

Integrating Insight Manager 7 with rack and power products

white paper



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Introduction

This white paper provides information on using Insight Manager 7 software to monitor the security and wellness status of servers and power products. Insight Manager 7 can work with Insight Management Agents of individual components to provide the overall status of an enterprise system as well as with other management applications to provide complete system management. This paper describes how Insight Manager 7 can be configured to work with Rack and Power Manager, a management application that provides control and status of HP uninterruptible power supplies and console management controllers.

Symbols in text

The following symbols can be found in the text of this document.



WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or loss of life.



CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.



IMPORTANT: Text set off in this manner presents clarifying information or specific instructions.



NOTE: Text set off in this manner presents commentary, sidelights, or interesting points of information.

Executive summary

Enterprise server systems are heavily relied upon to keep businesses and their customers up and running. Since just minutes of downtime can translate into many dollars of lost revenue, system administrators bear a significant responsibility to keep server systems up and running.

The importance of system management increases with the size of the system. Planning an enterprise solution must take into account the growth of a system and be able to accommodate it. HP ProLiant products, both hardware and software, are designed to be easily scalable, and HP ProLiant Management Agents are designed to work with each other for maximum compatibility and flexibility.

Insight Manager 7 is management software that collects system status information and allows proactive administration of an entire system. Insight Manager 7 can provide single-tier management by obtaining component status directly or through another management utility such as Rack and Power Manager, providing a more powerful hierarchical management solution.



NOTE: This document discusses only HP components and solutions although the information and ideas presented herein may be applicable to third party hardware.



NOTE: This document is intended to supplement and not replace existing user documentation for products mentioned herein. For more information, refer to user documentation supplied with hardware and software products.

Glossary

Table 1. Glossary of network and rack management terms

Term	Definition
Console Management Controller (CMC)	A component for monitoring rack security and wellness, using sensors to detect such parameters as temperature, humidity, smoke, vibration, and intrusion, as well as fan control.
Insight Manager 7	HP management application (software) that runs on a server designated as a network's management console.
IP Console Switch	Keyboard/video/mouse (KVM) switch that employs Ethernet infrastructure and TCP/IP signaling to provide efficient, intelligent KVM functionality.
management console	A server loaded with management software designated to control and monitor other manageable components in a rack or network.
management agent	A software or firmware program that allows a manageable device to record and communicate status to a management console.
management information base (MIB)	A file containing trap, control, and monitor information used by management agents and management consoles. As received by Insight Manager 7, it is simply referred to as a trap.
Rack and Power Manager	HP management software that runs on a server designated as a management console.
system agent	Software running on an individual server allowing it to be discovered and managed by management software.
trap (SNMP)	Alert generated by a managed device or application when a specific condition is detected.
uninterruptible power supply (UPS)	Power component used for both distributing power as well as providing battery backup during power failures.

HP system management applications

HP offers management software that provides system administrators with full control over enterprise systems. HP management software, like the hardware, is designed for compatibility. Insight Manager 7 can be used with other management applications (such as Rack and Power Manager) to provide a complete system management solution.

Insight Manager 7

Insight Manager 7 software is a full-featured server/network management tool that provides status of a system's security and wellness. Designed to work with a variety of system configurations, Insight Manager 7 uses hypertext transmission protocol (HTTP), Simple Network Management Protocol (SNMP) or Distributed Management Interface (DMI) data protocols to discover and manage servers, switches, and other manageable devices. Insight Manager 7 works directly with system agents or with other management applications to pinpoint fault and performance issues. Offering flexible functionality, a system administrator may use Insight Manager 7 on a local console or access the program remotely through a browser.

Rack and Power Manager

Rack and Power Manager provides an administrator with monitor and control capability over HP UPSs and HP Console Manager Controllers (CMC) that are networked or connected serially to a

server (management console or remotely managed server). The application allows an administrator to proactively deal with security, power, and fault issues as they are detected and reported back to Rack and Power Manager. Rack and Power Manager can be programmed to provide an automated, controlled shutdown of the operating system and server hardware when systems are forced to go to battery power during power outages.

SNMP overview

Simple Network Management Protocol (SNMP) is a data collection protocol that shares TCP/IP properties and has become an increasingly popular communication method used by manageable network devices. System management applications such as Insight Manager 7 and Rack and Power Manager use SNMP to communicate with manageable network devices in addition to other management protocols.

The SNMP method of data collection uses a data repository file called a Management Information Base (MIB). A device to store event and status information uses a MIB. When an event occurs and is detected by a device, the device creates and sends an alert (commonly called a trap) to the server designated as the management console running system management software.

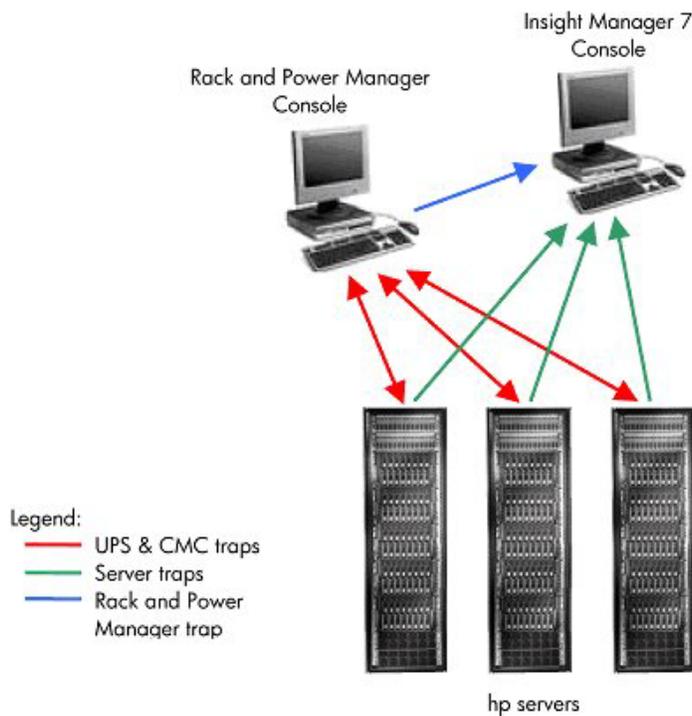
Insight Manager 7 can process traps directly. In addition, Insight Manager 7 can also be set up to receive traps from Rack and Power Manager.

Using Insight Manager 7 with Rack and Power Manager

Although Insight Manager 7 is a powerful management utility, the ability of Rack and Power Manager to fully monitor and control HP UPS and CMC devices and notify Insight Manager 7 of their status makes using both applications a powerful system management solution.

As shown in the figure below, the Rack and Power Manager constantly monitors UPSs and CMCs that are networked or connected serially to managed servers. While traps from some of these devices can be received directly by the Insight Manager 7 console, Rack and Power Manager can be programmed to react according to the reported condition (such as initiating a software/ hardware shut down after detecting a system has switched over to battery power). The trap that Rack and Power Manager sends to Insight Manager 7 reflects the latest status of the rack/power situation under Rack and Power Manager's control.

Figure 1. SNMP trap flow with Insight Manager 7 and Rack and Power Manager consoles



NOTE: Insight Manager 7 and Rack and Power Manager consoles are shown separately for clarity. Actual configuration may have consoles located within the rack.

Using Insight Manager 7 with Rack and Power Manager requires the administrator to configure both applications to recognize data transferred between them. This integration requires the following procedures:

- Configuring Insight Manager 7 to receive traps from Rack and Power Manager
- Configuring Rack and Power Manager to send traps to Insight Manager 7

Configuring Insight Manager 7 to receive Rack and Power Manager SNMP traps

Insight Manager 7 must have Rack and Power Manager's MIB loaded and registered in order to receive traps from Rack and Power Manager. In addition, Insight Manager 7 must discover the console that is running Rack and Power Manager.

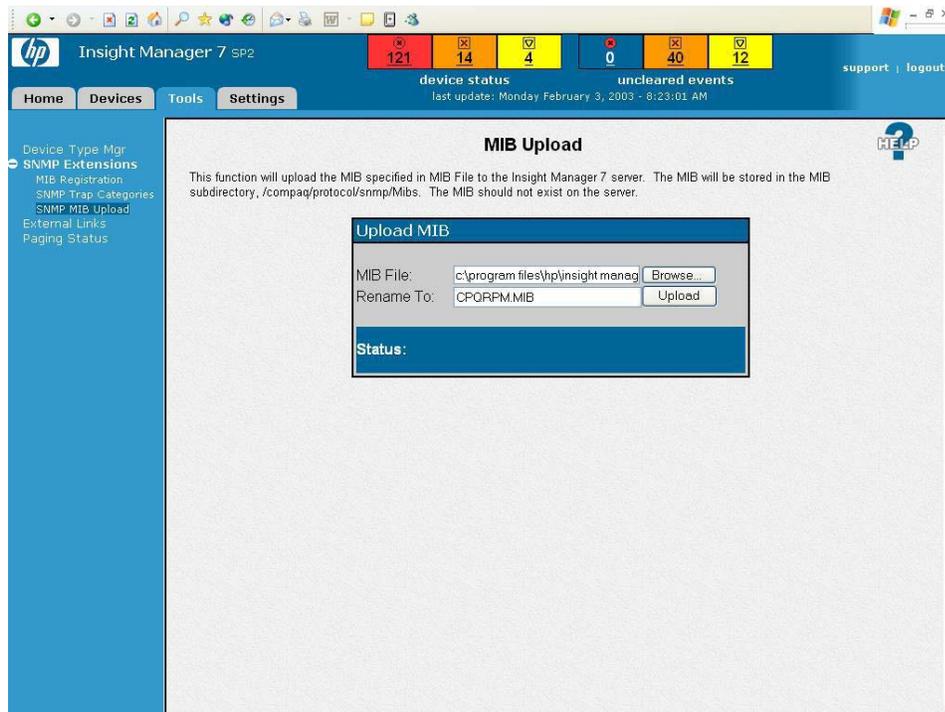
Uploading a MIB for Insight Manager 7

For Insight Manager 7 to use and display information from management agents the MIB of that agent must be loaded and registered with Insight Manager.

To upload the MIB used by Rack and Power Manager, perform the following steps:

1. Launch Insight Manager 7.
2. On the main screen, click the **Tools** icon (SP1) or tab (SP2).
3. Select **SNMP Extensions** from the menu on the left side of the screen and click **SNMP MIB Upload**.

Figure 2. MIB Upload screen.



4. On the MIB upload page, click **Browse** to locate the MIB file.
5. Locate and select the file "CPQRPM.MIB" and click **Upload**. The upload process can take several minutes, and a status message will display the success or failure of the upload process.

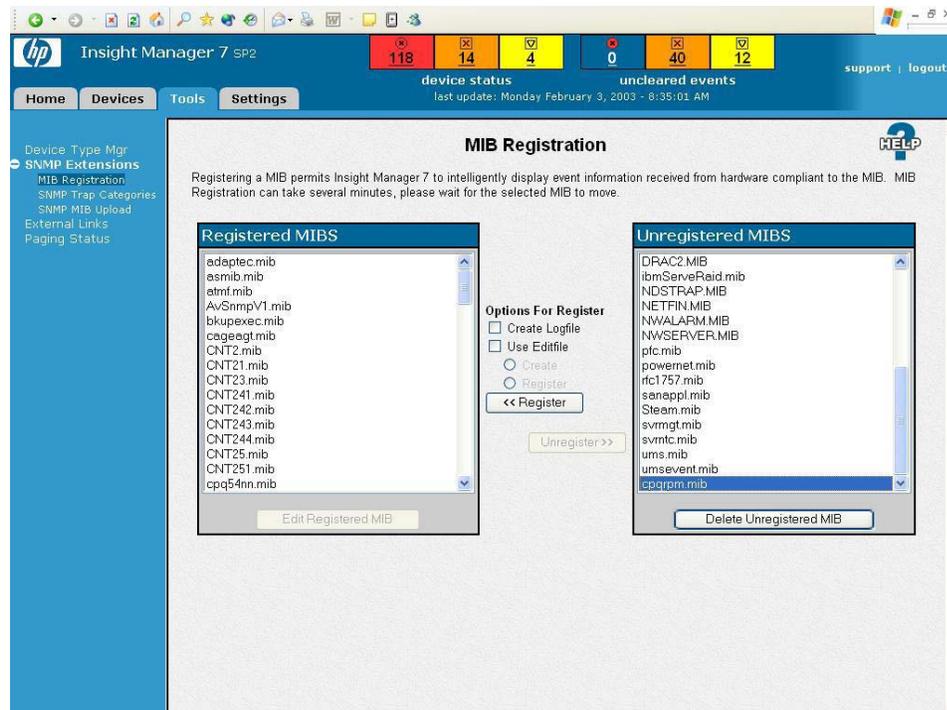
Registering a MIB with Insight Manager 7

A MIB that has been loaded must then be registered for it to be recognized by Insight Manager 7.

To register a MIB, perform the following steps:

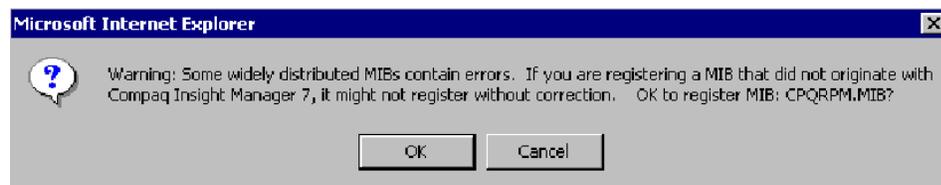
1. On the main screen of Insight Manager 7, click the Tools icon (SP1) or tab (SP2).
2. On the left side of the screen, select SNMP Extensions and click MIB Registration.
3. Select "CPQRPM.MIB" from the Unregistered MIBs. If the file is not listed, it will need to be uploaded (see uploading a MIB).

Figure 3. MIB Registration screen



4. Select **Use Editfile** under the Options for Register field, and then select **Create** for a new registration.
5. Click **Register**. A warning message will be displayed. Click **OK** to proceed.

Figure 4. Warning message displayed



After a successful registration, the file "CPQRPM.MIB" should be listed in the Registered MIBs column.



NOTE: Registration of a MIB may appear to fail if the browser times out, but will actually continue if the network connection is not lost.

Discovering the Rack and Power Manager console with Insight Manager 7

The console or server running the Rack and Power Manager application must be discovered by Insight Manager 7 before traps can be received from it. Insight Manager 7 provides two methods of discovering system components; automatic and manual. The automatic discovery method can be configured to occur at regular intervals and to search within a range of IP addresses. If the Rack and Manager console has been setup more recently than the last automatic discovery routine or if the IP address range used by the automatic discovery routine does not include the IP address of the Rack and Power Manager console then the manual discovery method can be used to add a device.

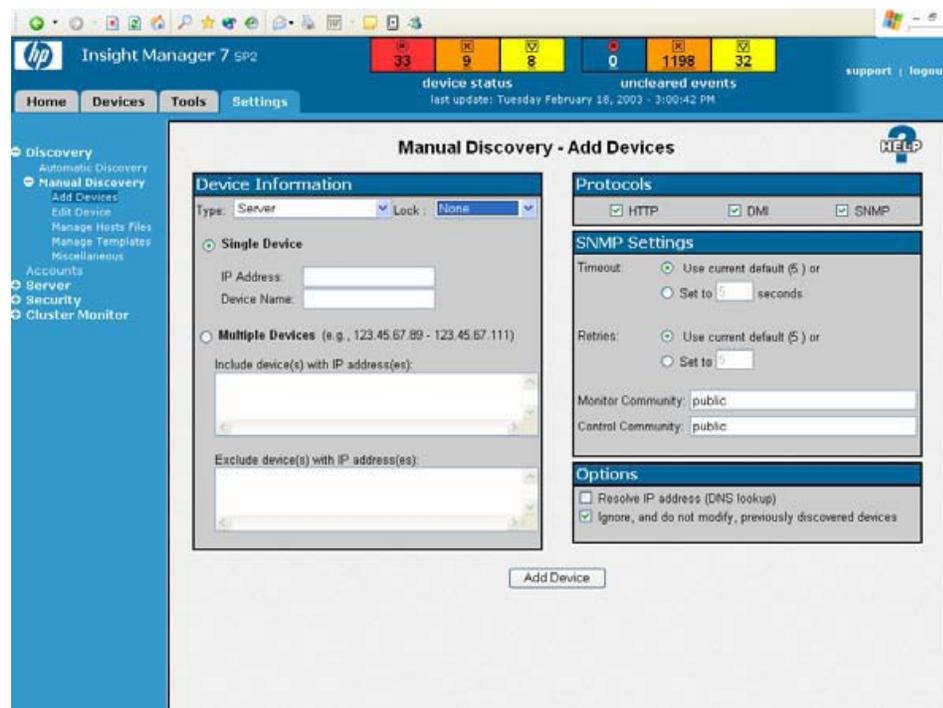


NOTE: Using the manual discovery method requires less time and network resources than the automatic discovery process.

To perform the discovery function, use the following steps:

1. Launch Insight Manager 7. At the main screen in the top frame, click the **Settings** icon. The **Automatic Discovery** screen is displayed.
2. On the left side of the Automatic Discovery screen select **Manual Discovery-Add Devices**. The Manual Discovery screen is displayed as shown below.

Figure 5. Manual Discovery screen



3. In the Device Information box select the **Single Device** button and enter the IP address of the server running Rack and Power Manager. Also, enter a name for the device such as "Rack and Power Manager Server."

- In the Protocols box ensure that the **SNMP** box is checked. All other options such as the default SNMP settings may be left as is.
- Click **Add Device**. Insight Manager 7 should discover the server specified as running Rack and Power Manager.



NOTE: A device added through the Manual Discovery window is not added to any Automatic Discovery search list. You will need to add the server running Rack and Power Manager to a search list through the Automatic Discovery window.

Configuring Rack and Power Manager to send traps to Insight Manager 7

Rack and Power Manager must be configured to send SNMP traps to Insight Manager 7 using two procedures:

- Setting the SNMP trap parameters
- Configuring the notification method for each event

Setting SNMP trap recipient parameters

To set up the SNMP trap recipient parameters, perform the following steps:



NOTE: You will need to know the IP address of the management console running Insight Manager 7 prior to performing the following steps.

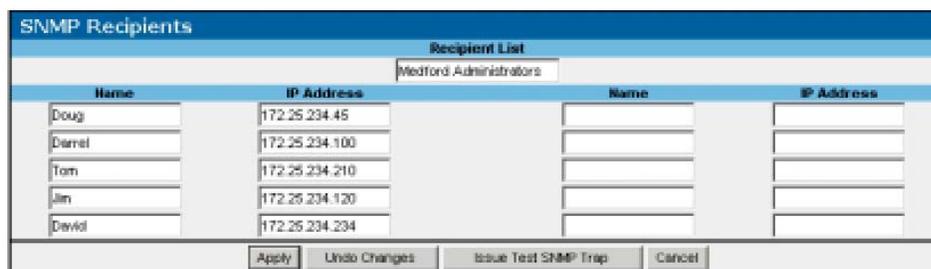
- Launch Rack and Power Manager. At the main screen in the top frame, click the **Settings** icon.
- Select **Server**, then **Notification Recipients**. The Notification Recipients screen should appear.
- Click the **SNMP Traps** tab. The SNMP Traps window is displayed.

Figure 6. SNMP Traps window



- Click **Add New SNMP Recipient List**. The SNMP Recipients window is displayed.

Figure 7. SNMP Recipients window



- In the Recipient List field, enter the name of the list to modify/add to.

6. In the next available blank Name field, enter **IM7**.
7. In the corresponding IP Address field, enter the IP address of the management console running Insight Manager 7. Click **Apply** to accept the information (or **Undo Changes** to reject the entry).
8. Click **Issue Test SNMP Trap** to send a test trap.
9. Launch Insight Manager 7 to check for trap reception.

Setting event notification parameters

In order for Rack and Power Manager to send an event alert to Insight Manager 7, the alert notification for the event must be sent as an SNMP trap. Events may be individually configured through the Event Response Overview Screen for each CMC and UPS device being managed by Rack and Power Manager.

To set a device's event notification parameters perform the following steps:



NOTE: The following steps set event parameters for a CMC device. The steps for setting event parameters for UPS devices are virtually the same.

1. Launch Rack and Power Manager. At the main screen in the top frame, click the Devices icon.
2. Under CMC Devices select Event Response. The Event Response Overview screen appears as shown below, with a listing of all events available from the CMC device and the method of alert notification. For an event to result in a trap being sent to Insight Manager 7, a check must be present in the SNMP column for that event.

Figure 8. Event Response Overview screen

Description	Alert Notifications			Computer Command	Device Actions
	Email	Broadcast	SNMP		
Aux 1 Alarm	✓	✓	✓	✓	✓
Aux 1 Cleared	✓	✓	✓	✓	✓
Aux 2 Alarm	✓	✓	✓	✓	✓
Aux 2 Cleared	✓	✓	✓	✓	✓
Connection lost to device	✓	✓	✓	✓	-
Device connected	✓	✓	✓	✓	✓
Device settings changed	✓	✓	✓	✓	✓
Failed to connect to device	-	-	-	-	-
Humidity Above Maximum	✓	✓	✓	✓	✓
Humidity Below Minimum	✓	✓	✓	✓	✓
Humidity Normal	✓	✓	✓	✓	✓
Input 1 Closed	✓	✓	✓	✓	✓
Input 1 Opened	✓	✓	-	✓	✓
Input 2 Closed	-	-	-	-	-
Input 2 Opened	-	-	-	-	-
Input 3 Closed	-	-	-	-	-
Input 3 Opened	-	-	-	-	-
Input 4 Closed	-	-	-	-	-
Input 4 Opened	-	-	-	-	-
Lockset 1 Error	-	-	-	-	-
Lockset 1 Failed To Lock	-	-	-	-	-

3. To edit the response of a particular event, click on the hyperlink of the desired event in the Description column. The Event Response screen is displayed, which allows you to select the method of alert notification for that event.
4. Select **SNMP traps** as the alert notification method for the event. Note that all three methods (email, broadcast, SNMP traps) may be enabled.
5. Return to the Event Response Overview screen and repeat steps 3-5 for all events to be sent to Insight Manager 7. To change to a different device of the same type, click **Copy Event Configuration from** box or arrow and select the next device. To change to a different type of device (i.e., from CMC to UPS) return to the main Devices screen and under UPS Devices select Event Response.

Conclusion

Insight Manager 7 and Rack and Power Manager can be used in concert to provide a powerful management solution for HP-based enterprise systems. These applications, providing both full control of UPSs and CMCs with complete status monitoring of all components, can be configured to require minimal intervention on the part of personnel required to maintain the system.

For more information

Product information: 1-800-345-1518

Pre-sales: 1-800-282-6672

Post-sales: 1-800-652-6672

Business partner sales consulting: 1-800-888-5874

For more information on ProLiant servers, visit www.hp.com/servers/proliant

Learn more about optional rack features at www.hp.com/products/rackoptions

Learn more about ProLiant server power protection and management at www.hp.com/products/ups

For information about the Insight Management Suite of products, visit www.hp.com/servers/manage

Call to action

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