP Management Base is installed or updated on your system by default using the HP Support Pack media of the HP Integrity Essentials Foundation Pack for Linux. For information about HP Management Base, see `hpbmc(8)`, `hpuid(8)`, `hpseld(8)`, and `openipmi(4)`.
Follow the directions in this section to install, configure, and update HP Insight Management Agents.

Concepts and Terms to Understand

- **SNMP operations** - HP Insight Management Agents are based on the SNMP protocol, which includes the GET, SET, and TRAP operations defined as follows:
  - **GET** operations retrieve information from the system on which you installed HP Insight Management Agents.
  - **SET** operations change values on the system installed with HP Insight Management Agents.
  - **TRAP** operations are initiated from the system installed with HP insight Management Agents to note that a problem or issue needing attention has occurred.

In conjunction with the HP Insight Management Agents, HP SIM automate SNMP operations in an intuitive interface that does not require you have a detailed understanding of SNMP. Although you can use HP manageability tools and HP Insight Management Agents without detailed comprehension of SNMP, you find the background information listed helpful in understanding the operations performed by your HP manageability software, particularly in regard to the relevance of community strings. For detailed information about SNMP, see the Net-SNMP Web site:

http://www.net-snmp.net

- **Community string** - During agent configuration, you are prompted to set values for community strings, which function somewhat like passwords. A community string must be known to both the system running the HP Insight Management Agents and the system serving as the CMS to grant access. A read-only community string allows the user who knows its value to retrieve SNMP data. A read/write community string allows the user who knows its value to both retrieve and modify SNMP data.

  **IMPORTANT:** Do not use the same community string for read-only access as you do for read/write access or you might disable read/write access.

- **Trap destination** - A trap destination is a machine to which you want a server’s status indicators sent for further analysis. For example, the HP SIM CMS could be the trap destination for a server installed with HP Insight Management Agents. You are prompted to specify a trap destination during agent configuration. Each trap destination has a corresponding trap community string.

Installing HP Insight Management Agent Packages

The HP Insight Management Agent packages are installed on your system by using the software installer located on the HP Support Pack media of the HP Integrity Essentials Foundation Pack for Linux. Specific instructions for installing from the HP Support Pack media are found in Chapter 5, “Installing and Using the HP Support Pack Media”, in the *HP Integrity Essentials Foundation Pack for Linux User’s Guide* located in the /docs directory on the HP Support Pack media of the HP Integrity Essentials Foundation Pack for Linux and at the HP Technical Documentation Web site at:


Ensure that you have the latest HP Insight Management Agent packages as described in “Obtaining the HP Insight Management Agent Package” (page 9). The installer handles any dependencies and installs any additional required software when installing these packages.
During the process of installing the HP Insight Management Agent packages, default values are used to create an initial configuration. These default configuration values are stored in 
/etc/snmp/snmpd.conf.

Once the installation completes, the SNMP daemon and the HP Insight Management Agent packages start and messages similar to the following are displayed on your server:

===================================================================
The following file(s) contained the prior snmpd configuration:
   /etc/snmp/snmpd.conf
They have been saved and will be restored when hpima is removed.
New configuration is stored in /etc/snmp/snmpd.conf
===================================================================

(Re)starting the SNMP daemon, configured to support the HP Insight Management Agents

Start SNMP AgentX Intermediary 'hpimaX': [ OK ]
Start Foundation Peer Daemon 'hpimafdtneerd': [ OK ]
Start Foundation Host Agent 'hpimahostd': [ OK ]
Start Foundation Threshold Agent 'hpimathreshd': [ OK ]
Start Server Peer Daemon 'hpimasvrepemd': [ OK ]
Start Server Health Agent 'hpimahealthd': [ OK ]
Start Server Standard Equipment Agent 'hpimastdeqmd': [ OK ]
Start Storage Peer Daemon 'hpimastorpeerd': [ OK ]
Start Storage Event Agent 'hpimaeventd': [ OK ]
Start Storage Intelligent Disk Array Agent 'hpimaidad': [ OK ]
Start Storage SCSI Agent 'hpimascsid': [ OK ]
Start Storage Fibre Channel Agent 'hpimafcad': [ OK ]
Start NIC Peer Daemon 'hpimanicpeerd': [ OK ]
Start NIC Agent 'hpimanicd': [ OK ]
Start Event E0 Trap Generator 'hpimaE0traps': [ OK ]

HP Insight Management Agents are enabled.
The hpima RPM has installed successfully.

Errors are logged in /var/log/hp/hpima/. Although the agents run, no traps are sent. For a definition of a trap destination, see “Concepts and Terms to Understand” (page 10).

Configuring HP Insight Management Agent Packages

Once the installation is complete, you must configure the HP Insight Management Agents. For configuration instructions, see Chapter 3 (page 15).

The configuration values are stored in /etc/snmp/snmpd.conf. If you are familiar with manual configuration of SNMP agents, you can edit this file and restart the SNMP daemon.

To verify HP Insight Management agent status, enter /etc/init.d/hpima status, and then press Enter.

The following is an example of the output that is returned from this command:

hpimaX (pid 29032) is running...
hpimahostd (pid 29547) is running...
hpimathreshd (pid 29557) is running...
hpimahealthd (pid 29570) is running...
hpimastdeqmd (pid 29580) is running...
hpimaeventd (pid 29590) is running...
hpimaidad (pid 29608) is running...
hpimasaad (pid 29619) is running...
hpimascsid (pid 29631) is running...
hpimafcad (pid 29643) is running...
hpimanicd (pid 29661) is running...
hpimaE0traps (pid 29675) is running...
Configuring Polling Intervals

You can configure the HP Insight Management Agents polling intervals to accommodate your data collection needs. However, HP recommends that you use the default polling intervals unless you are performance tuning your system.

You can list the process status table for all of the agents delivered with HP Insight Management Agent using the following command:

```
# /etc/init.d/hpima status
```

hpimaX (pid 29032) is running...
hpimahostd (pid 29547) is running...
hpimathreshd (pid 29557) is running...
hpimahealthd (pid 29570) is running...
hpimastdeqd (pid 29580) is running...
hpimaeventd (pid 29590) is running...
hpimaidad (pid 29608) is running...
hpimamasad (pid 29619) is running...
hpimascsid (pid 29631) is running...
hpimafcad (pid 29643) is running...
hpimanicd (pid 29661) is running...
hpimae0traps (pid 29675) is running...

The list contains the process name, the ProcessID (PID) allocated for each process, and the process status. Depending on what hardware is present on a system, agents start and stop to monitor the health and inventory of that hardware then report and alert as to the condition of the system through SNMP traps. Many of these agents are running unique periodic polling loops that typically default to 15 or 30 seconds. These polling intervals are optimized based on the best means for error tracking and reporting of components monitored by the agent.

Changing a polling interval to an infrequent interval affects how frequently each agent attempts to query the system. In other words, a slower polling interval equates to obtaining less frequent information about the system. It is possible that critical issues (such as temperature and voltage spikes, fan failures, CPU failures, etc.) may be overlooked and unreported if the polling intervals are set too long.

Table 2-1 lists the available HP Insight Management Agents that can be queried or altered by name, process name, and the Object Identifier (OID):

**Table 2-1 HP Insight Management Agents Defined**

<table>
<thead>
<tr>
<th>Agent Name</th>
<th>Process Name</th>
<th>OID Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive Array</td>
<td>hpimaidad</td>
<td>cpqDaOsCommonPollFreq</td>
</tr>
<tr>
<td>Fibre Channel</td>
<td>hpimafcad</td>
<td>cpqFcaOsCommonPollFreq</td>
</tr>
<tr>
<td>Health</td>
<td>hpimahealthd</td>
<td>cpqHeOsCommonPollFreq</td>
</tr>
<tr>
<td>Host</td>
<td>hpimahostd</td>
<td>cpqHoOsCommonPollFreq</td>
</tr>
<tr>
<td>Threshold</td>
<td>hpimathread</td>
<td>cpqMeOsCommonPollFreq</td>
</tr>
<tr>
<td>NIC</td>
<td>hpimanicd</td>
<td>cpqNicOsCommonPollFreq</td>
</tr>
<tr>
<td>SCSI</td>
<td>hpimascsid</td>
<td>cpqScsiOsCommonPollFreq</td>
</tr>
<tr>
<td>Standard Equipment</td>
<td>hpimastdeqd</td>
<td>cpqSeOsCommonPollFreq</td>
</tr>
<tr>
<td>System Information</td>
<td>hpimasinfo</td>
<td>cpqSiOsCommonPollFreq</td>
</tr>
</tbody>
</table>

Each OID listed in Table 2-1 is used with the `snmpset` or `snmpget` commands to view or modify the polling time for the corresponding agent. These SNMP commands also require the identification of your system's `rwcommunity` string. This string is a password that allows you access to read or write SNMP OIDs.
Obtaining the Community String

You can obtain the `rwcommunity` string by viewing the `/etc/snmp/snmpd.conf` on your system and finding the line similar to the following:

```
rwcommunity lYABuwPNFgmVCSkH   127.0.0.1
```

In this example, the `rwcommunity` string is set to `lYABuwPNFgmVCSkH`.

Viewing a Polling Interval

You can view the current polling interval for an agent with the `snmpget` command as follows:

```
# snmpget -mALL -v1 -c<community string> localhost <OID>.0
```

For example, to view the NIC agent polling interval and using the community string in the previous example, the command is as follows:

```
# snmpget -mALL -v1 -c lYABuwPNFgmVCSkH localhost cpqNicOsCommonPollFreq.0
CPQNIC-MIB::cpqSeOsCommonPollFreq.0 = INTEGER: 52
```

The response indicates that a 30 second polling interval is set for the NIC agent.

Changing a Polling Interval

The valid range that you can set polling intervals to is 0 - 65535 seconds. Any value within this range is valid and values outside the range are rejected. You can change the polling interval using either of the following methods:

Using the `snmpset` Command:

You can change the current polling interval for each agent with the `snmpget` command as follows:

```
snmpset -mALL -v1 -c<community string> localhost cpq<OID>CommonPollFreq.0 = <new interval>
```

For example, to change the NIC agent polling interval to 52 seconds and using the community string in the previous example, the command is as follows:

```
# snmpset -mALL -v1 -c lYABuwPNFgmVCSkH localhost cpqNicOsCommonPollFreq.0 = 52
CPQNIC-MIB::cpqSeOsCommonPollFreq.0 = INTEGER: 52
```

The response indicates that your set request to change the NIC agent polling interval to 52 seconds was successful.

Using the Environment Variable:

The environment variable, `HPIMA_POLLFREQ`, can be set to a global polling interval to operate all HP Insight Management Agents with the same polling frequency. You can set this environment variable using the following command format:

```
# HPIMA_POLLFREQ=<new interval> /etc/init.d/hpima/restart
```

For example, to set all agent polling intervals to 60 seconds the command is as follows:

```
# HPIMA_POLLFREQ=60 /etc/init.d/hpima/restart
```

All HP Insight Management Agent polling intervals are now set to 60 seconds and each agent process is restarted by the `/etc/init.d/hpima/restart` command.

Additionally, you can use the `HPIMA_POLLFREQ` variable to set the polling frequency for an individual agent using the following command format:

```
# HPIMA_POLLFREQ=<new interval> /etc/init.d/hpima/restart <agent>
```

where:

`agent` is an agent string with the `hpima` prefix removed from the process names as described in Table 2-1 (page 12). For example, the `agent` for `hpimanicd` is `nicd`.

For example, to set all the NIC agent polling interval to 180 seconds the command is as follows:

```
# HPIMA_POLLFREQ=180 /etc/init.d/hpima/restart nicd
```
The HPIMA_POLLFREQ is only available on HP Integrity systems running Linux.

You can validate any changed agent polling intervals by using the `snmpget` command as described in “Viewing a Polling Interval” (page 13).

The `snmpget/snmpset` commands fail if the corresponding hardware is not present on the system. For example, if the system has no SCSI devices the `hpmascsid` process can not run so attempting to get or set the `cpqScsiOsCommonPollFreq.0` agent fails.

If you want to manually trigger a single polling loop for all agents, without effecting the actual OID polling interval settings, to refresh data when the server is in a known quiescent state, you can use the following command:

```
#/etc/init.d/hpima sample [agent]
```

The use of the `agent` string is optional and when used only the agent specified is polled rather than all agents.

At this time, you must use SNMP commands to change the polling interval values as this facility is not available within the HP System Management Homepage.
3 Reconfiguring HP Insight Management Agents

If your system came with pre-installed HP Insight Management Agents, you need to reconfigure them to customize settings that require user-specific information, such as IP addresses and community strings.

Before Reconfiguring

Before beginning to reconfigure pre-installed HP Insight Management Agents software, you should check the version of your current software, and update your software to the latest version.

1. To check the HP Insight Management Agents software version, enter the following command:
   
   ```
   #rpm -q hpima
   ```

   The following is an example of the output that is returned from this command:

   ```
   hpima-2.2-1.sles9
   ```

2. To update the HP Insight Management Agents software, follow the instructions in “Installing HP Insight Management Agent Packages” (page 10) to obtain and install the latest version.

Reconfiguring

You can use the `/etc/init.d/hpima reconfigure` command at any time to reconfigure HP Insight Management Agents previously installed.

To reconfigure the HP Insight Management Agents, enter `/etc/init.d/hpima reconfigure`, and then press Enter.

During the reconfiguration process of the HP Insight Management Agent packages, an automated search for SNMP configuration files on your system is performed. Depending on the data found in the configuration files, a series of queries request you to supply either missing information or change the current settings.

There are two types of reconfiguration queries as follows:

**localhost**

The localhost is the server on which you have installed the HP Insight Management Agents. The HP System Management Homepage requires the data you provide at the localhost queries to operate properly.

**Remote Management Station(s)**

The Remote Management Station(s) installation queries request you to provide community string data for a single remote server, which is typically the HP Systems Insight Manager Console. Community string data can also be used by any other application. For a definition of community strings, see “Concepts and Terms to Understand” (page 10).

**NOTE:** If you provide blank response at any of the reconfiguration queries, it is interpreted as no change to the current setting or to use an appropriate default value; you cannot proceed until a response is provided.

When you have supplied the information solicited by the prompts, the SNMP daemon restarts to obtain the new configuration settings you provided.

The HP Insight Management Agents are not running at this point in time. To start the HP Insight Management Agents, enter `/etc/init.d/hpima start`. A process check of all the HP Insight Management Agents as they come up. It will look like the following:

Start SNMP AgentX Intermediary 'hpimaX': (running) [ OK ]
Start Foundation Host Agent 'hpimahostd': [ OK ]
Start Foundation Threshold Agent 'hpimathreshd': [ OK ]
Start Server Health Agent 'hpimahealthd': [ OK ]
Start Server Standard Equipment Agent 'hpimastdeqd': [ OK ]
Start Storage Event Agent 'hpimaeventd': [ OK ]
Start Storage Intelligent Disk Array Agent 'hpimaidad': [ OK ]
Start Storage Serial Attached SCSI Agent 'hpimasasd': [ OK ]
Start Storage SCSI Agent 'hpimascsid': [ OK ]
Start Storage Fibre Channel Agent 'hpimafcad': [ OK ]
Start NIC Agent 'hpimanicd': [ OK ]
Start Event E0 Trap Generator 'hpimaE0traps': [ OK ]

**NOTE:** If you do not specify a trap destination during reconfiguration, errors are logged in /var/log/hp/hpima/. Although the agents run, no traps are sent. For a definition of trap destination, see “Concepts and Terms to Understand” (page 10).
4 Installing and Configuring HP System Management Homepage

Follow the directions in this section to install, configure, and update the HP System Management Homepage.

Installing or Updating the HP System Management Homepage

The HP System Management Homepage is installed on your system using the software installer, which is located on the HP Support Pack media of the HP Integrity Essentials Foundation Pack for Linux. When installing the HP System Management Homepage software, the installer handles any dependencies and installs any required additional software. For more information, see Chapter 5, “Installing and Using the HP Support Pack Media”, in the HP Integrity Essentials Foundation Pack for Linux User’s Guide.

For the latest update to the HP System Management Homepage, obtain the HP Support Pack media of the HP Integrity Essentials Foundation Pack for Linux from the following Web site: http://www.hp.com/go/integritylinuxessentials

Configuring the HP System Management Homepage

After installing the HP System Management Homepage, you must correctly configure it for your system.

For detailed configuration instructions, see the "Configuration of the System Management Homepage on Linux IPF" section in the System Management Homepage Installation and User Guide located in the /docs directory on the HP Support Pack media of the HP Integrity Essentials Foundation Pack for Linux.
This section provides instructions for troubleshooting basic agent installation and configuration issues. The following assumptions have been made to develop this information:

- The agents are not responding to inquiries from HP SIM.
- You are a Linux system administrator with root privilege.
- No errors were issued during agent installation and initial configuration.
- The net-snmp-utils RPM, part of the agent installation tar archive, was installed on the managed system.
- Commands and options are capitalized correctly.
- You have access to several terminal windows and you have multiple command lines available.
- You understand that shutting down the firewall to troubleshoot creates a security breach, and you assume all risks inherent with that procedure.

**NOTE:** HP views all SNMP traffic as unsecure. Therefore, it is assumed that SNMP traffic is on a private, secure network.

### HP Insight Management Agents Network Ports

The following table provides a list of network ports used by the HP Insight Management Agents. All the ports are internal unless otherwise indicated.

<table>
<thead>
<tr>
<th>Port</th>
<th>Protocol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>161</td>
<td>udp</td>
<td>SNMP traffic (snmpget/snmpset/snmpwalk) is transferred using this port. It is an external port.</td>
</tr>
<tr>
<td>162</td>
<td>udp</td>
<td>SNMP trap information is sent here. It is an external port.</td>
</tr>
<tr>
<td>199</td>
<td>tcp, udp</td>
<td>Though HP Insight Management Agents uses AgentX, snmpd still listens on this port.</td>
</tr>
<tr>
<td>25375</td>
<td>udp</td>
<td>HPIMASNMP-Communication to hpimaX by peer daemons.</td>
</tr>
<tr>
<td>25376</td>
<td>udp</td>
<td>HPIMASVR</td>
</tr>
<tr>
<td>25378</td>
<td>udp</td>
<td>HPIMASTOR</td>
</tr>
<tr>
<td>25385</td>
<td>udp</td>
<td>HPIMAFDTN</td>
</tr>
<tr>
<td>25393</td>
<td>udp</td>
<td>HPIMANIC-Communication to peer daemons from hpimaX.</td>
</tr>
</tbody>
</table>

### Important Information About Firewalls and Troubleshooting

Some Linux distributions automatically configure firewall software during installation, usually using iptables, which is the standard Linux kernel’s method of providing firewall support. Such a firewall configuration may block remote management stations from contacting the SNMP daemon, making it difficult to troubleshoot HP Insight Management Agents.

To execute the troubleshooting steps in this document, you must shut down firewall software on the managed server using the following steps. The information in the “Advanced Troubleshooting Steps” (page 20) section applies only when you have the standard Linux firewall capabilities of iptables. Consult your network administrator to determine if this situation exists.
Shutting Down iptables

![WARNING!](image) Inform your network administrator before you stop a running firewall, even momentarily. Disabling the firewall creates a potential security breach, and you must weigh this threat against the benefits of live troubleshooting.

1. Enter `/etc/init.d/iptables status` and press `Enter` to see if the firewall software is installed and running.
   - If you see the message `No such file or directory`, then standard firewall software is not installed and you can proceed to “First Troubleshooting Steps” (page 19).
   - Or
   - If you see the message `Firewall is stopped`, proceed to “First Troubleshooting Steps” (page 19).
   - Or
   - If you see output indicating the firewall is running, proceed to the next step.

2. If the firewall is running, enter `/etc/init.d/iptables stop` and then press `Enter` to stop the firewall. You can then proceed to “First Troubleshooting Steps” (page 19).

First Troubleshooting Steps

Most errors are due to mismatched community strings entered during agent configuration on the managed server. Follow these steps, which include confirming the community string settings, before performing more advanced troubleshooting:

1. Examine the SNMP daemon configuration file. If your system is running RHEL, this file is located in `/etc/snmp/snmpd.conf`. If your system is running SLES, this file is located in `/etc/snmpd.conf`. The first set of directives should be delimited by the following comment lines (the date should reflect your installation time).

   ```
   #----- 29 Jun 2005: HP Insight Management Agents
   :
   :
   # ----- 29 Jun 2005: end modifications
   ```

   **NOTE:** Any remote host names you configured during initial installation appear in this file. Record these remote host names for later use in “Advanced Troubleshooting Steps” (page 20).

2. Find the directives for local host community strings.

   In the following example, `ROlocal` and `RWlocal` are used as a generic representations of the names you set for the read-only and read-write community strings, respectively. The names in your file appears as you configured them when you installed the HP Insight Management Agents.

   ```
   rocommunity ROlocal 127.0.0.1
   rwcommunity RWlocal 127.0.0.1
   ```

   Ensure the values of `ROlocal` and `RWlocal` are what you thought you set for local host community strings when you configured or reconfigured your agents. Each community string must have a unique string value. If you need to change them, see the instructions in “Reconfiguring HP Insight Management Agents” (page 15).
3. Find the directives for remote host community strings:

rocommunity R0remote remote host name
rwcommunity RWremote remote host name

You should see a pair of lines for both the R0remote and the RWremote management stations you specified during agent installation. Ensure the community string values of R0remote and RWremote are what you specified during agent configuration. Also remember that the community string value of R0remote must be different from RWremote for a single remote host. These community strings may be reused on other remote hosts.

NOTE: The rocommunity R0remote string, if it exists, must come before the rwcommunity RWremote community string in the file.

4. Verify that the community strings and host names match what you think you configured them to be, and that they also match the settings in your management console software (HP SIM). If they do not match, follow the directions in “Reconfiguring HP Insight Management Agents” (page 15).

Advanced Troubleshooting Steps

If you verified your community strings and host names as outlined previously, then follow these steps:

1. Shut down the agents and SNMP daemon:
   a. Enter `/etc/init.d/hpima stop`, and then press Enter.
   b. Enter `/etc/init.d/snmpd stop`, and then press Enter.

2. Enter `ping localhost`, and then press Enter to test connectivity to the local host.

   If the command fails, there is a problem with your network configuration, which you must investigate and repair before continuing with agent troubleshooting.

3. For each `<remote host name>` in the `snmpd.conf` file (described in “First Troubleshooting Steps” (page 19)), enter `ping <remote host name>`, and then press Enter to test connectivity to the remote management station.

   NOTE: If your system is running RHEL, this file is located in `/etc/snmp/snmpd.conf`. If your system is running SLES, this file is located in `/etc/snmpd.conf`.

   If the command fails, there is a problem with your core network configuration or your network in general, which you must investigate and repair before continuing with agent troubleshooting.

4. Open a new window, enter `snmpd -f -L -Cc /opt/hp/hpima/etc/snmpd.conf.open`, and then press Enter. This starts the SNMP daemon that uses a simple configuration file that comes with HP Insight Management Agents.

   The configuration file in the command uses the read-only community string “public” for any host on your network. It is insecure but useful for troubleshooting.

   Ensure that you see the following output, which verifies that SNMP has AgentX functionality. Without this functionality, the HP Insight Management Agents cannot communicate through SNMP.
Turning on AgentX master support.
NET-SNMP version <x.x.x>

Wait at least ten seconds to ensure the daemon continues to run. Be aware that the next step might cause output to appear in this window. Examine the output for errors if the operations in the next step fail.

5. On the system that has the HP Insight Management Agents installed, enter:

```
$ snmpget -Oqs -v1 -c public localhost sysDescr.0
```

where:

```
public
```

is the name you set up for your read-only community string

Then press **Enter** to test local SNMP functionality.

**NOTE:** The first option in the command is the capital letter “O” and the final argument ends with a period followed by a zero.

The output from this command should be a one-line response.

a. Enter **uname -a**, and then press **Enter**.

b. Compare the output of **uname -a** with the output you noted. The responses should largely match. If they do not, you have a malfunctioning SNMP package. Remove the HP Insight Management Agents and reinstall.

6. Check to see if your network is passing SNMP packets.

a. Log in on any of the remote hosts in your **snmpd.conf** file and execute a simple SNMP GET command.

**NOTE:** The command and syntax varies widely depending on the remote host’s operating system (Windows, Unix, Linux). For example, from a Linux host, you could run:

```
$ snmpget -Oqs -v1 -c public managedhost sysDescr.0
```

where:

```
managedhost
```

is the DNS name or IP address of your managed client

b. If the **GET** command fails, especially if there is no output in the logging window, your network is not passing SNMP packets. Repair your networking issues before continuing with agent troubleshooting.

7. The HP Insight Management Agents depend on a running SNMP daemon. To check and troubleshoot the daemon status on the managed host, restart the SNMP daemon with the real configuration file:

a. Enter **/etc/init.d/snmpd restart**, and then press **Enter**.

b. The logging window should indicate that the previous daemon stopped. Close that window and wait at least ten seconds.

c. Enter **/etc/init.d/snmpd status**, and then press **Enter** to check SNMP daemon status.

d. You should see output similar to the following:

```
$ snmpd (pid xxxxx) is running...
```

If **snmpd** is not running, see the **snmpd(8)** manpage for information on how to turn on “logging to a file” and follow the instructions to start the SNMP daemon.
8. If, while running RHEL, the values for PCI I/O slot numbers appear to be invalid (for example, PCI devices are not mapped to the physical slots in which they are installed), check the /var/log/hp/hpima file for the following message:

Warning: hpima version <x.x> does not support multi-domain PCI

If you find this message, you must reset your ACPI configuration value to single-pci-domain.

See the Red Hat Enterprise Linux Support Notes for further information about this problem and instructions on how to reset the ACPI configuration value. You should have received this document with your RHEL purchase from HP. It is also available at the following Web site:


9. Remove the agent log file /var/log/hp/hpima (if it exists) to clear old messages.

10. Enter /etc/init.d/hpima start to start the agents.
    a. Wait at least one minute, then enter /etc/init.d/hpima status, and then press Enter to check agent status.
    b. Verify that you see the following output:

        hpimaX (pid 29032) is running...
        hpimahostd (pid 29547) is running...
        hpimathreshd (pid 29557) is running...
        hpimahealthd (pid 29570) is running...
        hpimastdeqd (pid 29580) is running...
        hpimaeventd (pid 29590) is running...
        hpimaidad (pid 29608) is running...
        hpimasasd (pid 29619) is running...
        hpimascsid (pid 29631) is running...
        hpimafcad (pid 29643) is running...
        hpimanicd (pid 29661) is running...
        hpimaf0traps (pid 29675) is running...

    c. If any of the programs listed in the previous example are not running, examine the /var/log/hp/hpima file for errors.

11. Enter snmpget -Oqs -v1 -c ROlocal localhost sysDescr.0, and then press Enter to test basic SNMP functionality with the real community strings.

    a. Enter uname -a, and then press Enter.

    b. Compare the output of uname -a with the output you noted. The responses should largely match. If they do not match, your community string is not properly configured. See “First Troubleshooting Steps” (page 19) for troubleshooting information.

12. Repeat the preceding step using the RWlocal community string.

13. Enter snmpget -Oqs -v1 -c ROlocal -mALL localhost cpqHoMibRevMajor.0 to retrieve an agent data value from the managed system.

    You should see the following output:

        cpqHoMibRevMajor.0 1

14. Repeat the previous step with the RWlocal community string.
6 Release Notes

This section contains important information about known issues for this release of the HP Insight Management Agents, which might affect the installation, configuration, or use of the agents.

No Agent Support for the LSI1068 SAS I/O Controller in the rx2660 and BL860C Servers

The `mpt` driver that is included in the RHEL4 Update 4 release does not contain agent support, therefore it does not have the necessary agent components required by the HP System Insight Manager to operate properly on the rx2660 and BL860C Servers. This issue is resolved with a special version of the `mpt` driver that HP has qualified, which can be downloaded from the HP Support Web site as follows:

2. Click the **Software & Drivers** link.
3. Do the following under the section **Support for your products**:
   a. Click the **Download drivers and software (and firmware)** option.
   b. In the product field, enter `mpt rx2660`.
   c. Press **Enter**.
4. Select the appropriate product if necessary, then OS from the **Product search results** list.
5. Under the section **Operating System**, select the **Software-Support Pack** link.
6. Click the **Download** option to obtain a tar archive of all necessary files.

Storage Agents Might Report Incorrect Information on rx8620 and Superdome Servers

For users with rx8620 or Superdome servers, the Storage SNMP Agents can incorrectly report bay and chassis information when the systems are configured to use multiple PCI domains.

There is a workaround for this situation, which is to configure the partition to use the single PCI domain ACPI configuration. To do this, proceed as follows:

1. Boot to the EFI shell.
2. Set the PCI domain:
   ```
   Shell> acpiconfig single-pci-domain
   single-pci-domain settings have been enabled.
   
   A reset is required for the settings to take effect.
   ```
3. Reset the system:
   ```
   Shell> reset
   ```

Storage Agents Do Not Display Serial Number and Firmware Version on SCSI Controller Cards

The Storage SNMP Agents do not display the SCSI controller OIDs for the serial number and firmware.

You can obtain this information yourself, as follows:

- Check the SCSI controller card for the serial number, which is labeled on the card.
- Watch for the firmware version during system initialization. When the SCSI controller card is initialized, the firmware version is displayed.
Fibre Channel Ports Without Active Link Are Not Visible to Storage Agents

On RHEL Advanced Server (AS) 3 Update 3, RHEL AS 4 Update 1, and SLES 9, for Qlogic driver versions earlier than Version 8.00.02b1, the Qlogic Fibre Channel Host Bus Adapters (HBAs) are not visible when they are not connected to an active link.

To solve this problem, upgrade to Qlogic driver Version 8.00.02b1 or higher. Details regarding the upgrade of these drivers are contained in Chapter 3 of the *HP Integrity Essentials Foundation Pack for Linux User’s Guide* found at:


Additional information regarding Fibre Channel HBAs can be found at the HP SAN Infrastructure Web site at:
