

HP Rack and Power Manager User Guide



March 2003 (First Edition)
Part Number 311371-001

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About This Guide

This guide provides information about Rack and Power Manager including installation, configuration, operation, and troubleshooting.

Intended Audience

This guide is intended for individuals requiring information about the management of HP Uninterruptible Power Systems (UPSs) and Console Management Controllers (CMCs).

Symbols in Text

These symbols are found in the text of this guide. They have the following meanings:



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.

Text Conventions

This document uses the following conventions:

- *Italic type* indicates complete titles of manuals or variables. Variables include information that varies in system output, command lines, and command parameters in text.
- **Bold type** is used for emphasis of selected onscreen elements (menu options, command names, dialog box names, and so on) and keyboard keys.
- `Monospace typeface` indicates code examples, screen displays, and user input.
- `Sans serif typeface` is used for uniform resource locators (URLs).

Related Documents

For additional information on the topics covered in this guide, refer to the following documents:

- Product user guides
- Product installation instructions
- *HP Power Products Glossary*

These documents are located on the Power Products Documentation CD or at www.hp.com/products/ups.

Getting Help

If you have a problem and have exhausted the information in this guide, you can get further information and other help in the following locations.

Technical Support

In North America, call the HP Technical Support Phone Center at 1-800-652-6672. This service is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored. Outside North America, call the nearest HP Technical Support Phone Center. For telephone numbers of worldwide Technical Support Centers, go to www.hp.com.

Have the following information available before you call:

- Technical support registration number (if applicable)
- Product serial number
- Product model name and number
- Applicable error messages
- Add-on boards or hardware
- Third-party hardware or software
- Operating system type and revision level
- Power management software type and version

HP Website

For information on this product as well as the latest drivers, firmware updates, and service packs, go to www.hp.com.

Authorized Reseller

For the name of your nearest authorized reseller:

- In the United States, call 1-800-345-1518.
- In Canada, call 1-800-263-5868.
- Elsewhere, see the HP website for locations and telephone numbers.

Reader's Comments

To comment on this guide, send an email to ServerDocumentation@hp.com.

Introduction

HP Rack and Power Manager is enterprise-grade software that enables users to monitor, manage, and control both power and rack environments through comprehensive control of HP Uninterruptible Power Systems (UPSs) and the HP rack environmental monitor, the Console Management Controller (CMC). Rack and Power Manager software provides comprehensive device control in data center environments where multiple users need to access and manage many devices both locally and remotely. A familiar browser interface provides secure remote access (128-bit SSL encryption) to management agents anywhere on the network. Rack and Power Manager enables users to schedule system shutdowns, control power failure settings, and define UPS load segments to allow for maximum uptime of critical servers. This software offers several new features, such as the ability to configure redundant UPSs and system event handling, which enables users to establish power and environmental failure policies with programmed automatic responses.

Use Rack and Power Manager to monitor, manage, and control:

- HP Tower UPSs—UPS T700, UPS T1000 XR, UPS T1500 XR, UPS T2200 XR
- HP Rack UPSs—UPS R1500 XR, UPS R3000 XR, UPS R6000, UPS R12000 XR
- HP CMCs—Rack environmental monitoring devices

Rack and Power Manager software can be configured to send alert traps to HP Insight Manager or other SNMP-management programs or run as a standalone power management system. This flexibility enables you to monitor, manage, and control the rack and power environments of networked and serially-attached devices (CMCs and UPSs), regardless of the system management method. For ease of configuration, Rack and Power Manager can be configured to perform device auto-discovery and to copy event configurations of already managed devices to newly managed devices. To facilitate day-to-day maintenance tasks, the software provides detailed system logs and system diagnostics, including UPS battery checks.

Use Rack and Power Manager to:

- Customize alerts
 - Send email notification messages
 - Send broadcast notification messages
 - Send SNMP traps
 - Issue computer commands
 - Perform device actions
- Monitor, manage, and control UPSs
 - Configure redundant UPSs to support servers with multiple power supplies
 - Manage a graceful shutdown of attached equipment during utility power failures
 - Manage independent UPS load segments to provide separate power control of connected equipment
 - Prioritize the timing of equipment shutdowns and reboot connected equipment by load segment
 - Shut down and reboot any UPS and attached equipment, based on a user-specified schedule
 - Delay restart by load segment after a power outage to sequence the startup of system components
 - Display UPS logs for analysis
 - Monitor the status of UPSs and perform UPS diagnostics
- Monitor, manage, and control CMCs
 - Configure and monitor the CMC sensors and options (air temperature, shock/vibration, humidity, intrusion, smoke detection, and front and back door locks)
 - Activate relay controls
 - Display CMC logs for analysis
 - Remotely or locally monitor and control rack environments
 - Take action when a negative occurrence is taking place

Rack and Power Manager Overview

Rack and Power Manager is a Web-based application that lets administrators manage large numbers of devices (HP UPSs and CMCs) from a single management console. Administrators can monitor, manage, and control devices both locally and remotely.

Example 1-1: During a utility power failure, the connected UPSs switch to battery mode. Rack and Power Manager can issue an email alert to the system administrator and begin a prioritized system shutdown based on your settings. After power is restored, Rack and Power Manager can facilitate a prioritized power up for connected equipment. Rack and Power Manager also allows for scheduled on and off times, which promotes power conservation.

The UPS can be configured to extend runtimes for critical devices during utility power failures. For most UPSs, the receptacles on the rear panel can be divided into two or more groups, called load segments, which can be controlled independently. By shutting down a load segment that is connected to less critical equipment, the runtime for more critical equipment is extended, providing additional protection.

Example 1-2: Rack and Power Manager has the ability to issue commands to servers that the software recognizes. Issuing commands can be a useful tool in preventing data loss. If a CMC detects an over temperature event or a UPS detects a utility power failure event, the Rack and Power Management Server can be configured to issue a command to run a batch file or shell script on the affected system.

Example 1-3: Rack and Power Manager can be configured to monitor set thresholds for CMC sensors and take action when conditions are detected to be outside the threshold. Rack and Power Manager can be programmed to turn the rack fans on when the rack temperature is too warm or turn the rack fans off if smoke is detected. Should an unauthorized person attempt to enter the rack, Rack and Power Manager can send an alert message to the system administrator and activate an alarm relay switch that can be connected to a siren or rotating light.

Example 1-4: Rack and Power Manager can be configured to take action on multiple devices based on an event of a single device. If a CMC installed in a rack on the ninth floor detects an over temperature condition, Rack and Power Manager can be configured to send a message to the UPS powering the affected equipment and gracefully shut down the servers installed in the rack. The same is true for UPSs. If a UPS in the same rack loses utility power and goes on battery, the Management Server can be configured to send a message to the CMC installed in that same rack to unlock the rack door.

Rack and Power Manager Architecture

Rack and Power Manager leverages a distributed architecture that consists of three major components:

- Management Server
- System Agent
- Serial Relay Agent

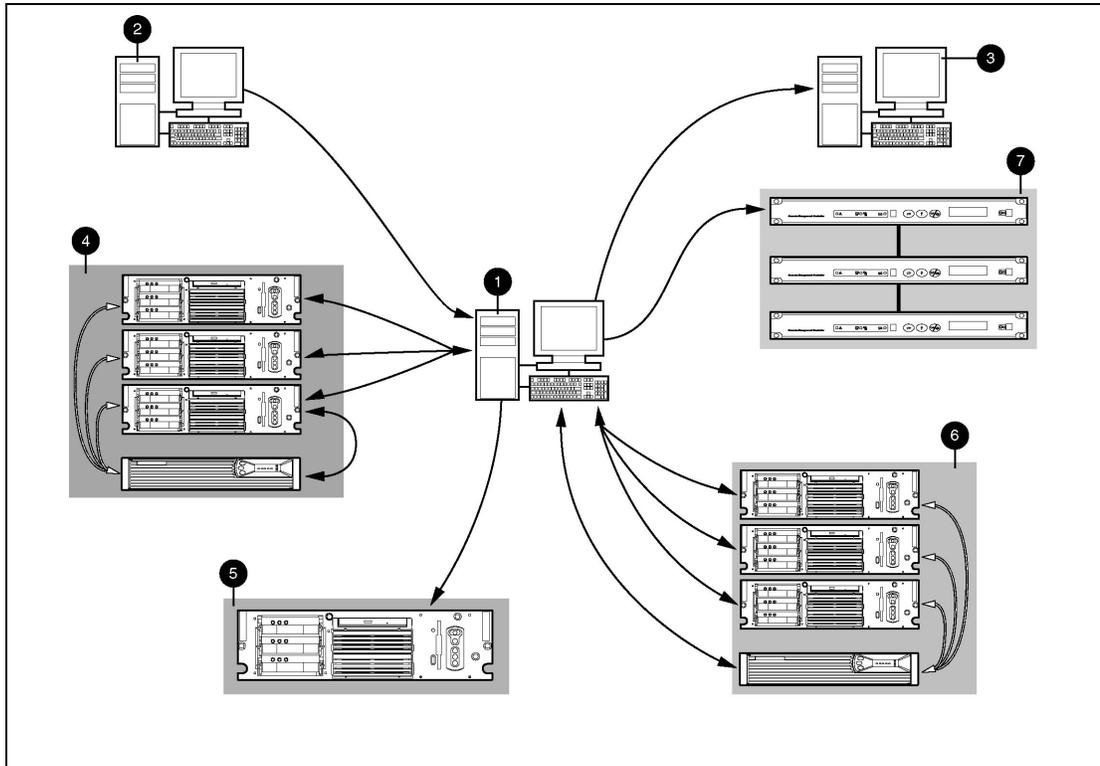


Figure 1-1: Rack and Power Manager architecture

Item	Description
1	Rack and Power Management Server
2	A remote workstation browsing in to the Management Server over the network
3	A management application on a remote workstation that is receiving SNMP traps from the Management Server over the network
4	UPSs that are serially attached to network servers are managed by the Management Server using the Serial Relay Agent
5	Servers on the network that are running Rack and Power Management Agents receive custom commands from the Management Server
6	UPSs that are attached to the network are managed by the Management Server
7	CMCs that are attached to the network are managed by the Management Server

Management Server

The Rack and Power Manager application runs on a single server, which acts as the management console. The Management Server communicates with discovered and managed CMCs and UPSs throughout the network. The Management Server continuously polls devices for status. Once an alert is detected, the Management Server acts on configured event policies. Additional features of the Management Server include:

- Polling the network for supported UPSs, CMCs, and System Agents (automatic discovery)
- Controlling security and authentication
 - Individual logon accounts
 - SSL implemented
- Generating status and configuration pages for authenticated users connecting through a Web browser
- Generating commands to send to the System Agents to prepare for, initiate, and cancel tasks
- Notifying administrators of alerts by way of emails, email pages, and pop-up messages
- Sending alert traps to Insight Manager and other manageability software programs that receive SNMP traps

The Management Server operates on a single server that is running any of the following operating systems:

- Microsoft® Windows NT® 4.0 Server with Service Pack 6
- Microsoft Windows NT 4.0 Server, Enterprise Edition with Service Pack 6
- Microsoft Windows® 2000 Server with Service Pack 2
- Microsoft Windows 2000 Advanced Server with Service Pack 2
- RedHat Linux 7.2, 7.3 Server

System Agent

The System Agent is the software component that runs on a server and allows Rack and Power Manager to gracefully shut down the operating system of that server or take another pre-configured action in case of a specific event. Install the System Agent on any server that is attached to a UPS and on any server that Rack and Power Manager uses to initiate a command. For more information on using commands, refer to “Commands Tab” in Chapter 5.

A server that has the System Agent installed is discovered and recognized by Rack and Power Manager as an Agent. Agents can be associated with one or more UPSs or UPS load segments. For more information on associating agents, refer to “Attached Agents Screen” in Chapter 5.

The System Agent operates on any network-connected server that is running one of the following operating systems:

- Microsoft Windows NT 4.0 Server with Service Pack 6
- Microsoft Windows NT 4.0 Server, Enterprise Edition with Service Pack 6
- Microsoft Windows 2000 Server with Service Pack 2
- Microsoft Windows 2000 Advanced Server with Service Pack 2
- Novell NetWare 5.1 with Support Pack 5
- Novell NetWare 6.0 with Support Pack 2
- RedHat Linux 7.2, 7.3 Server

Serial Relay Agent

The Serial Relay Agent is the software component that runs on a server and allows Rack and Power Manager to communicate with a UPS that is serially attached to a network-connected server. A server that has the Serial Relay Agent installed is discovered and recognized by Rack and Power Manager as a device with the IP address of the server running the Serial Relay Agent.

The Serial Relay Agent operates on any network-connected server that is serially attached to a UPS and running one of the following operating systems:

- Microsoft Windows NT 4.0 Server with Service Pack 6
- Microsoft Windows NT 4.0 Server, Enterprise Edition with Service Pack 6
- Microsoft Windows 2000 Server with Service Pack 2
- Microsoft Windows 2000 Advanced Server with Service Pack 2
- Novell NetWare 5.1 with Support Pack 5
- Novell NetWare 6.0 with Support Pack 2
- RedHat Linux 7.2, 7.3 Server

Supported Hardware Configurations

Rack and Power Manager requires that the Management Server be connected to the network. UPSs and CMCs can be attached in any of the following configurations:

- Configuration A—A CMC is connected directly to the network.
- Configuration B—A UPS is serially attached to a server that is plugged into a load segment on the rear of the same UPS.
- Configuration C—A UPS and a server are both directly connected to the network. The server is plugged into a load segment on the rear of the UPS.
- Configuration D—A redundant configuration in which the UPSs are serially attached.
- Configuration E—A redundant configuration in which the UPSs are network attached.
- Configuration F—A redundant configuration in which one UPS is serially attached and one UPS is network attached.
- Configuration G—A server that is not connected to a UPS is directly connected to the network and receives commands from the Management Server.

Configuration A

Figure 1-2 illustrates several CMCs connected directly to the network. The CMC is monitored by the Management Server, which is located elsewhere on the network.

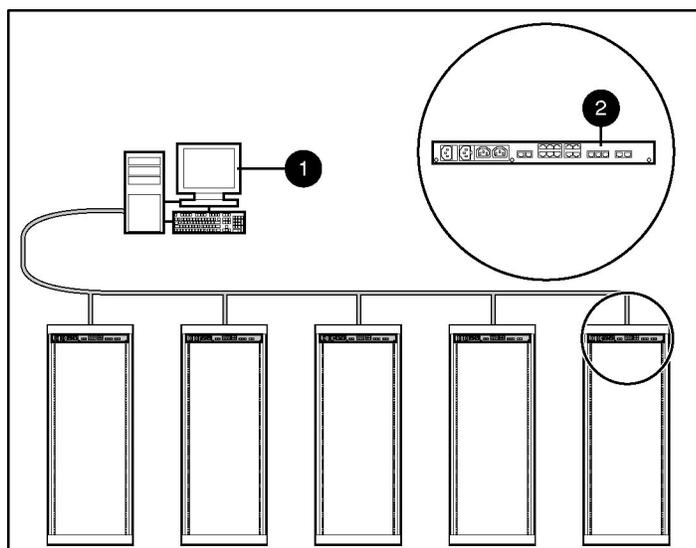


Figure 1-2: Configuration A

Item	Description
1	Rack and Power Management Server
2	CMC

Configuration B

Figure 1-3 illustrates a UPS serially attached to a server that is plugged into a load segment of the UPS. The server is connected directly to the network. A Management Server is located elsewhere on the network. The server has an installed System Agent that receives commands, such as displaying a pop-up message or shutting down the operating system, from the Management Server. The server also has an installed Serial Relay Agent that is used for communication between the UPS and the Management Server.

NOTE: Installed agents must be associated with the correct server or UPS load segment in Rack and Power Manager. For information on associating agents, refer to “Attached Agents Screen” in Chapter 5.

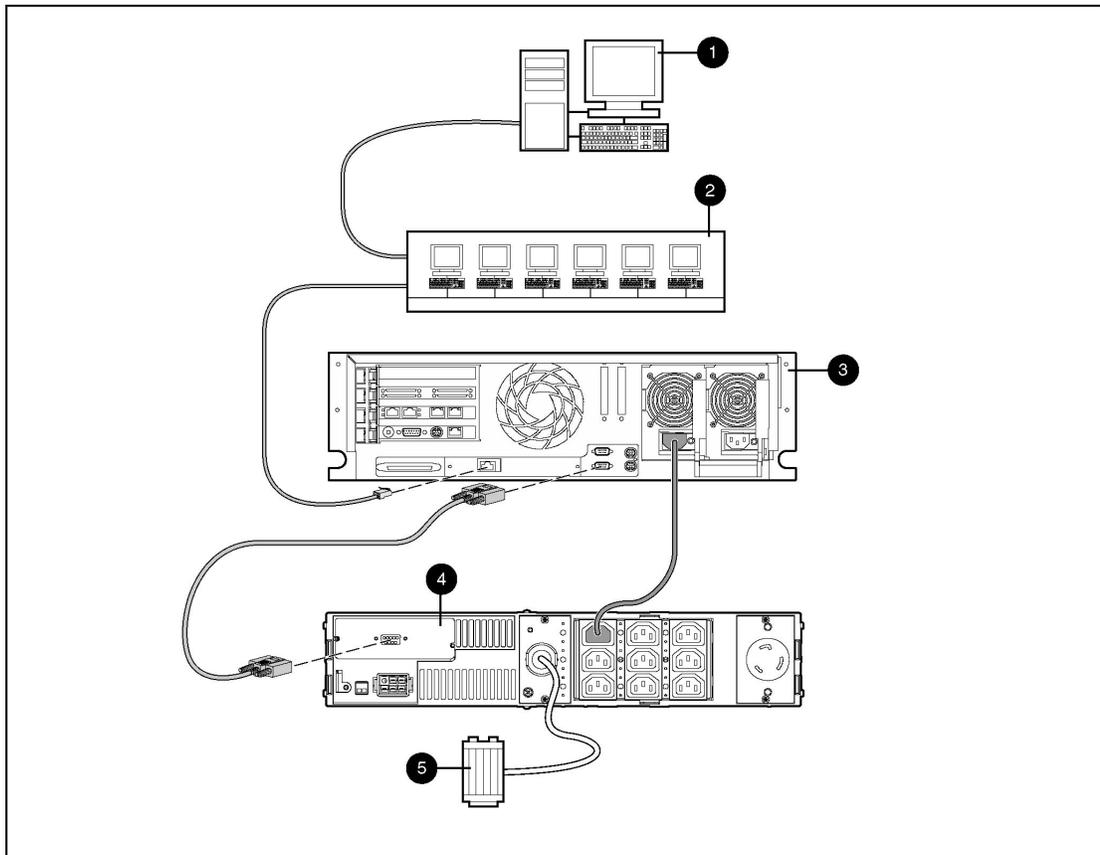


Figure 1-3: Configuration B

Item	Description
1	Rack and Power Management Server
2	Additional servers power protected by a single UPS (each server requires installation of the System Agent)
3	Power protected server that is serially attached to the UPS (requires installation of the System Agent and the Serial Relay Agent)
4	UPS with a serial communication cable attached
5	Utility power feed

Configuration C

Figure 1-4 illustrates a server that is plugged into a load segment of a UPS. Both the UPS and the server are directly connected to the network. The UPS is monitored by a Management Server that is located elsewhere on the network. The server has an installed System Agent that receives commands, such as displaying a pop-up message or shutting down the operating system, from the Management Server.

NOTE: Installed agents must be associated with the correct server or UPS load segment in Rack and Power Manager. For information on associating agents, refer to “Attached Agents Screen” in Chapter 5.

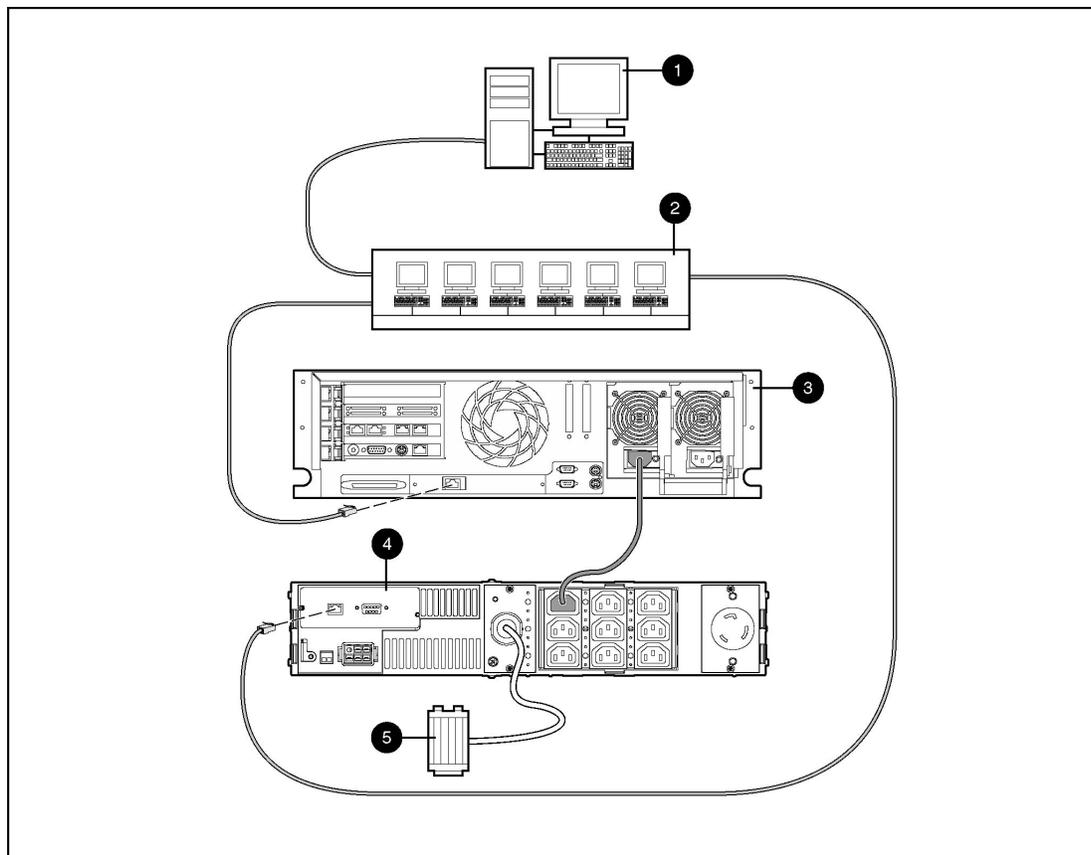


Figure 1-4: Configuration C

Item	Description
1	Rack and Power Management Server
2	Additional servers power protected by a single UPS (each server requires installation of the System Agent)
3	Power protected server (requires installation of the System Agent)
4	UPS with an HP SNMP Adapter Card installed
5	Utility power feed

Configuration D

Figure 1-5 illustrates a redundant configuration in which servers with dual power supplies are protected by multiple UPSs. The servers are both serially attached to different UPSs. One server power supply is connected to a receptacle on the rear panel of each UPS. Each UPS is connected to a separate power feed. The UPSs are monitored by a Management Server located elsewhere on the network. Each server has an installed System Agent that receives commands, such as displaying a pop-up message or shutting down the operating system, from the Management Server. The servers also each have an installed Serial Relay Agent that is used for communication between the UPS and the Management Server.

IMPORTANT: When planning a redundant configuration, consider that in normal operating conditions, servers with multiple power supplies equally distribute the power load across each power feed. A server with two power supplies applies 50 percent of the load to each power feed. In the event that one power feed fails, the second power feed must be able to handle 100 percent of the load. Ensure that each UPS in the redundant configuration can support the entire load in the event of a power failure.

Redundant UPS configurations should be tested thoroughly to ensure the load handling capabilities and power fail settings of each UPS prior to an actual power failure event.

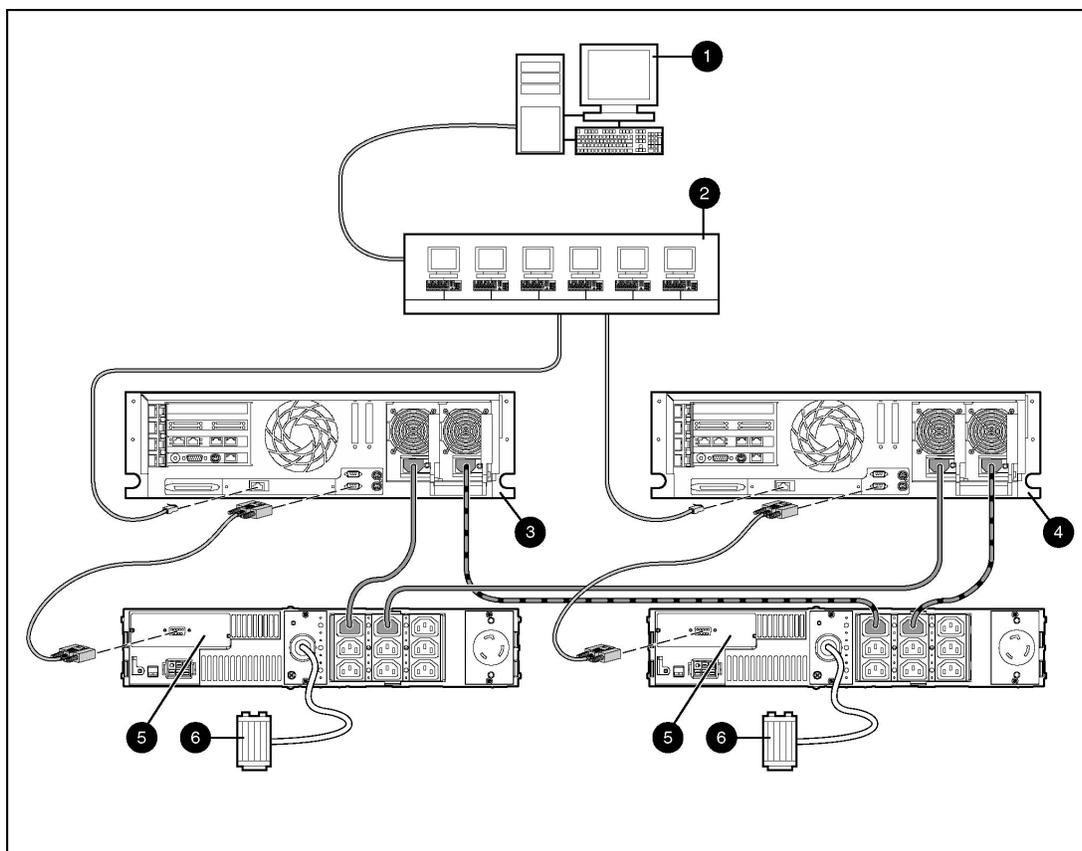


Figure 1-5: Configuration D

Item	Description
1	Rack and Power Management Server
2	Additional servers power protected by multiple UPSs (each server requires installation of the System Agent)
3	Redundant power protected server that is serially attached to the UPS (requires installation of the System Agent and the Serial Relay Agent)
4	Redundant power protected server that is serially attached to the UPS (requires installation of the System Agent and the Serial Relay Agent)
5	UPS with a serial communication cable attached
6	Utility power feed

Configuration E

Figure 1-6 illustrates a redundant configuration in which one server with dual power supplies is protected by multiple UPSs. One server power supply is connected to a receptacle on the rear panel of each UPS. Each UPS is connected to a separate power feed. The UPSs are monitored by a Management Server located elsewhere on the network. Each server has an installed System Agent that receives commands, such as displaying a pop-up message or shutting down the operating system, from the Management Server.

IMPORTANT: When planning a redundant configuration, consider that in normal operating conditions, servers with multiple power supplies equally distribute the power load across each power feed. A server with two power supplies applies 50 percent of the load to each power feed. In the event that one power feed fails, the second power feed must be able to handle 100 percent of the load. Ensure that each UPS in the redundant configuration can support the entire load in the event of a power failure.

Redundant UPS configurations should be tested thoroughly to ensure the load handling capabilities and power fail settings of each UPS prior to an actual power failure event.

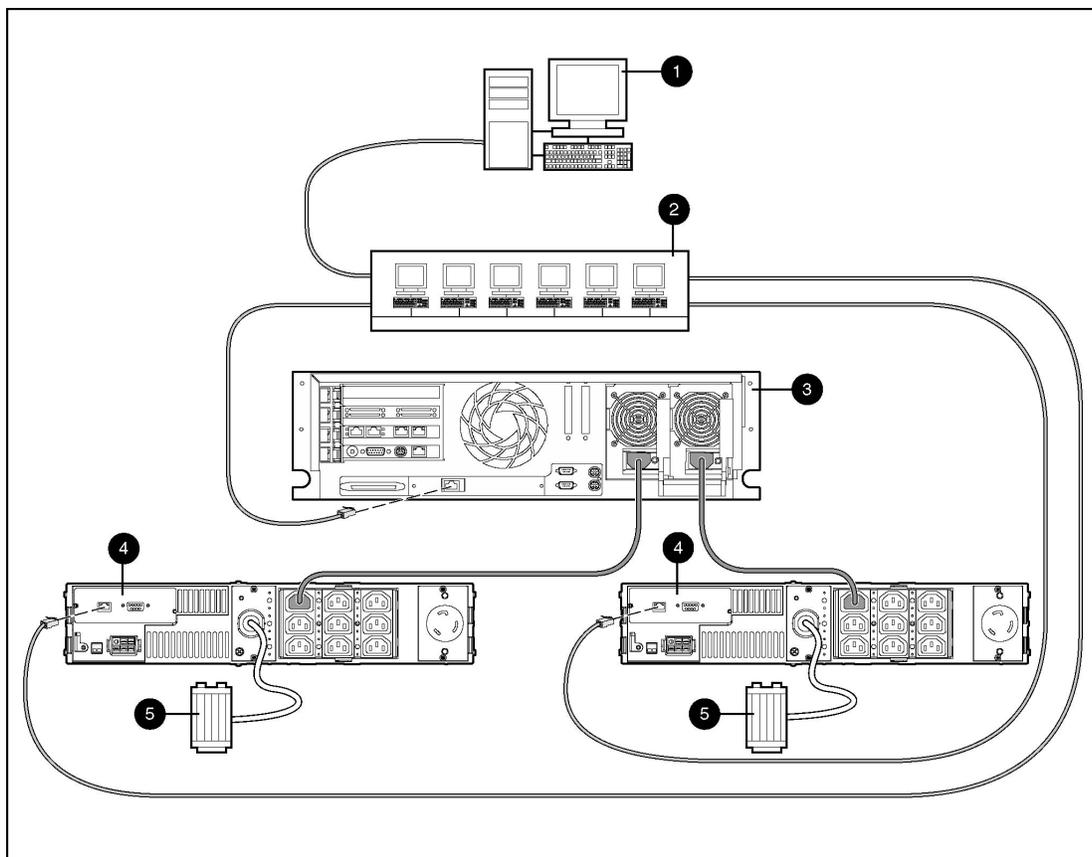


Figure 1-6: Configuration E

Item	Description
1	Rack and Power Management Server
2	Additional servers power protected by multiple UPSs (each server requires installation of the System Agent)
3	Redundant power protected server (requires installation of the System Agent)
4	UPS with an HP SNMP Adapter Card installed
5	Utility power feed

Configuration F

Figure 1-7 illustrates a redundant configuration in which servers with dual power supplies are protected by multiple UPSs. One server is serially attached to a UPS. The first server and a second UPS are connected directly to the network. One server power supply is connected to a receptacle on the rear panel of each UPS. Each UPS is connected to a separate power feed. The UPSs are monitored by a Management Server located elsewhere on the network.

IMPORTANT: When planning a redundant configuration, consider that in normal operating conditions, servers with multiple power supplies equally distribute the power load across each power feed. A server with two power supplies applies 50 percent of the load to each power feed. In the event that one power feed fails, the second power feed must be able to handle 100 percent of the load. Ensure that each UPS in the redundant configuration can support the entire load in the event of a power failure.

Redundant UPS configurations should be tested thoroughly to ensure the load handling capabilities and power fail settings of each UPS prior to an actual power failure event.

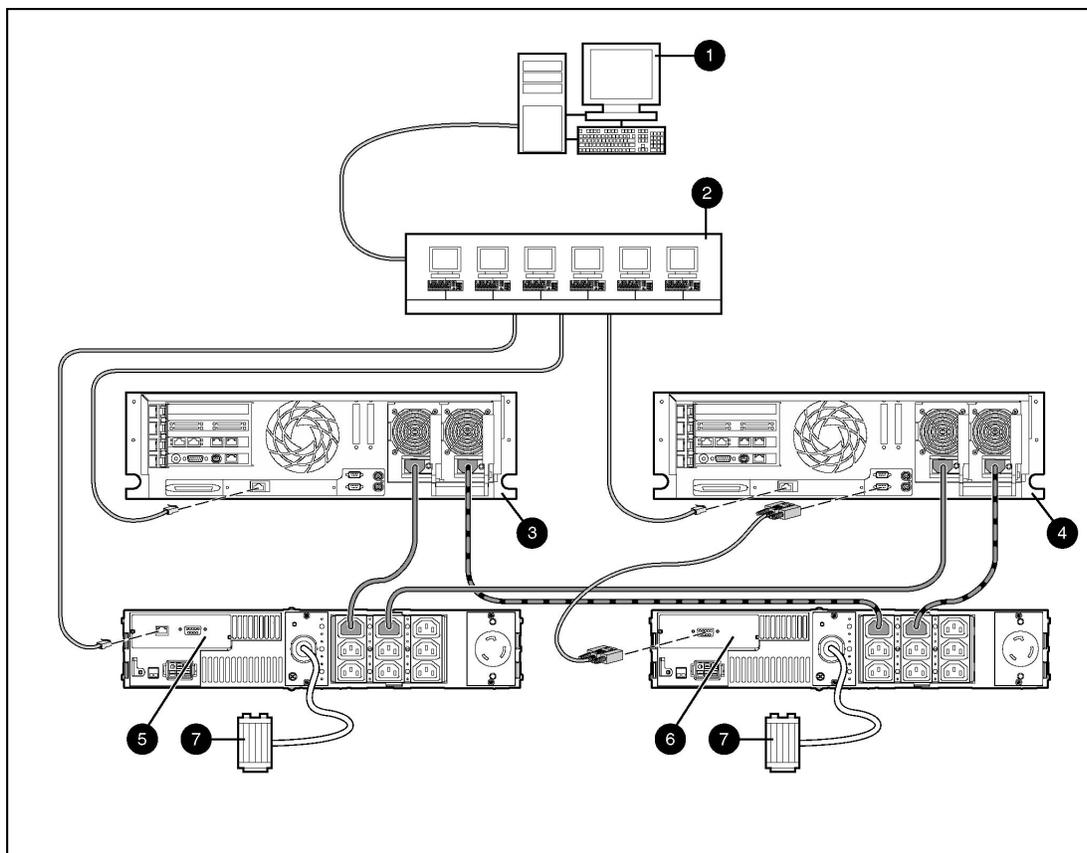


Figure 1-7: Configuration F

Item	Description
1	Rack and Power Management Server
2	Additional servers power protected by multiple UPSs (each server requires installation of the System Agent)
3	Redundant power protected server (requires installation of the System Agent)
4	Redundant power protected server that is serially attached to the UPS (requires installation of the System Agent and the Serial Relay Agent)
5	UPS with an HP SNMP Adapter Card installed
6	UPS with a serial communication cable attached
7	Utility power feed

Configuration G

Figure 1-8 illustrates a server that is not connected to a UPS but is directly connected to the network. The server has an installed System Agent that receives commands, such as displaying a pop-up message or shutting down the operating system, from the Management Server.

NOTE: Installed agents must be associated with the correct server or UPS load segment in Rack and Power Manager. For information on associating agents, refer to “Attached Agents Screen” in Chapter 5.

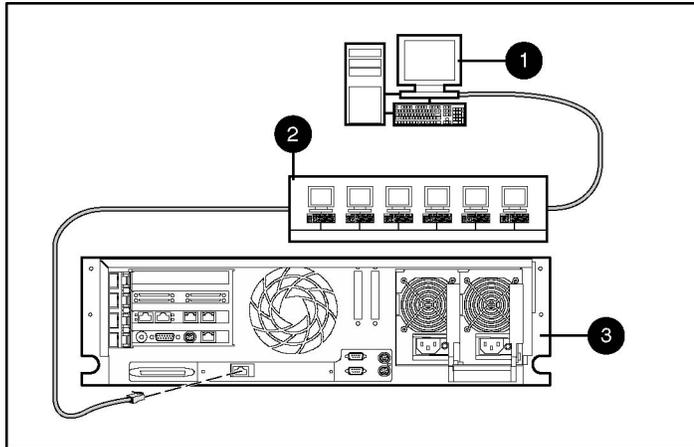


Figure 1-8: Configuration G

Item	Description
1	Rack and Power Management Server
2	Additional non-power protected servers (each server requires installation of the System Agent)
3	Non-power protected server (requires installation of the System Agent)

Power Protection for the Rack and Power Management Server

Power protection for the Management Server is essential. The Management Server is the central point of control of the Rack and Power Management environment. If the Management Server goes down, control of all managed devices is lost. Supported power protection configurations for the Management Server are detailed in Table 1-1.

Table 1-1: Management Server Power Protection Configurations

Number of UPSs	UPS Connections	Components Required on Management Server
Single	UPS serially attached to the Management Server	<ul style="list-style-type: none"> • Rack and Power Manager • System Agent • Serial Relay Agent
Single	Network connected	<ul style="list-style-type: none"> • Rack and Power Manager • System Agent
Redundant	Both UPSs network connected	<ul style="list-style-type: none"> • Rack and Power Manager • System Agent
Redundant	Both UPSs serially attached*	<ul style="list-style-type: none"> • Rack and Power Manager • System Agent • Serial Relay Agent
Redundant	One UPS serially attached, one UPS network connected	<ul style="list-style-type: none"> • Rack and Power Manager • System Agent • Serial Relay Agent

* If this configuration is used, the serial communications cable from the second UPS must be connected to a separate server.

System Requirements

Table 2-1 lists the minimum Rack and Power Manager hardware and software requirements.

Table 2-1: Rack and Power Manager Minimum System Requirements

Rack and Power Manager Component	Hardware and Software	Suggested Minimum Requirements
Management Server	Hardware	500-MHz Pentium® computer
	Disk space	100 MB free disk space
	System memory	256 MB of RAM
	Operating system	<ul style="list-style-type: none"> • Microsoft Windows NT 4.0 Server with Service Pack 6 • Microsoft Windows NT 4.0 Server, Enterprise Edition with Service Pack 6 • Microsoft Windows 2000 Server with Service Pack 2 • Microsoft Windows 2000 Advanced Server with Service Pack 2 • RedHat Linux 7.2, 7.3 Server
	Server software	<ul style="list-style-type: none"> • A supported operating system with a static IP address (recommended), TCP/IP installed and configured • SNMP services installed and active • A Mail Application Program with SMTP for email notification of alerts

continued

Table 2-1: Rack and Power Manager Minimum System Requirements *continued*

Rack and Power Manager Component	Hardware and Software	Suggested Minimum Requirements
System Agent	Hardware	233-MHz Pentium computer
	Disk space	10 MB free disk space
	System memory	64 MB of RAM
	Operating system	<ul style="list-style-type: none"> • Microsoft Windows NT 4.0 Server with Service Pack 6 • Microsoft Windows NT 4.0 Server, Enterprise Edition with Service Pack 6 • Microsoft Windows 2000 Server with Service Pack 2 • Microsoft Windows 2000 Advanced Server with Service Pack 2 • Novell NetWare 5.1 with Support Pack 5 • Novell NetWare 6.0 with Support Pack 2 • RedHat Linux 7.2, 7.3 Server
Serial Relay Agent	Hardware	233-MHz Pentium computer
	Disk space	10 MB free disk space
	System memory	64 MB of RAM
	Operating system	<ul style="list-style-type: none"> • Microsoft Windows NT 4.0 Server with Service Pack 6 • Microsoft Windows NT 4.0 Server, Enterprise Edition with Service Pack 6 • Microsoft Windows 2000 Server with Service Pack 2 • Microsoft Windows 2000 Advanced Server with Service Pack 2 • Novell NetWare 5.1 with Support Pack 5 • Novell NetWare 6.0 with Support Pack 2 • RedHat Linux 7.2, 7.3 Server

Browser Requirements

Table 2-2 lists the minimum Rack and Power Manager browser requirements.

Table 2-2: Minimum Web Browser Requirements

Software	Browser
Web browser on a client	Microsoft Operating Systems: <ul style="list-style-type: none"> • Microsoft Internet Explorer 6.0 or later with Sun Java™ Plug-in 1.3.1_06 (recommended) • Netscape 6.2 or later with Sun Java Plug-in 1.3.1_06 (recommended) Linux Operating System: <ul style="list-style-type: none"> • Netscape 6.2 or later with Sun Java Plug-in 1.4.1_01 (recommended)
Monitor resolution	Minimum supported resolution of 1024 x 768, 16-bit high color (maximize browser window for optimal display)

Note: A Java Plug-in installation occurs immediately upon browsing to Rack and Power Manager for the first time. Verify that the recommended Java Plug-in is installed.

Installation Overview

Follow these guidelines when installing the Rack and Power Manager components:

- **Management Server**—Install the Management Server on the computer that will be responsible for managing other systems and devices.

IMPORTANT: Devices should be managed by a single Management Server.
- **System Agent**—Install the System Agent on any computer that will control the shutdown and restart of a UPS load segment or receive commands from the Management Server.
- **Serial Relay Agent**—Install the Serial Relay Agent on any computer that is serially attached to a UPS.

For each component of Rack and Power Manager, two installation options exist:

- **Graphical user interface (GUI) installation**—A series of dialog boxes and prompts guide you through the installation process.
- **Silent installation**—A text form is filled out, and the installation program completes the installation.

Table 2-3 summarizes the available installation options for each operating system.

Table 2-3: Installation Options

Operating System	GUI Installation	Silent Installation*
Microsoft Windows NT 4.0 Server	Available	Available
Microsoft Windows NT 4.0 Server, Enterprise Edition	Available	Available
Microsoft Windows 2000 Server	Available	Available
Microsoft Windows 2000 Advanced Server	Available	Available
Microsoft Windows 2000 Enterprise Server	Available	Available
Novell NetWare 5.1, 6.0	Available**	Available
RedHat Linux 7.2, 7.3 Server	Available	Available

* The Silent installation option only installs agents. Install the Management Server using the GUI installation method.

** Installation must be run from a Windows workstation connected to the NetWare server.

Installing Components on Windows Operating Systems

The Management Server, System Agent, and Serial Relay Agent can be installed using the GUI installation method on any supported Windows operating system.

NOTE: Rack and Power Manager components can be installed individually or as a group, using the GUI installation method. The instructions in this guide are for individual component installation.

The System Agent and Serial Relay Agent can be installed using the Silent installation option on any supported Windows operating system.

Installing the Management Server Using the GUI Installation Method

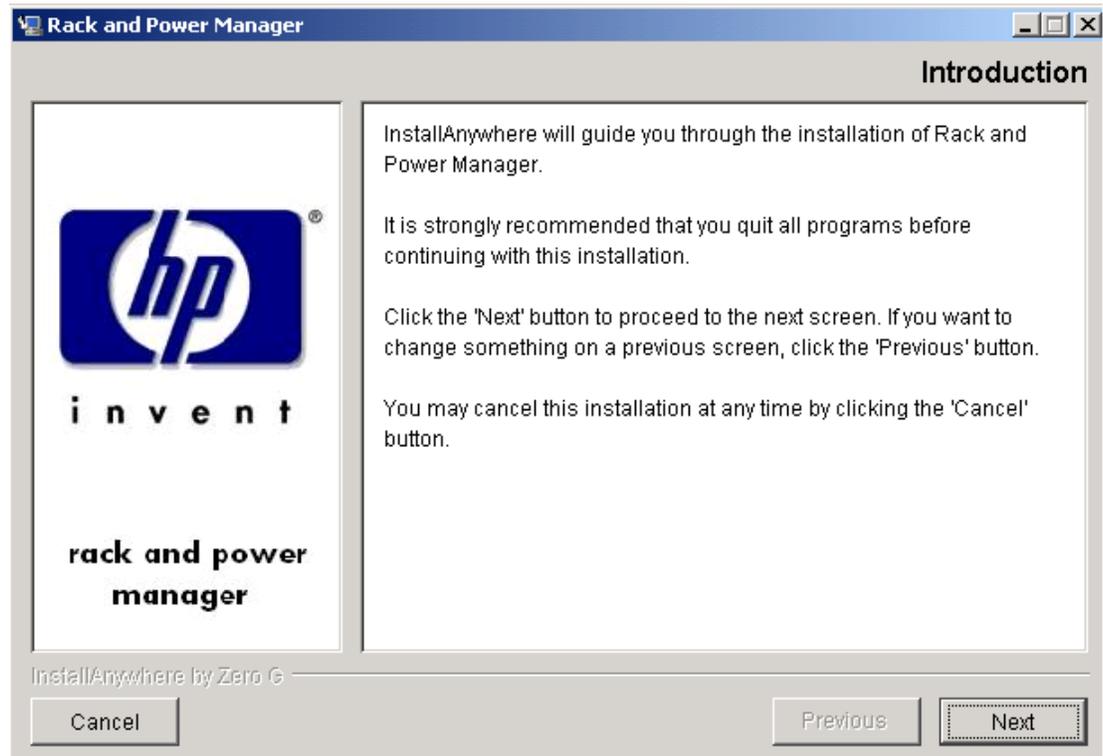
To install the Management Server on a Windows system using the GUI Installation method:

1. Insert the Rack and Power Management Pack CD into the CD-ROM drive of the computer. If the AutoPlay feature is enabled, the installation menu automatically starts.

If the AutoPlay feature is disabled, explore the CD, open the **HPRPM** folder, open the **Windows** folder, and double-click **SETUP.EXE**.

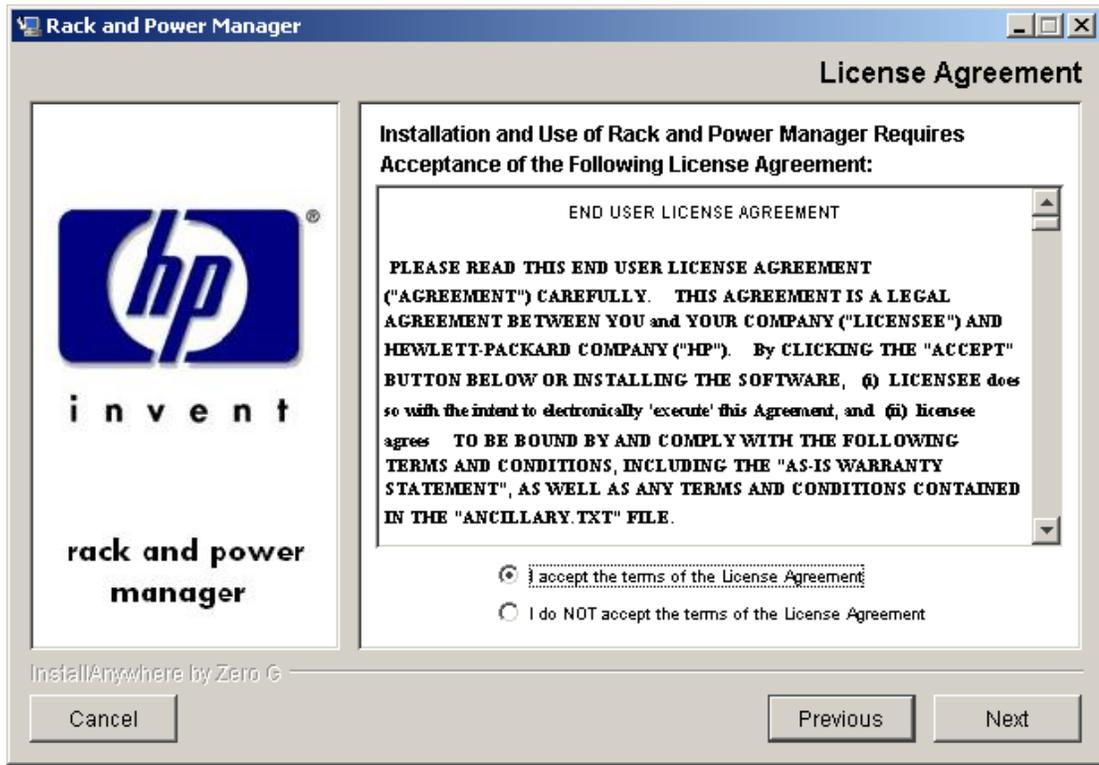
If the operating system running is Japanese, the **Language** screen is displayed. Select the installation language and click **Next**. The **Introduction** screen is displayed.

2. Read the introduction and click **Next**.



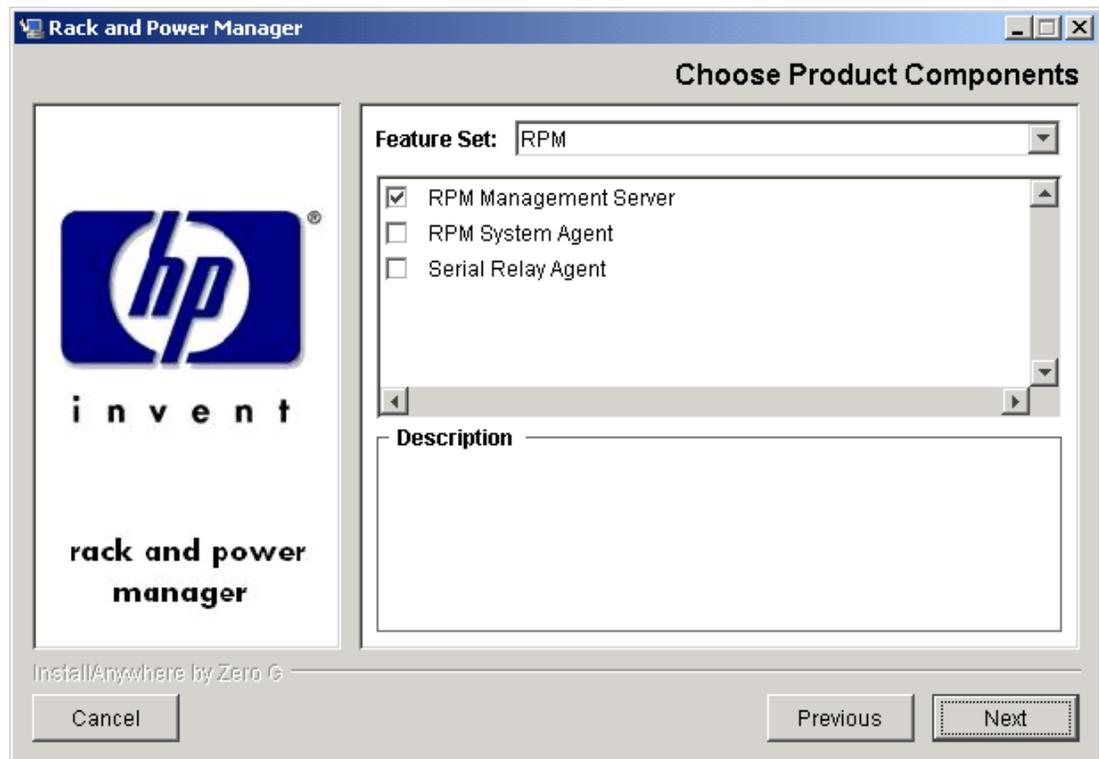
The **License Agreement** screen is displayed.

3. Read the license agreement, select **I accept the terms of the License Agreement**, and click **Next**.



The **Choose Product Components** screen is displayed.

4. Select **RPM Management Server** and click **Next**.

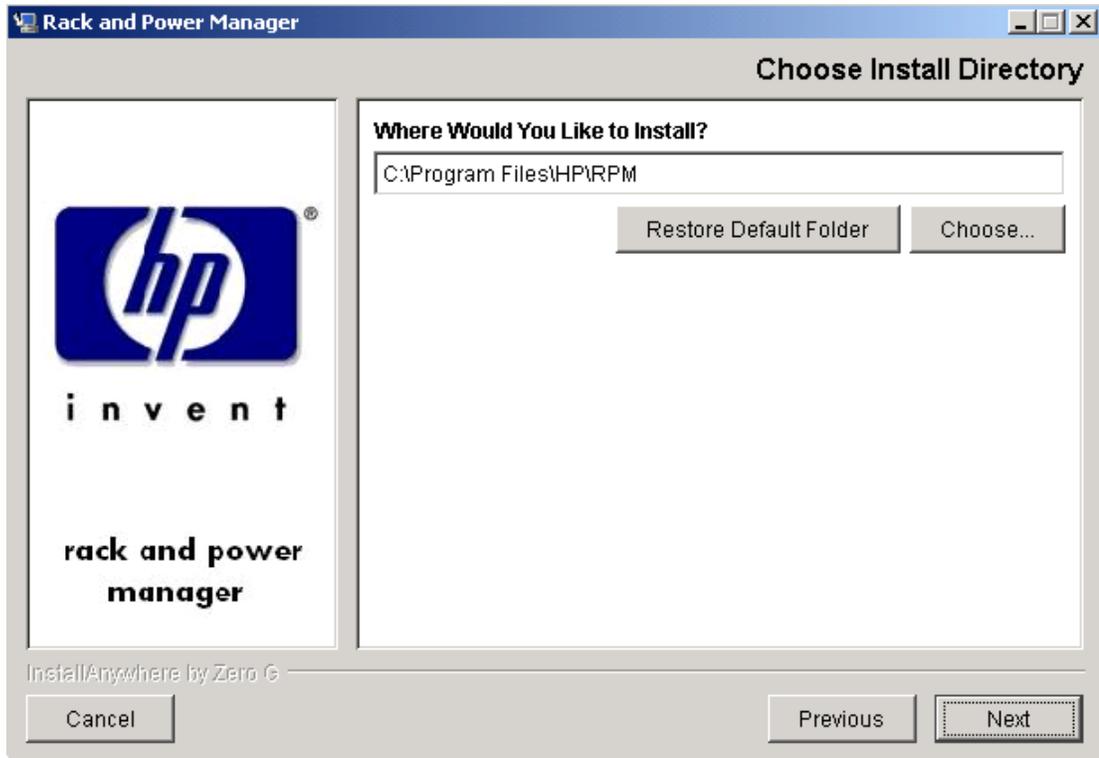


NOTE: Multiple components can be installed at one time. Available components include:

- **Management Server**—Install the Management Server on the computer that will be responsible for managing other systems and devices.
- **System Agent**—Install the System Agent on any computer that will control the shutdown and restart of a UPS load segment or receive commands from the Management Server.
- **Serial Relay Agent**—Install the Serial Relay Agent on any computer that is serially attached to a UPS.

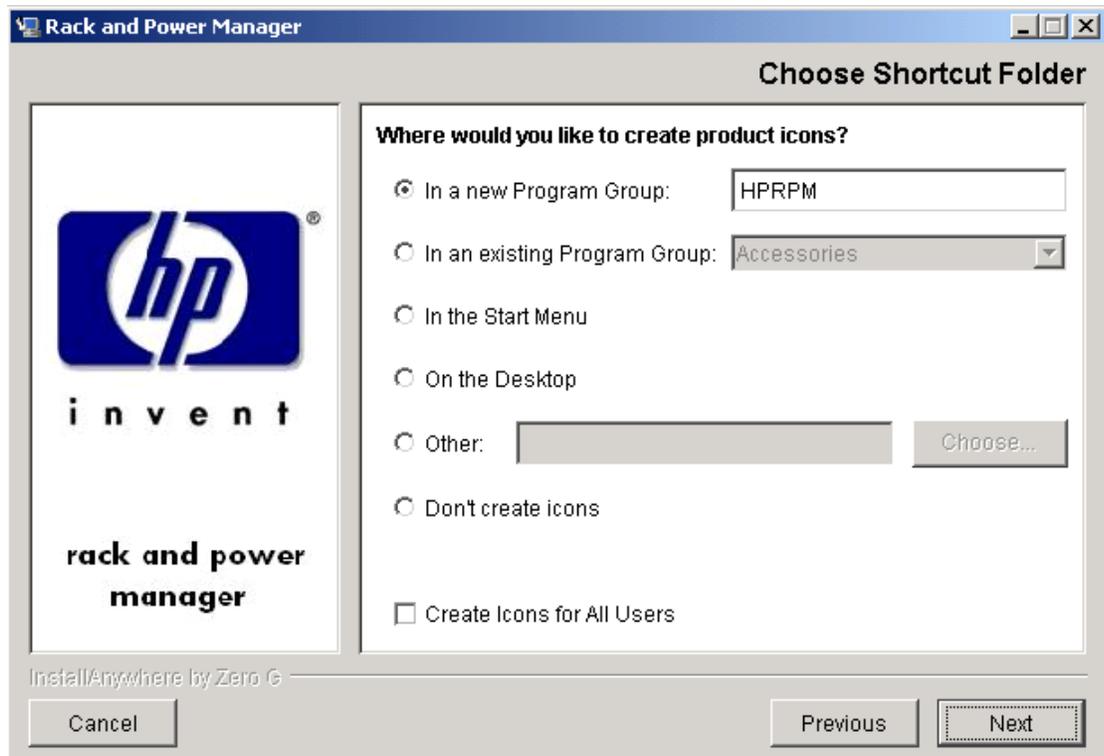
The **Choose Install Directory** screen is displayed.

5. Click **Next** to install the Management Server in the default folder that is displayed in the **Where Would You Like to Install?** field. To specify a different folder, click **Choose**, navigate to the appropriate folder, and click **Next**.



The **Choose Shortcut Folder** screen is displayed.

6. Select the appropriate radio button to create product icons for Rack and Power Manager:
 - Program Group—Click **Start**, select **Programs**, and select the **Rack and Power Manager Program Group**. Click **Rack and Power Manager** to launch the software.
 - Start Menu—Click **Start** and select **Rack and Power Manager** to launch the software.
 - Desktop Icon—Double-click the **Rack and Power Manager** icon on the desktop to launch the software.
 - Other—Double-click the **Rack and Power Manager** link located in a specified folder on the hard drive to launch the software.
7. Select **Create Icons for All Users** to display the desktop icon for any user logged in to the computer. Click **Next**.



The **Choose Passwords** screen is displayed.

8. Enter the password for the first administrator in the **Enter Admin Password** field. Confirm the password by re-entering the password in the **Confirm Admin Password** field. Additional administrator accounts and passwords can be set up on the Rack and Power Manager **User Administration** screen. For more information on adding accounts, refer to “User Administration Screen” in Chapter 4.

Enter the password needed to allow Rack and Power Manager to communicate with the database in the **Enter Data Access Password** field. Confirm the password by re-entering the password in the **Confirm Data Access Password** field. The database password can be changed after installation is complete on the Rack and Power Manager **Database** screen. For more information on changing the database password, refer to “Database Screen” in Chapter 4.

Click **Next**.

Rack and Power Manager

Choose Passwords

Please enter passwords for the Administrative user account ("admin") and for securing data access between the RPM application and its database.

Enter Admin Password:

Confirm Admin Password:

Enter Data Access Password:

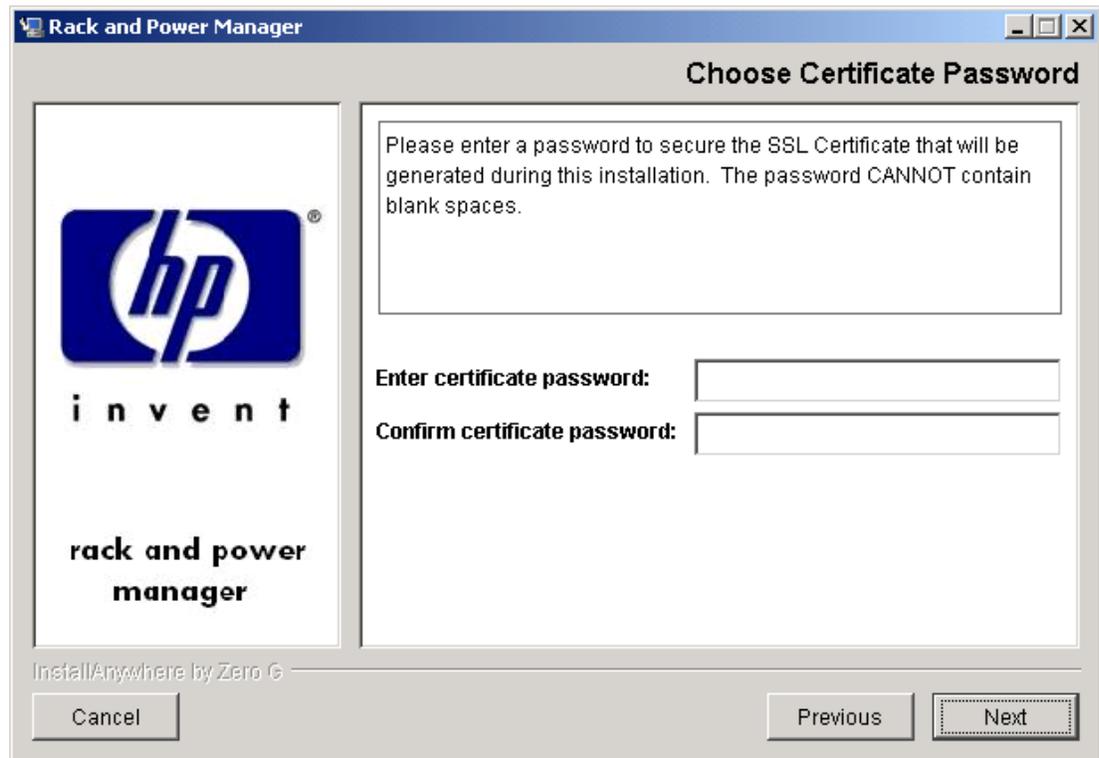
Confirm Data Access Password:

Cancel Previous **Next**

InstallAnywhere by Zero G

The **Choose Certificate Password** screen is displayed.

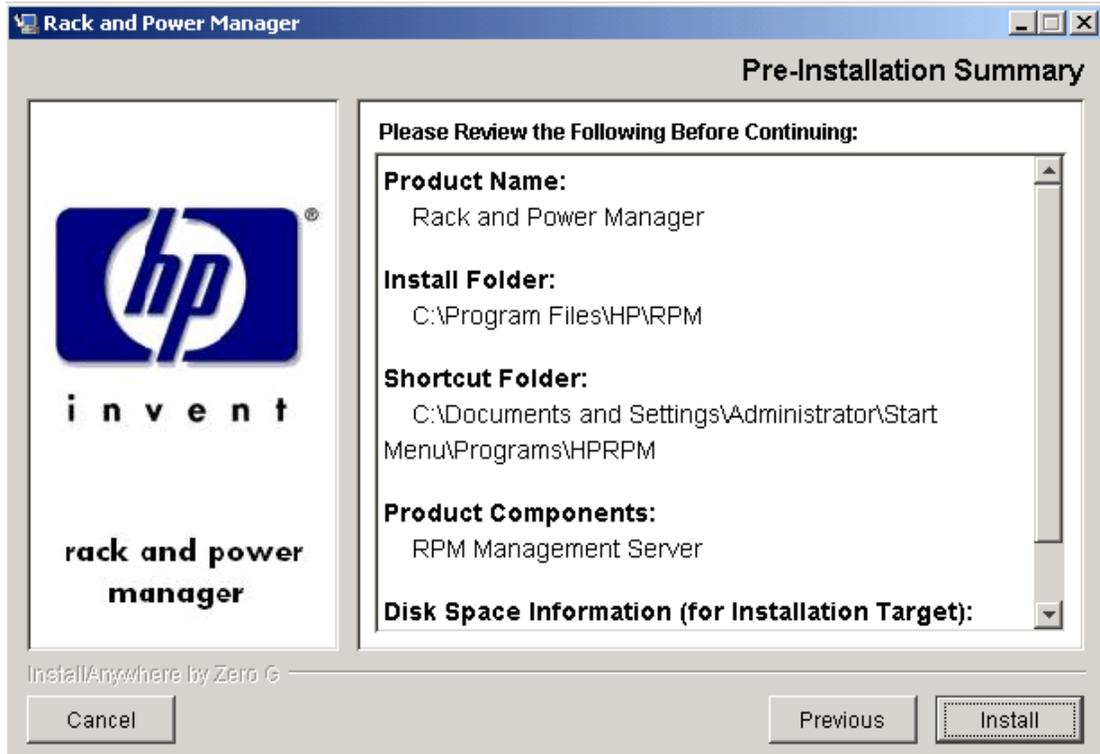
9. Enter and confirm a password to secure the SSL certificate. The password cannot contain blank spaces. Click **Next**.



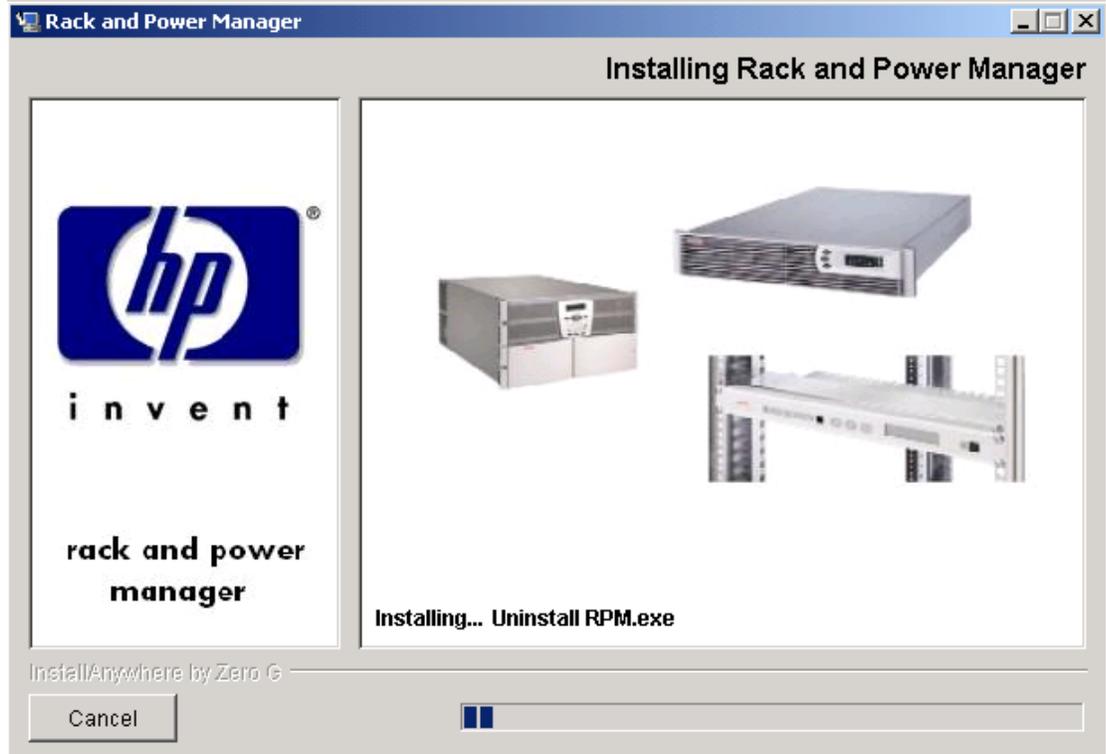
The screenshot shows a Windows-style dialog box titled "Rack and Power Manager" with a subtitle "Choose Certificate Password". On the left side, there is a vertical panel containing the HP logo (a blue circle with "hp" in white) and the word "invent" below it. Underneath the logo, the text "rack and power manager" is displayed in a bold, sans-serif font. At the bottom of this panel, it says "InstallAnywhere by Zero G". The main area of the dialog box contains a text box with the instruction: "Please enter a password to secure the SSL Certificate that will be generated during this installation. The password CANNOT contain blank spaces." Below this text box are two input fields. The first is labeled "Enter certificate password:" and the second is labeled "Confirm certificate password:". At the bottom of the dialog box, there are three buttons: "Cancel" on the left, "Previous" in the middle, and "Next" on the right. The "Next" button is highlighted with a dashed border, indicating it is the active or recommended action.

The **Pre-Installation Summary** screen is displayed.

10. Review the installation information and click **Install**.

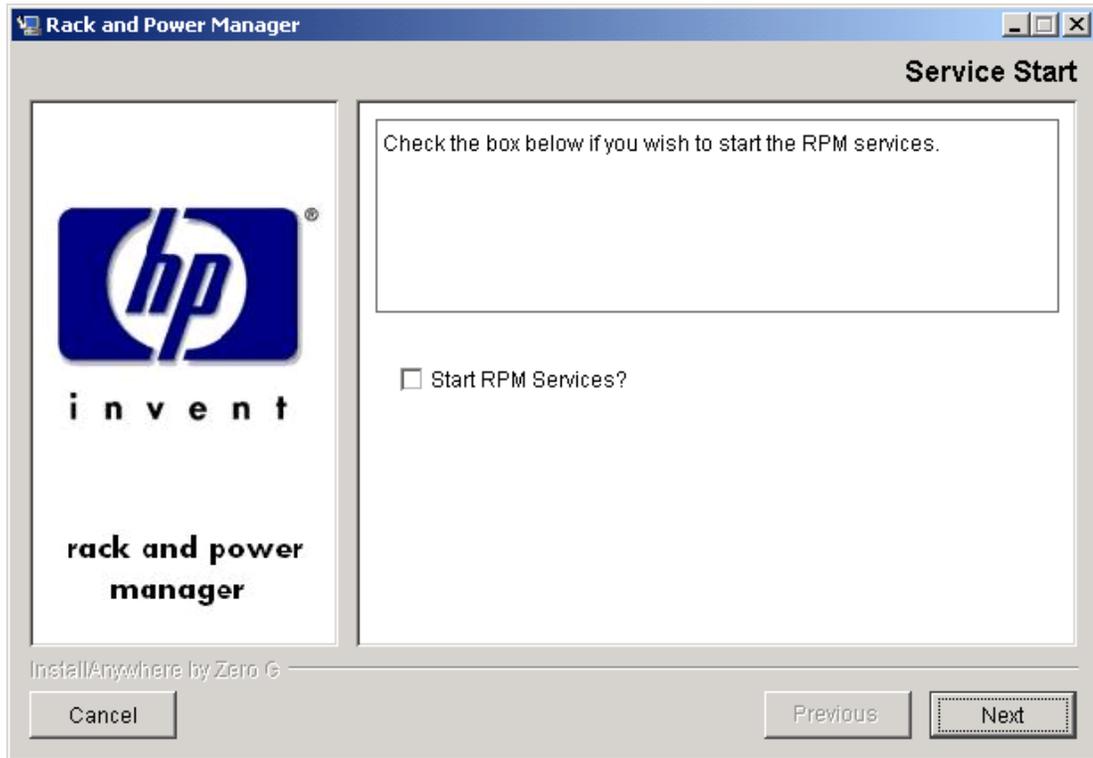


The **Installing Rack and Power Manager** screen is displayed. The Management Server installs, and a status bar indicates the installation progress.



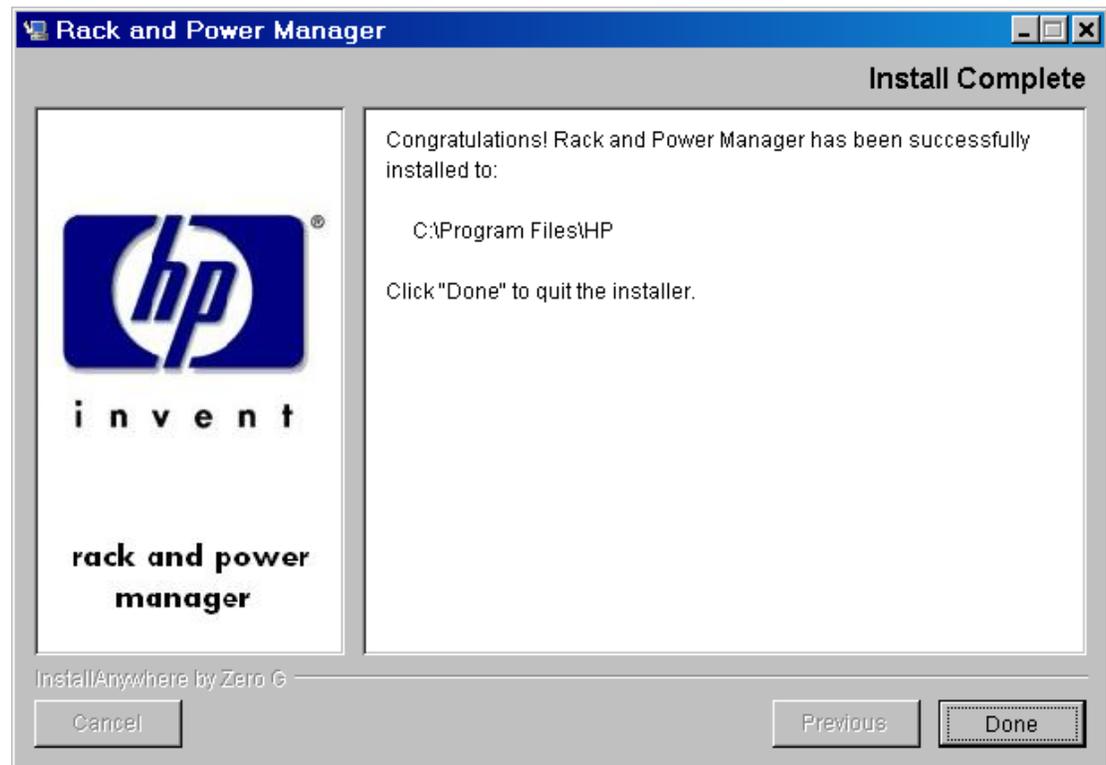
After the installation is complete, the **Service Start** screen is displayed.

11. Select **Start RPM Services?** and click **Next**.



The **Install Complete** screen is displayed.

12. Read the information and click **Done**.



Installing the System Agent Using the GUI Installation Method

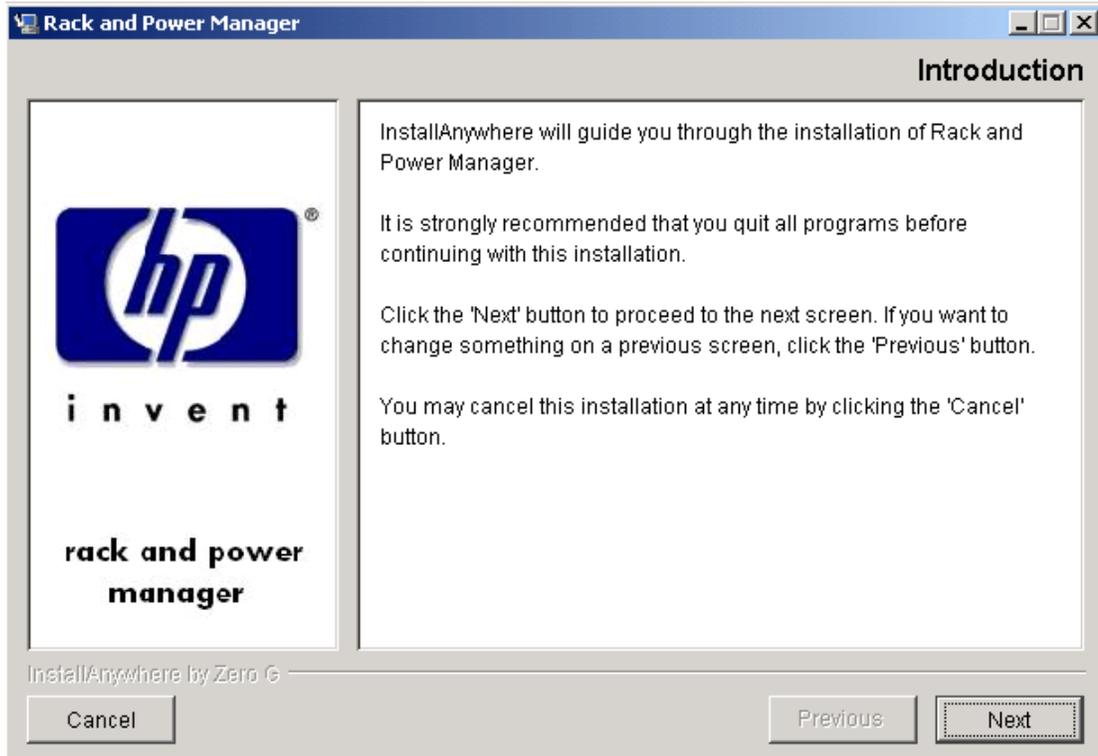
To install the System Agent on a Windows system using the GUI Installation method:

1. Insert the Rack and Power Management Pack CD into the CD-ROM drive of the computer. If the AutoPlay feature is enabled, the installation menu automatically starts.

If the AutoPlay feature is disabled, explore the CD, open the **HPRPM** folder, open the **Windows** folder, and double-click **SETUP.EXE**.

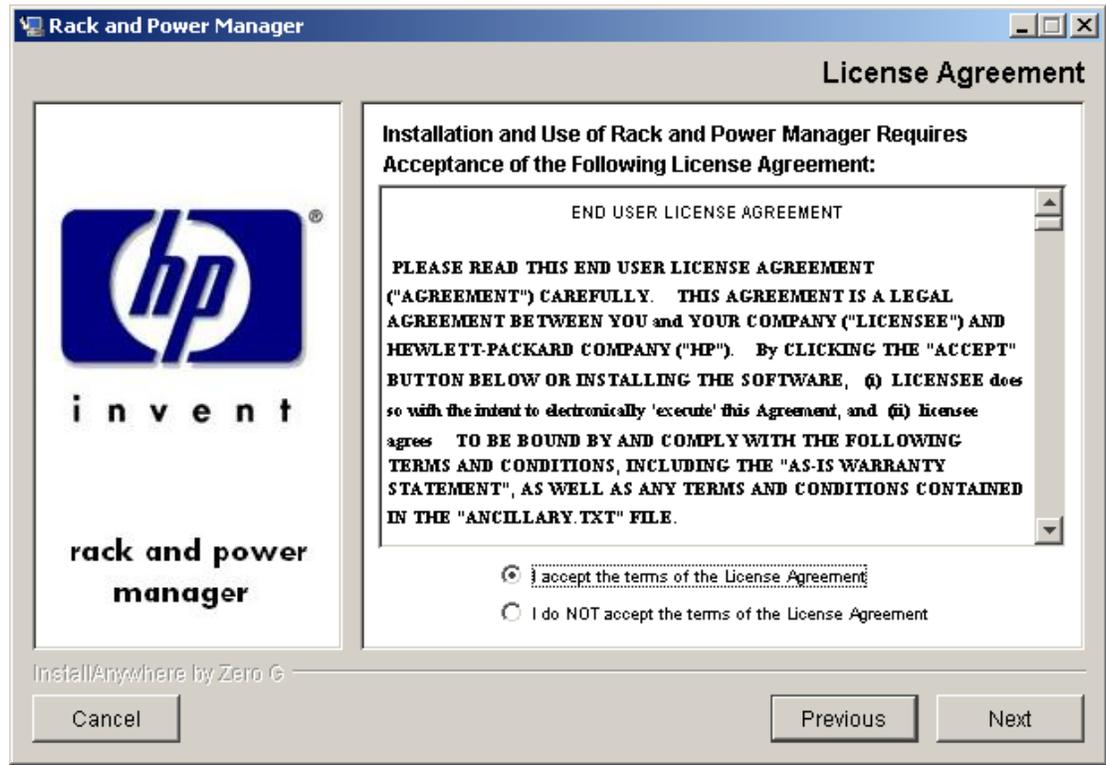
If the operating system running is Japanese, the **Language** screen is displayed. Select the installation language and click **Next**. The **Introduction** screen is displayed.

2. Read the introduction and click **Next**.



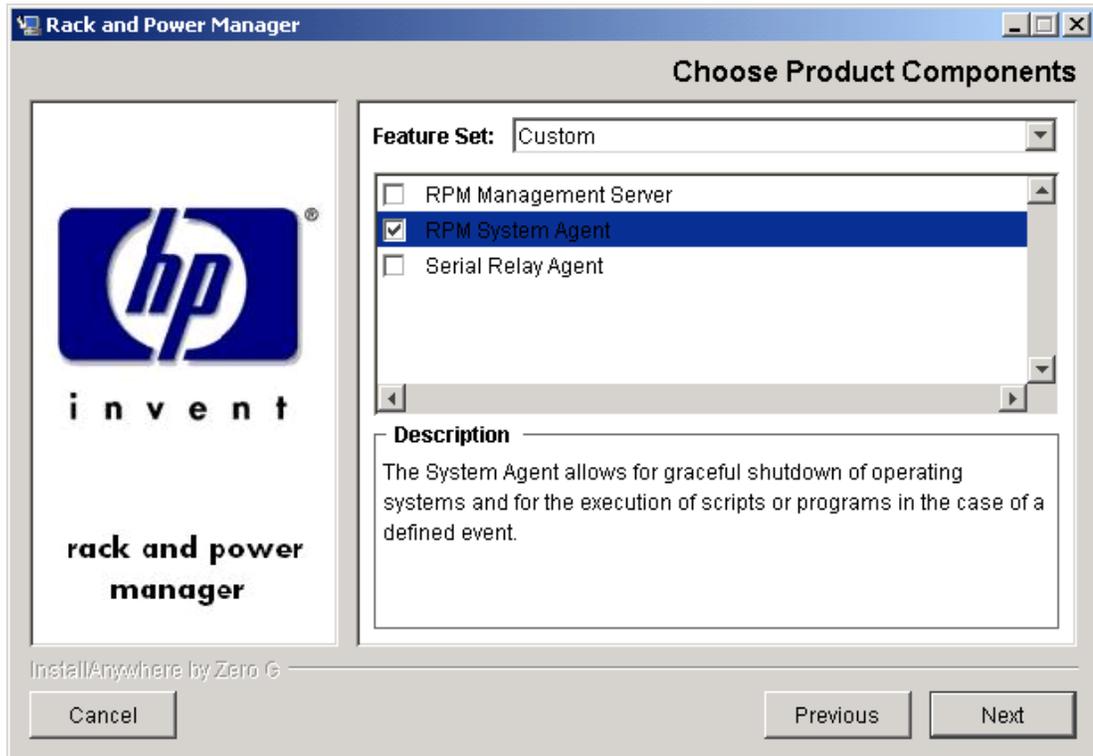
The **License Agreement** screen is displayed.

3. Read the license agreement, select **I accept the terms of the License Agreement**, and click **Next**.



The **Choose Product Components** screen is displayed.

4. Select **RPM System Agent** and click **Next**.

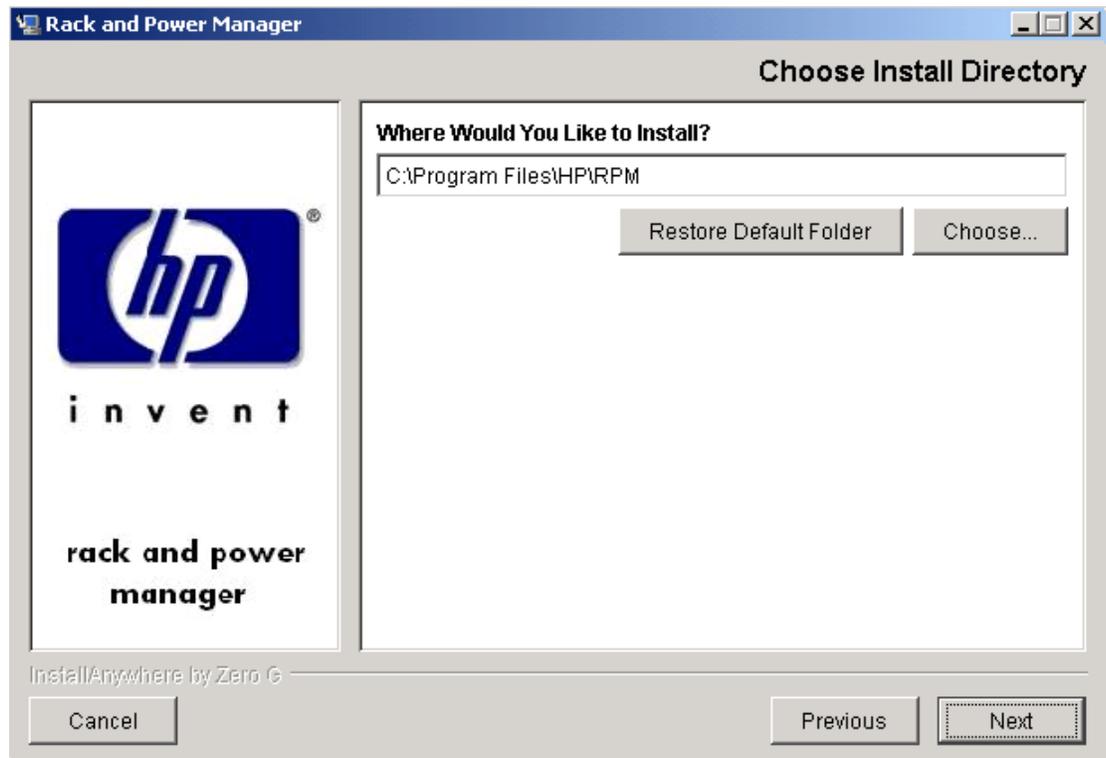


NOTE: Multiple components can be installed at one time. Available components include:

- **Management Server**—Install the Management Server on the computer that will be responsible for managing other systems and devices.
- **System Agent**—Install the System Agent on any computer that will control the shutdown and restart of a UPS load segment or receive commands from the Management Server.
- **Serial Relay Agent**—Install the Serial Relay Agent on any computer that is serially attached to a UPS.

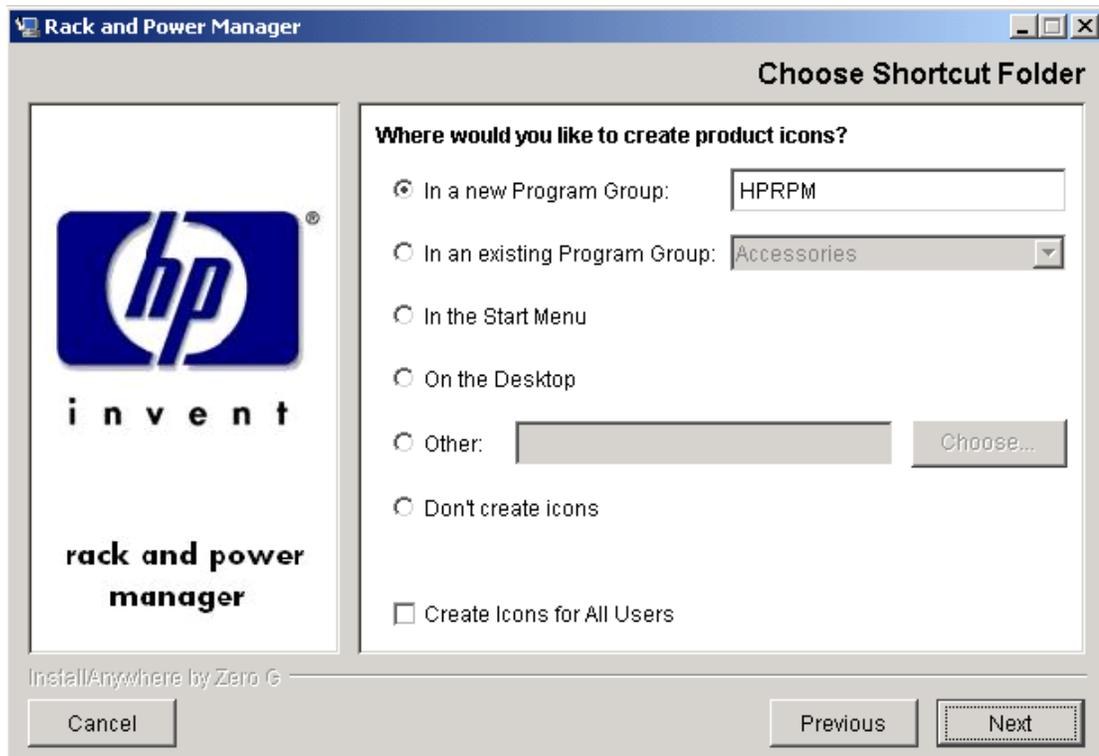
The **Choose Install Directory** screen is displayed.

5. Click **Next** to install the System Agent in the default folder that is displayed in the **Where Would You Like to Install?** field. To specify a different folder, click **Choose**, navigate to the appropriate folder, and click **Next**.



The **Choose Shortcut Folder** screen is displayed.

6. Select the appropriate radio button to create product icons for Rack and Power Manager:
 - Program Group—Click **Start**, select **Programs**, and select the **Rack and Power Manager Program Group**. Click **Rack and Power Manager** to launch the software.
 - Start Menu—Click **Start** and select **Rack and Power Manager** to launch the software.
 - Desktop Icon—Double-click the **Rack and Power Manager** icon on the desktop to launch the software.
 - Other—Double-click the **Rack and Power Manager** link located in a specified folder on the hard drive to launch the software.
7. Select **Create Icons for All Users** to display the desktop icon for any user logged in to the computer. Click **Next**.



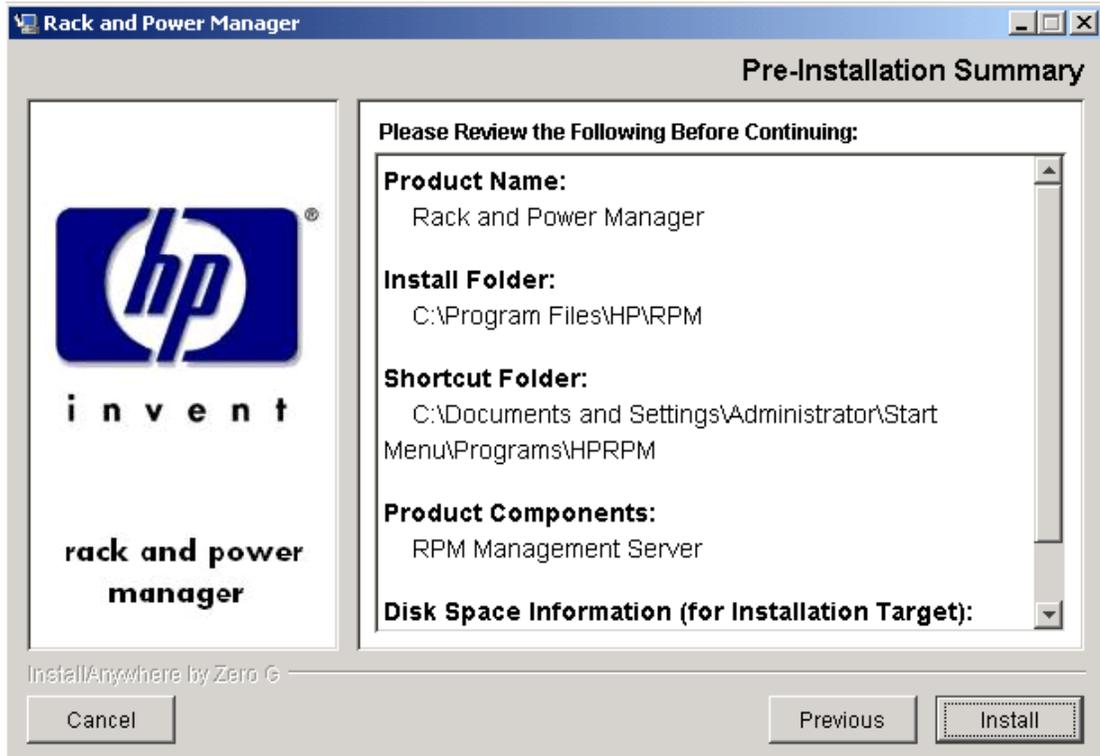
The **Choose Certificate Password** screen is displayed.

8. Enter and confirm a password to secure the SSL certificate. The password cannot contain blank spaces. Click **Next**.

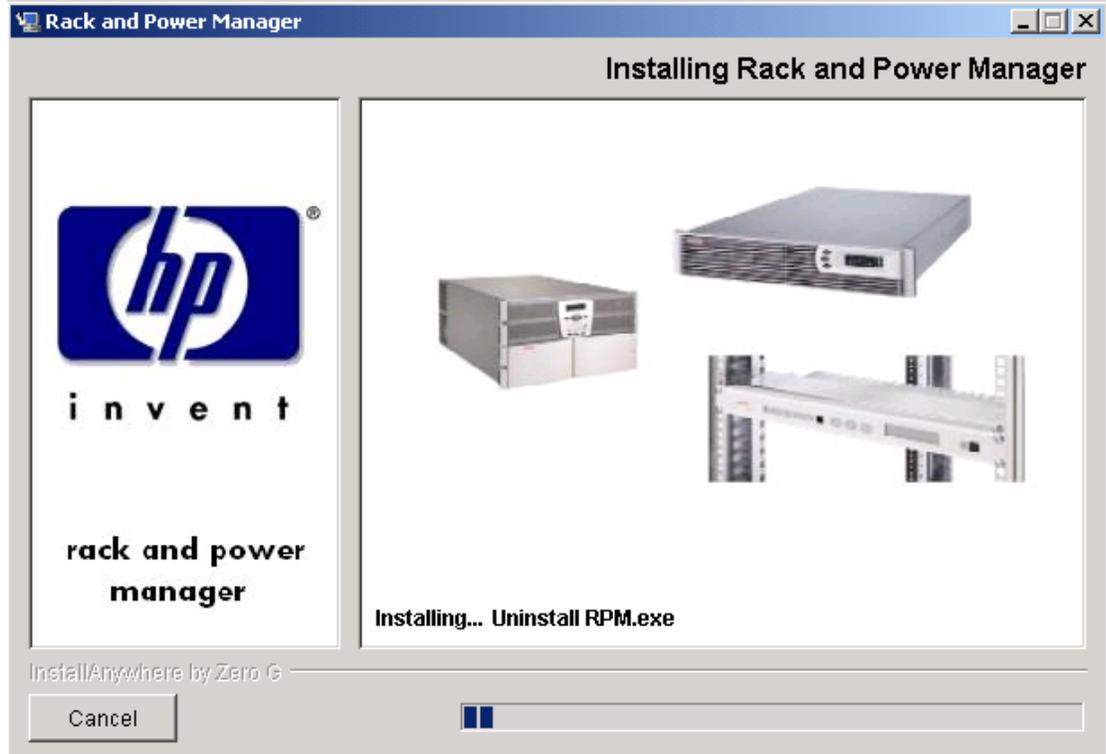
The screenshot shows a window titled "Rack and Power Manager" with a sub-header "Choose Certificate Password". On the left side, there is the HP logo with the word "invent" below it, and "rack and power manager" at the bottom. The main area contains a text box with the instruction: "Please enter a password to secure the SSL Certificate that will be generated during this installation. The password CANNOT contain blank spaces." Below this are two input fields: "Enter certificate password:" and "Confirm certificate password:". At the bottom of the window, there are three buttons: "Cancel", "Previous", and "Next". The "Next" button is highlighted with a dashed border. In the bottom left corner, there is a small logo for "InstallAnywhere by Zero G".

The **Pre-Installation Summary** screen is displayed.

- Review the installation information and click **Install**.

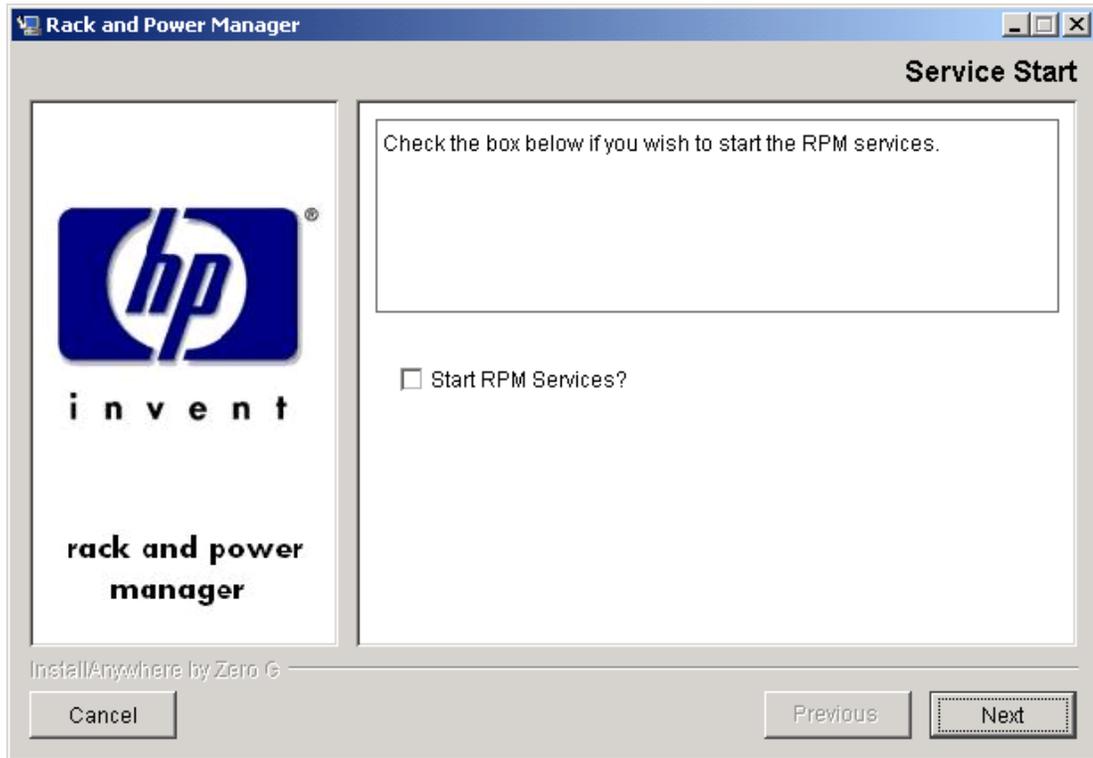


The **Installing Rack and Power Manager** screen is displayed. The System Agent installs, and a status bar indicates the installation progress.



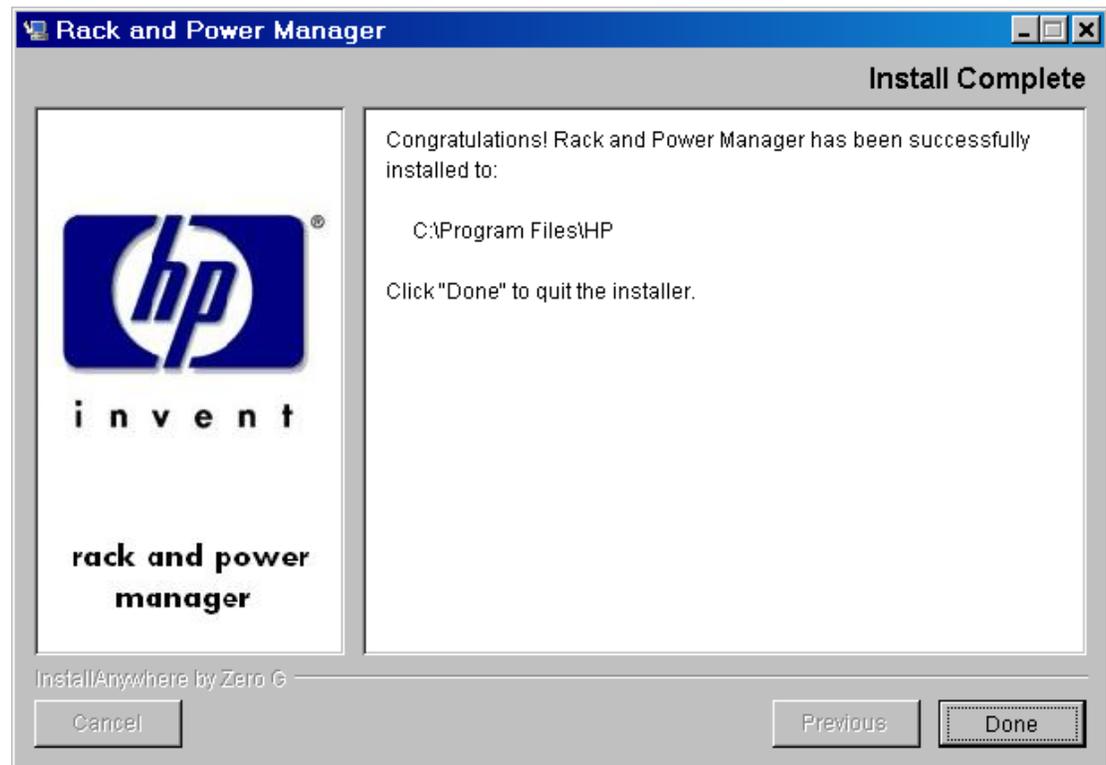
After the installation is complete, the **Service Start** screen is displayed.

10. Select **Start RPM Services?** and click **Next**.



The **Install Complete** screen is displayed.

11. Read the information and click **Done**.



Installing the Serial Relay Agent Using the GUI Installation Method

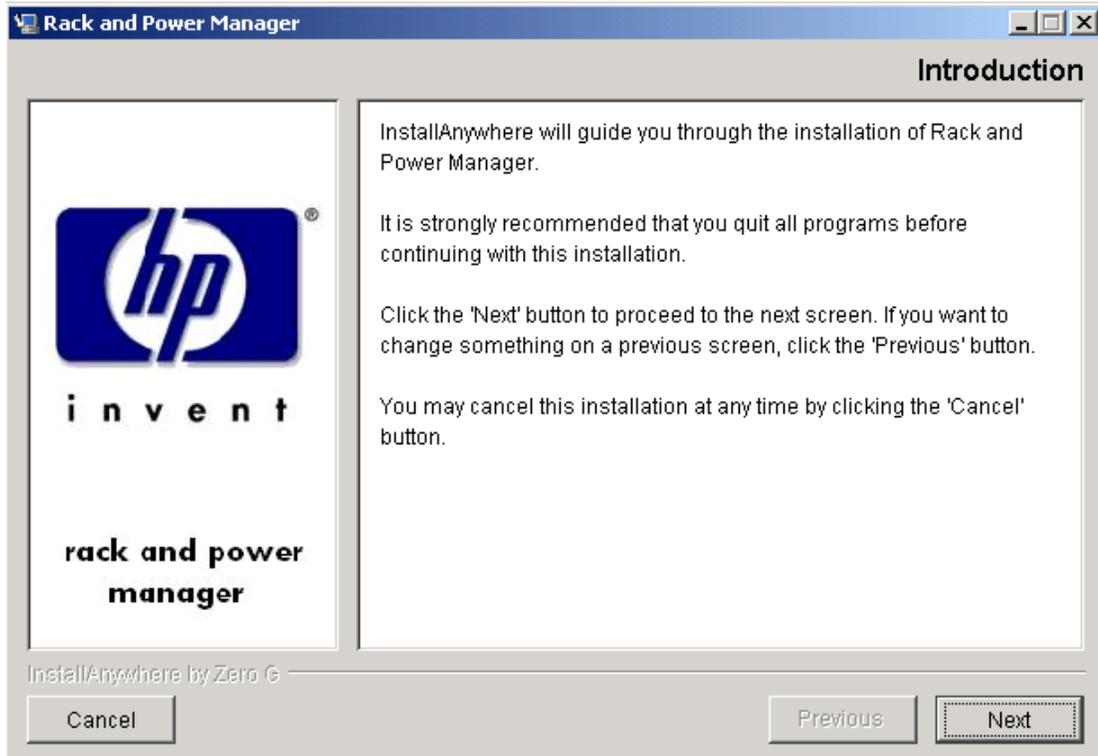
To install the Serial Relay Agent on a Windows system using the GUI Installation method:

1. Insert the Rack and Power Management Pack CD into the CD-ROM drive of the computer. If the AutoPlay feature is enabled, the installation menu automatically starts.

If the AutoPlay feature is disabled, explore the CD, open the **HPRPM** folder, open the **Windows** folder, and double-click **SETUP.EXE**.

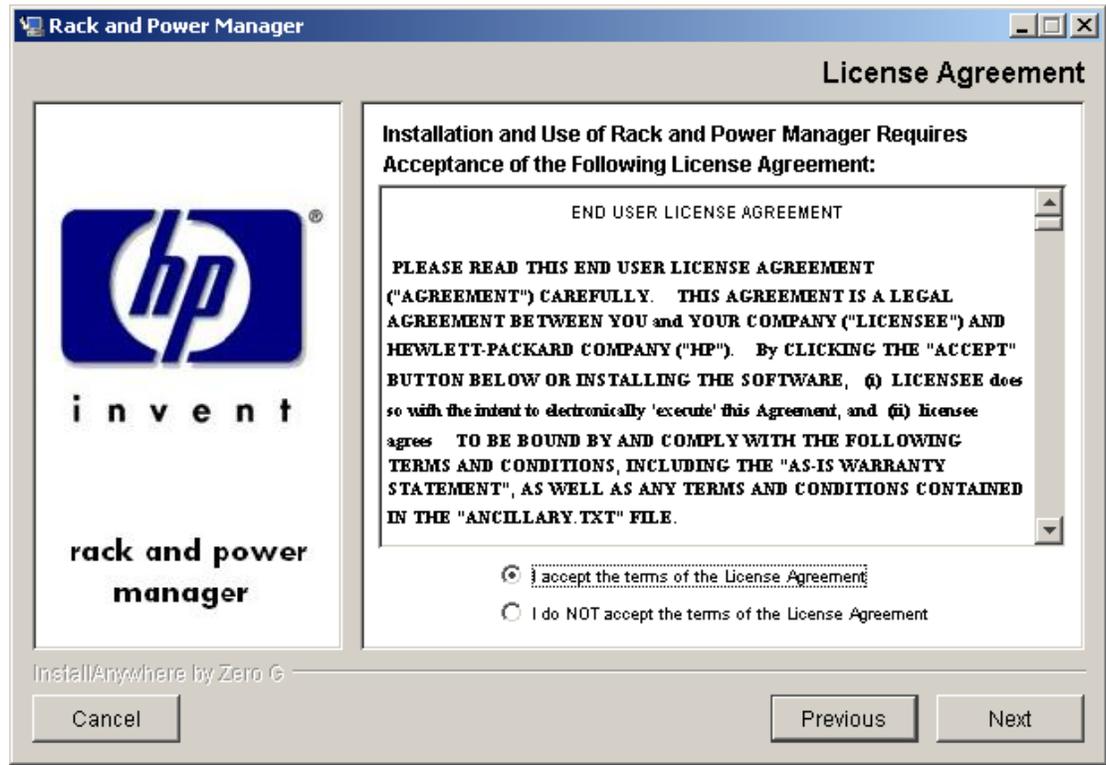
If the operating system running is Japanese, the **Language** screen is displayed. Select the installation language and click **Next**. The **Introduction** screen is displayed.

2. Read the introduction and click **Next**.



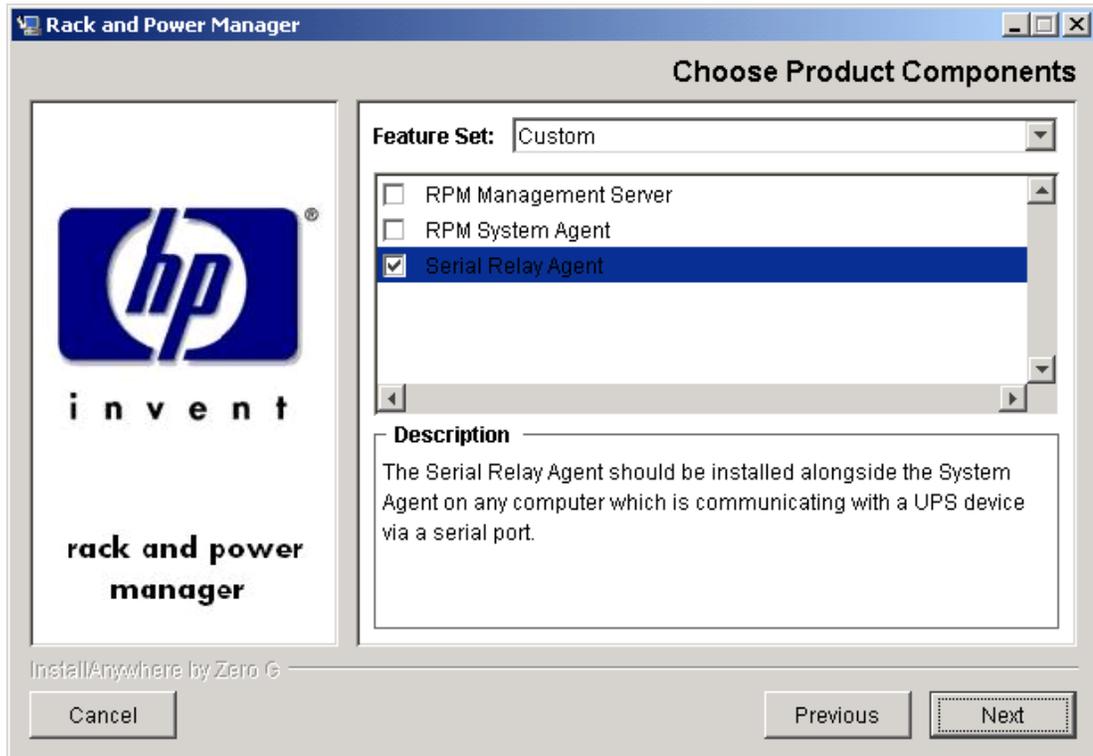
The **License Agreement** screen is displayed.

3. Read the license agreement, select **I accept the terms of the License Agreement**, and click **Next**.



The **Choose Product Components** screen is displayed.

4. Select **Serial Relay Agent** and click **Next**.

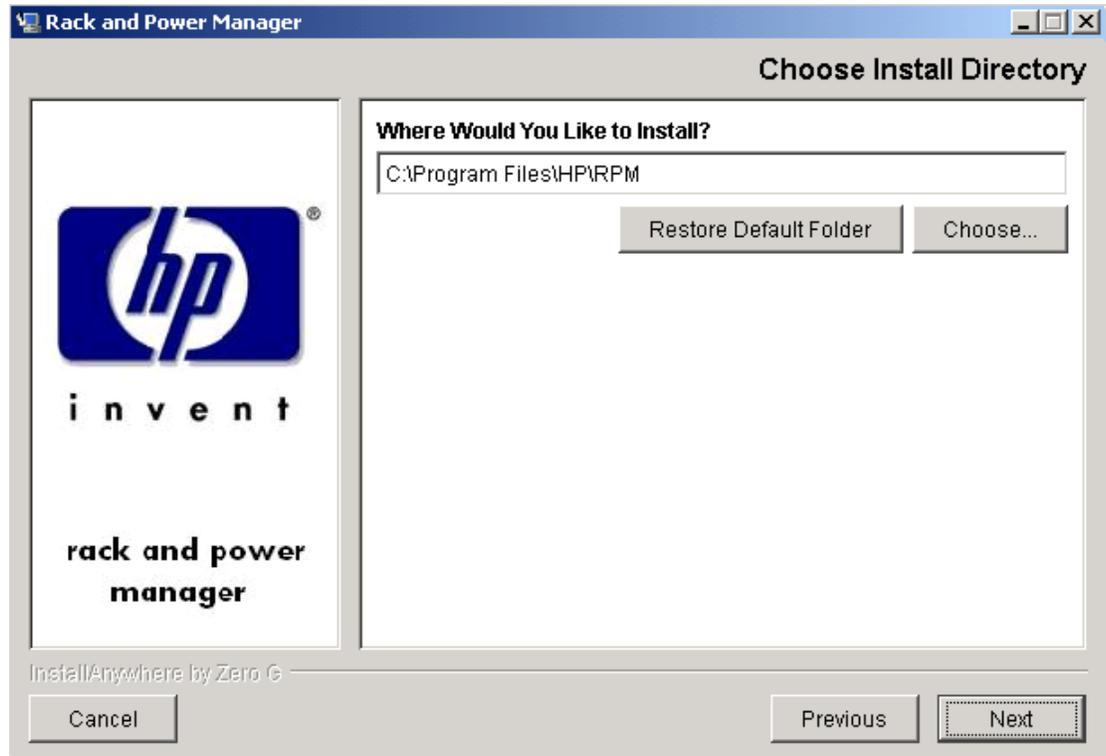


NOTE: Multiple components can be installed at one time. Available components include:

- **Management Server**—Install the Management Server on the computer that will be responsible for managing other systems and devices.
- **System Agent**—Install the System Agent on any computer that will control the shutdown and restart of a UPS load segment or receive commands from the Management Server.
- **Serial Relay Agent**—Install the Serial Relay Agent on any computer that is serially attached to a UPS.

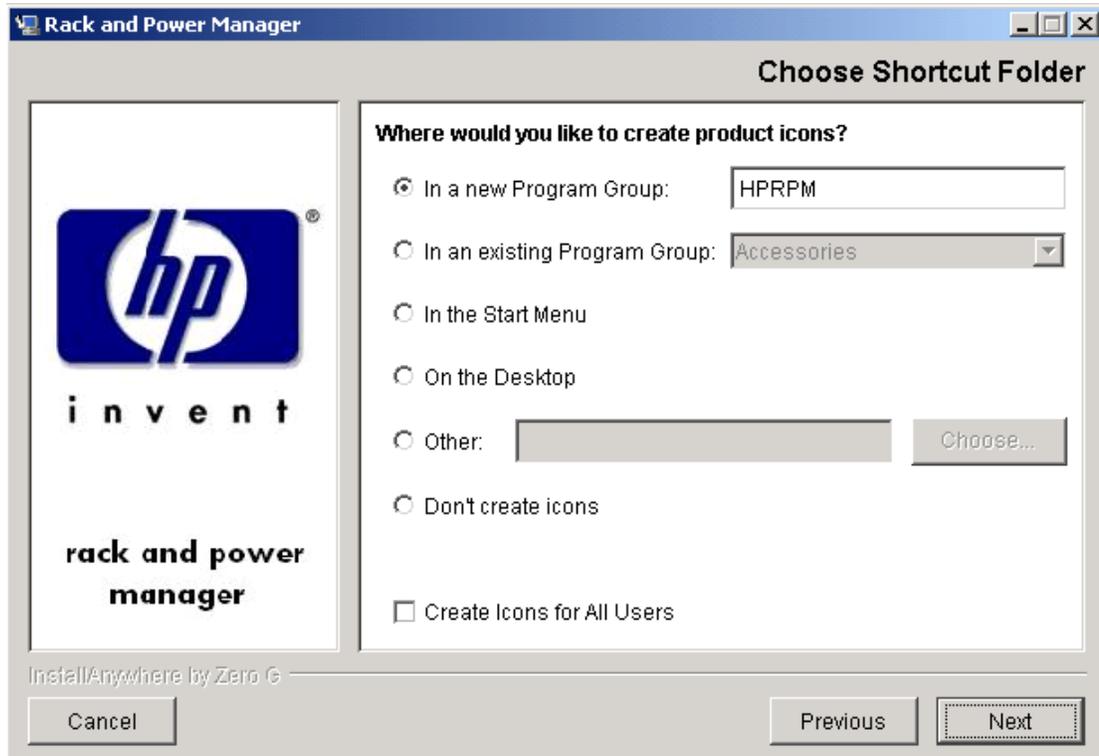
The **Choose Install Directory** screen is displayed.

5. Click **Next** to install the Serial Relay Agent in the default folder that is displayed in the **Where Would You Like to Install?** field. To specify a different folder, click **Choose**, navigate to the appropriate folder, and click **Next**.



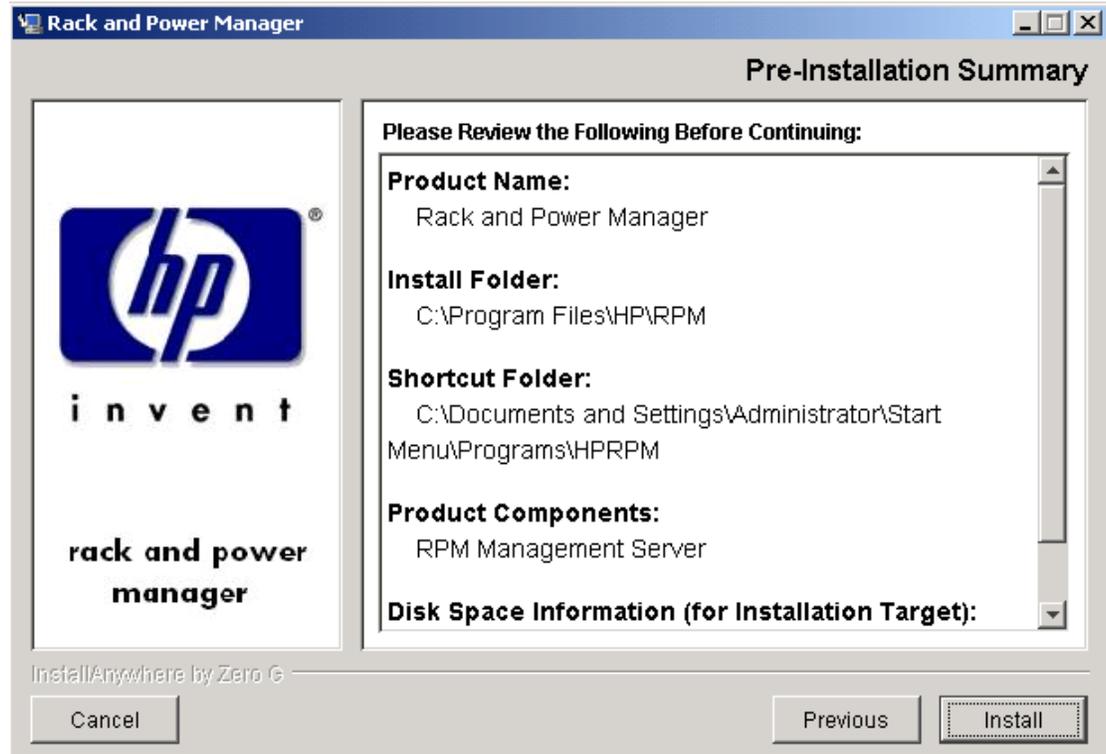
The **Choose Shortcut Folder** screen is displayed.

6. Select the appropriate radio button to create product icons for Rack and Power Manager:
 - Program Group—Click **Start**, select **Programs**, and select the **Rack and Power Manager Program Group**. Click **Rack and Power Manager** to launch the software.
 - Start Menu—Click **Start** and select **Rack and Power Manager** to launch the software.
 - Desktop Icon—Double-click the **Rack and Power Manager** icon on the desktop to launch the software.
 - Other—Double-click the **Rack and Power Manager** link located in a specified folder on the hard drive to launch the software.
7. Select **Create Icons for All Users** to display the desktop icon for any user logged in to the computer. Click **Next**.

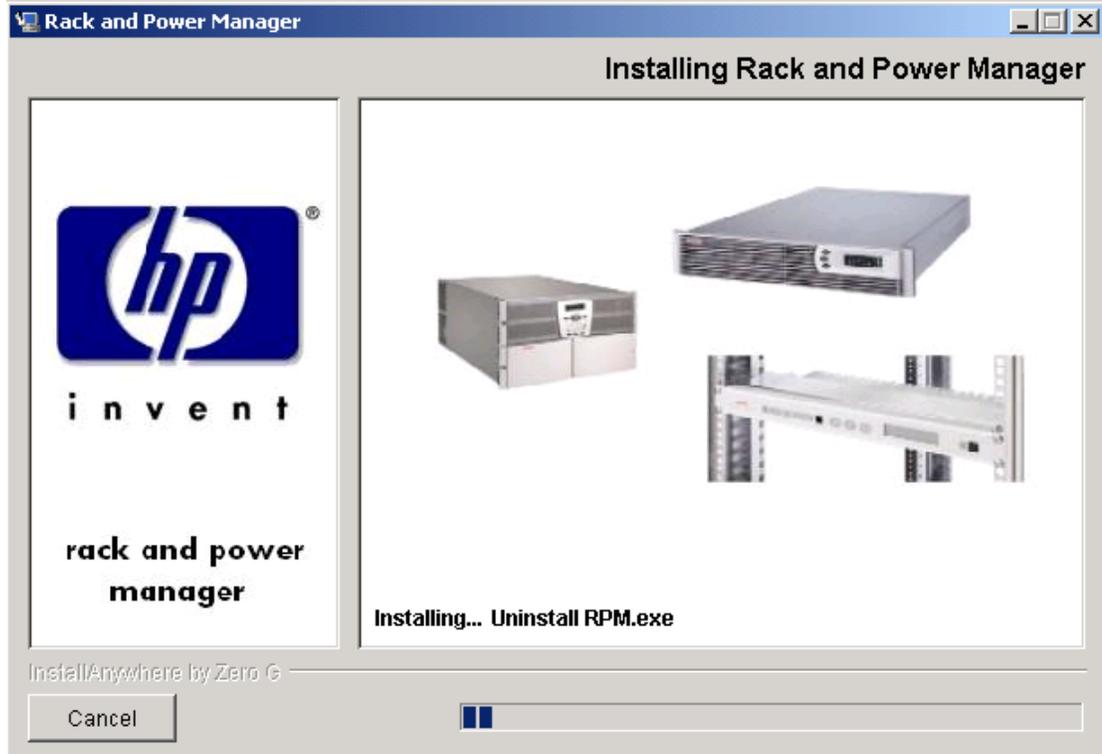


The **Pre-Installation Summary** screen is displayed.

- Review the installation information and click **Install**.



The **Installing Rack and Power Manager** screen is displayed. The Serial Relay Agent installs, and a status bar indicates the installation progress.



The **Setup Serial Relay Agent** dialog box is displayed.

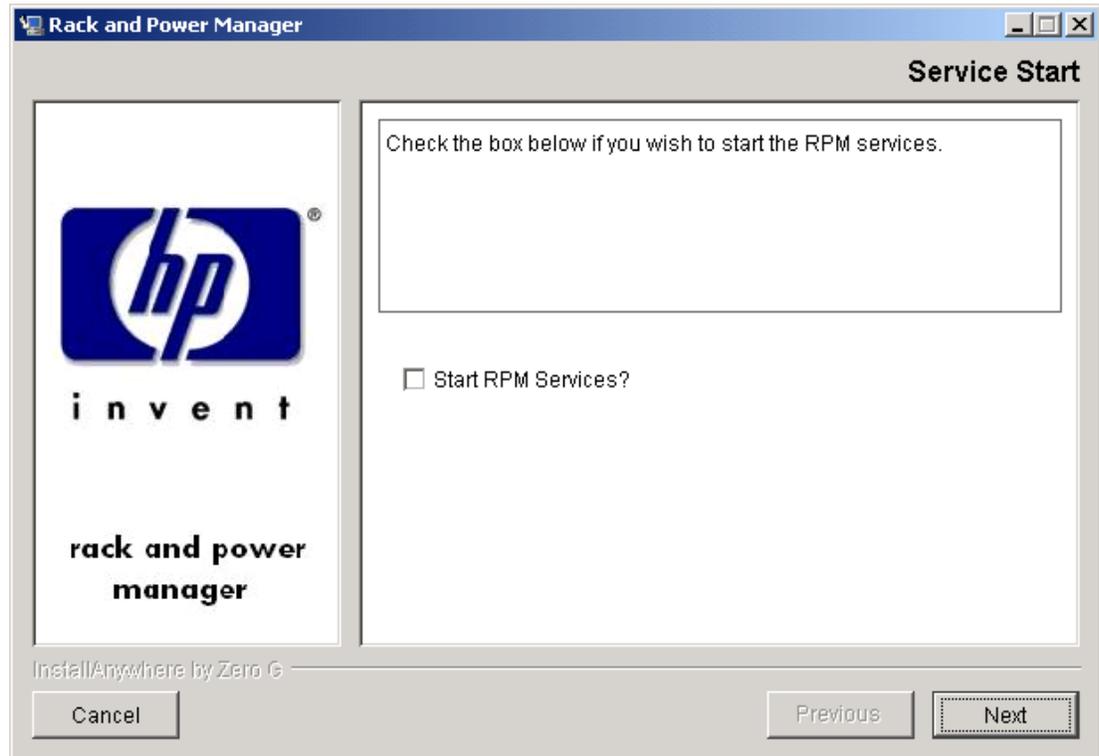
9. Select the COM port on the computer to which the UPS is attached in the **Serial Port** drop-down box. Select the baud rate at which the UPS communicates (9600 or 19200) or select Automatic to have Rack and Power Manager determine the correct baud rate. Click **OK**.



A message is displayed asking to start the Serial Relay Agent. Click **Yes**. The installation program attempts to communicate with the UPS. After communication is established, the **Service Start** screen is displayed.

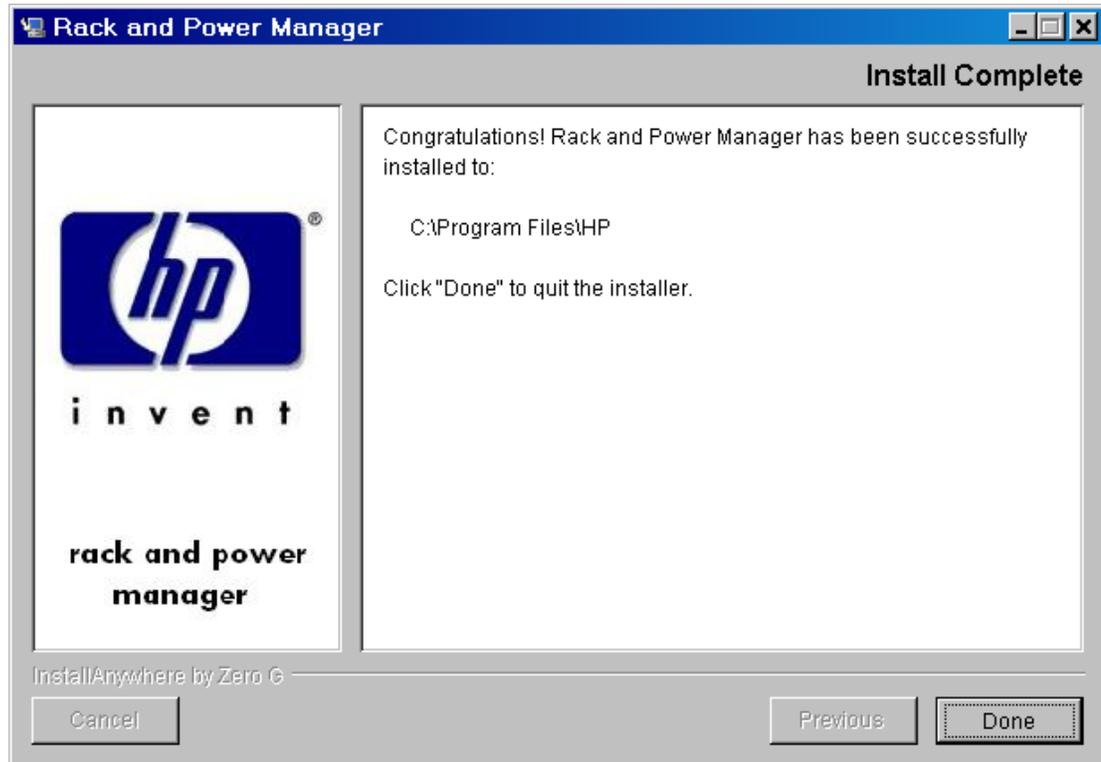
NOTE: If the Serial Relay Agent fails to communicate with the UPS, refer to Chapter 6, "Troubleshooting."

10. Select **Start RPM Services?** and click **Next**.



The **Install Complete** screen is displayed.

11. Read the information and click **Done**.



Installing the System Agent and Serial Relay Agent Using the Silent Installation Method

The System Agent and Serial Relay Agent can be installed using the Silent installation option on any supported Windows operating system.

To install using the Silent installation option, a properties file must be created using a text editor with the appropriate variables set for the desired installation options.

A description of the variables used on the properties file is included in Table 2-4. Examples of the properties file follow.

Table 2-4: Complete List of Variables

Variable	Function
INSTALLER_UI {should be equal to silent}	Use this variable to indicate the install type.
CHOSEN_INSTALL_SET {agent, SRA, agentSRA}	Use this variable to select which agent component to install. <ul style="list-style-type: none"> • Use <code>agent</code> to install the System Agent. • Use <code>SRA</code> to install the Serial Relay Agent. • Use <code>agent.SRA</code> to install both the System Agent and Serial Relay Agent.
USER_INSTALL_DIR {Divisions in the file structure between directories should be indicated with the symbol '\$/\$'. Example: C:/\$/hprpm}	Use this variable to indicate the path to which the agent component is to be installed.
INSTALL_AGENT {equal to true if CHOSEN_INSTALL_SET = agent or CHOSEN_INSTALL_SET = agentSRA}	Use this variable to confirm which agents are to be installed.
USER_INPUT_CERT_PW_1 {password needed if CHOSEN_INSTALL_SET = agent or CHOSEN_INSTALL_SET = agentSRA; should be equal to USER_INPUT_CERT_PW_2}	Use this variable to input the SSL certificate password that will be generated during the install.
USER_INPUT_CERT_PW_2 {password needed if CHOSEN_INSTALL_SET = agent or CHOSEN_INSTALL_SET = agentSRA; should be equal to USER_INPUT_CERT_PW_1}	Use this variable to confirm the SSL certificate password that will be generated during the install.
USER_INPUT_SRA_COM {Communications Port Number the UPS is connected to, needed if CHOSEN_INSTALL_SET = SRA or CHOSEN_INSTALL_SET = agentSRA}	Use this variable to input the COM port number to which the UPS is connected.
USER_INPUT_SRA_PASSWORD {SRA Password needed if CHOSEN_INSTALL_SET = SRA or CHOSEN_INSTALL_SET = agentSRA}	Use this variable to input the password the Serial Relay Agent uses when communicating with the Rack and Power Management Server. The password is <code>MustB6</code> .
USER_INPUT_RESULTS_START_1 {this variable is needed to start the services installed; it should be equal to Start RPM Services?}	Use this variable to start the Rack and Power Manager service.

Example 2-1: Silent System Agent Installation

```
INSTALLER_UI = silent
CHOSEN_INSTALL_SET = agent
USER_INSTALL_DIR = c:\$Program Files$\$HPRPM
INSTALL_AGENT = true
USER_INPUT_CERT_PW_1 = Admin
USER_INPUT_CERT_PW_2 = Admin
USER_INPUT_RESULTS_START_1 = Start RPM Services?
```

Example 2-2: Silent System Agent and Serial Relay Agent Installation

```
INSTALLER_UI = silent
CHOSEN_INSTALL_SET = agentsRA
USER_INSTALL_DIR = c:\$Program Files$\$HP$\$SRPM
INSTALL_AGENT = true
USER_INPUT_CERT_PW_1 = Admin
USER_INPUT_CERT_PW_2 = Admin
USER_INPUT_SRA_COM = 2
USER_INPUT_SRA_PASSWORD = Admin
USER_INPUT_RESULTS_START_1 = Start CRPM Services?
```

After saving the text file, run the installer by entering `<path to install executable> -f <path to properties file>` at the command prompt. For example, if the install executable (`SETUP.EXE`) is in the directory `c:/hprpm` and the properties file (`INSTALL.PROP`) is in the directory `c:/docs`, from a command prompt at `c:/hprpm`, enter:

```
SETUP.EXE -f C:/DOCS/INSTALL.PROP
```

Installing Components on RedHat Operating Systems

The Management Server, System Agent, and Serial Relay Agent can be installed using the GUI installation option on any supported RedHat operating system.

NOTE: Rack and Power Manager components can be installed individually or as a group using the GUI installation method. The instructions in this guide are for individual component installation.

The System Agent and Serial Relay Agent can be installed using the Silent installation option on any supported RedHat operating system.

Installing the Management Server Using the GUI Installation Method

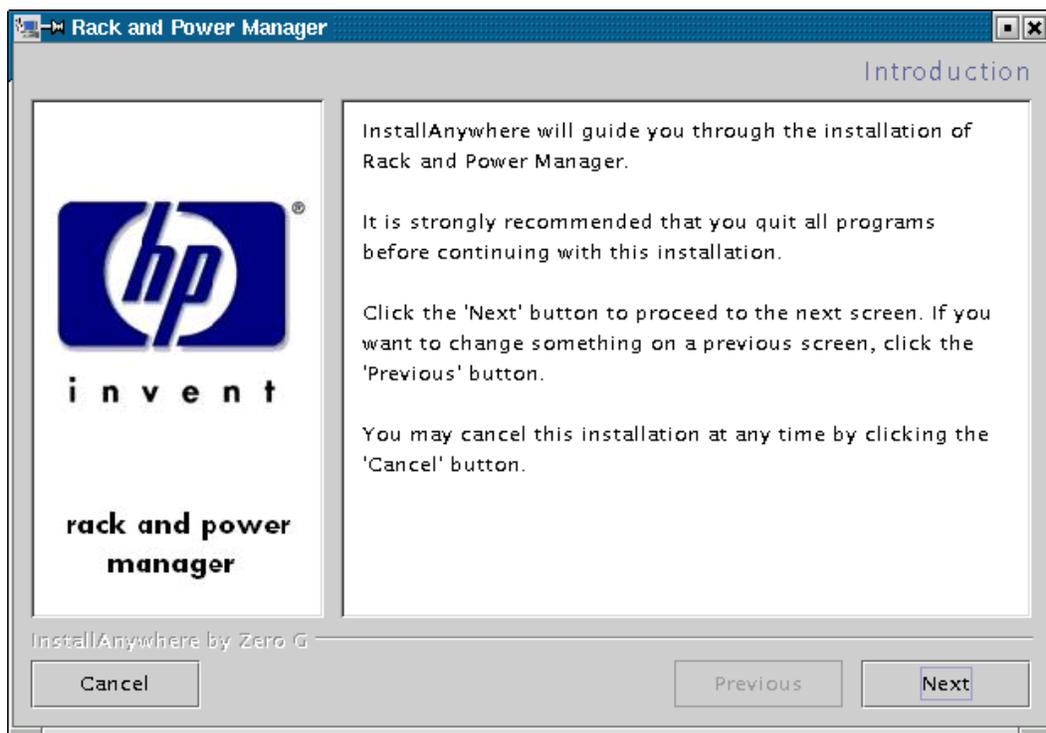
To install the Management Server on a RedHat system using the GUI Installation method:

1. Insert the Rack and Power Management Pack CD into the CD-ROM drive of the computer.

Mount the CD and locate and run the Linux executable file located in the **HPRPM/Linux** folder (**INSTALL.BIN**).

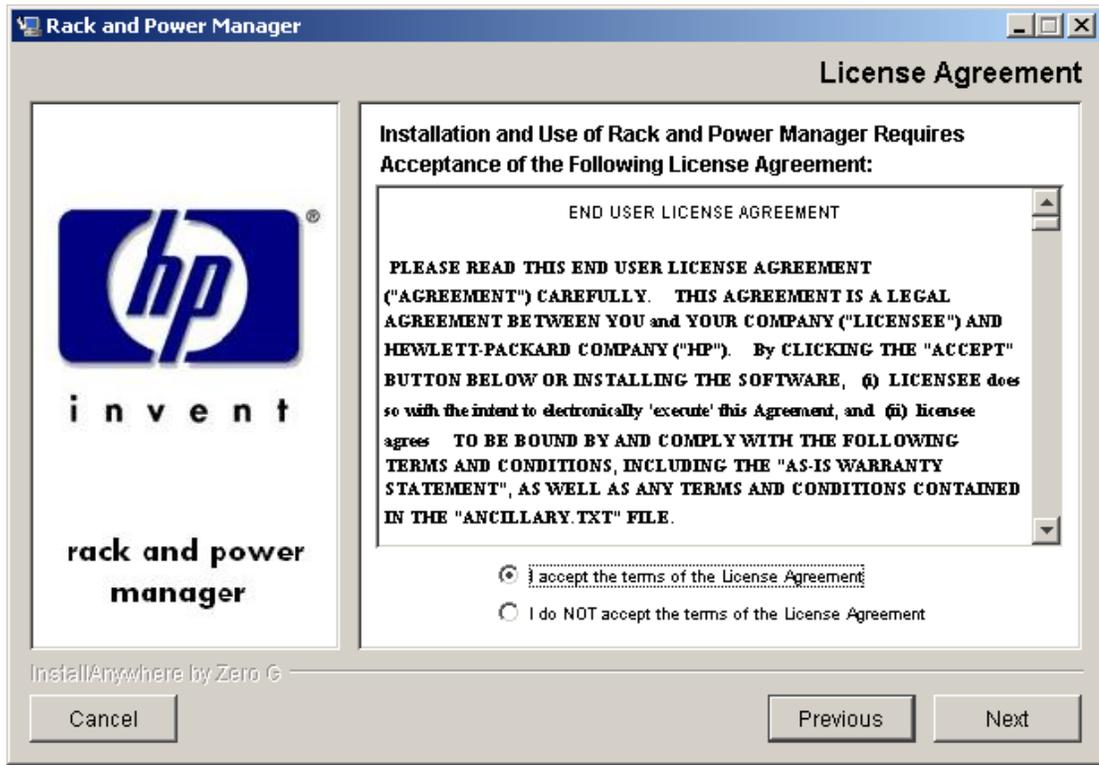
If the operating system running is Japanese, the **Language** screen is displayed. Select the installation language and click **Next**. The **Introduction** screen is displayed.

2. Read the introduction and click **Next**.



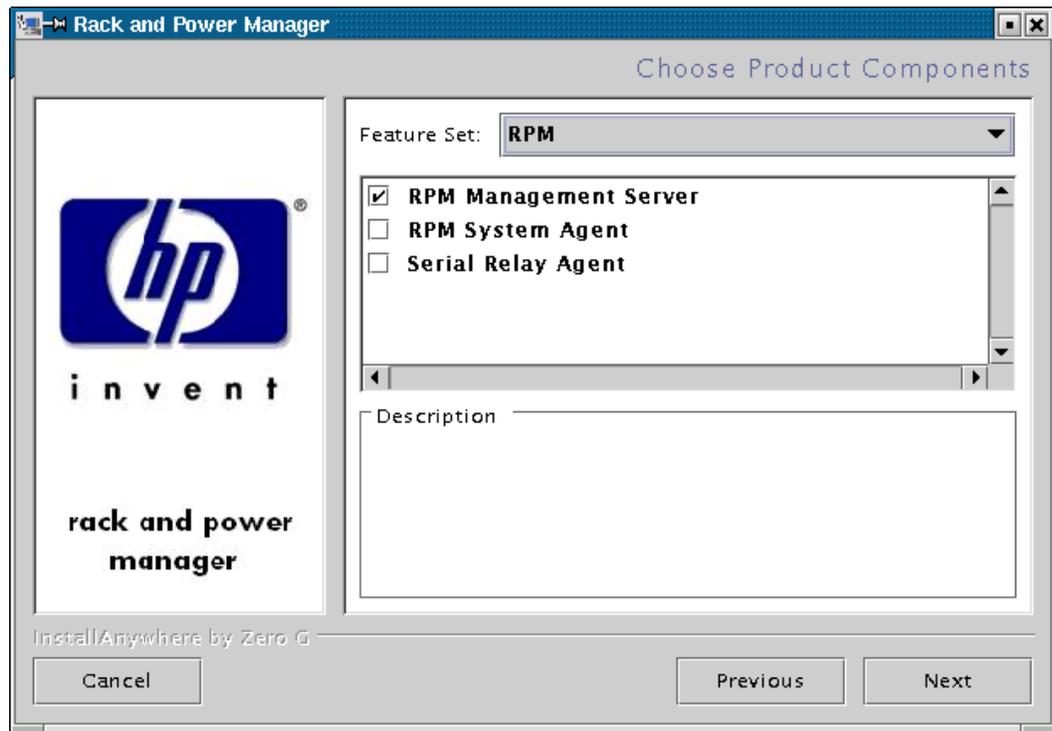
The **License Agreement** screen is displayed.

3. Read the license agreement, select **I accept the terms of the License Agreement**, and click **Next**.



The **Choose Product Components** screen is displayed.

4. Select **Management Server** and click **Next**.

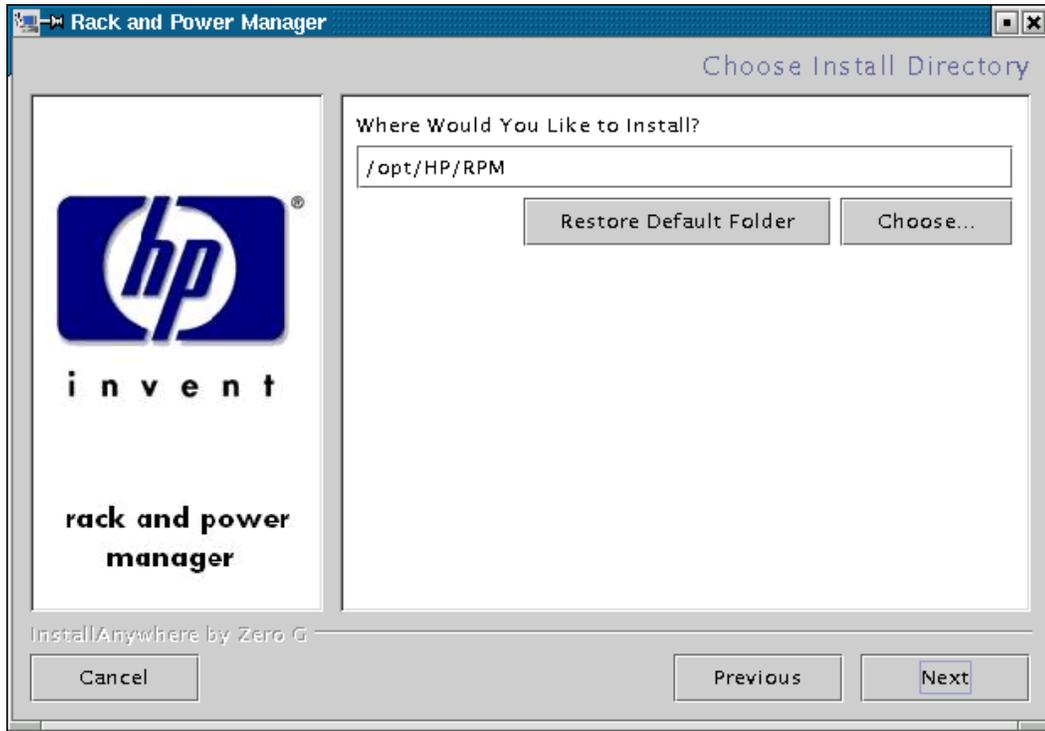


NOTE: Multiple components can be installed at one time. Available components include:

- **Management Server**—Install the Management Server on the computer that will be responsible for managing other systems and devices.
- **System Agent**—Install the System Agent on any computer that will control the shutdown and restart of a UPS load segment or receive commands from the Management Server.
- **Serial Relay Agent**—Install the Serial Relay Agent on any computer that is serially attached to a UPS.

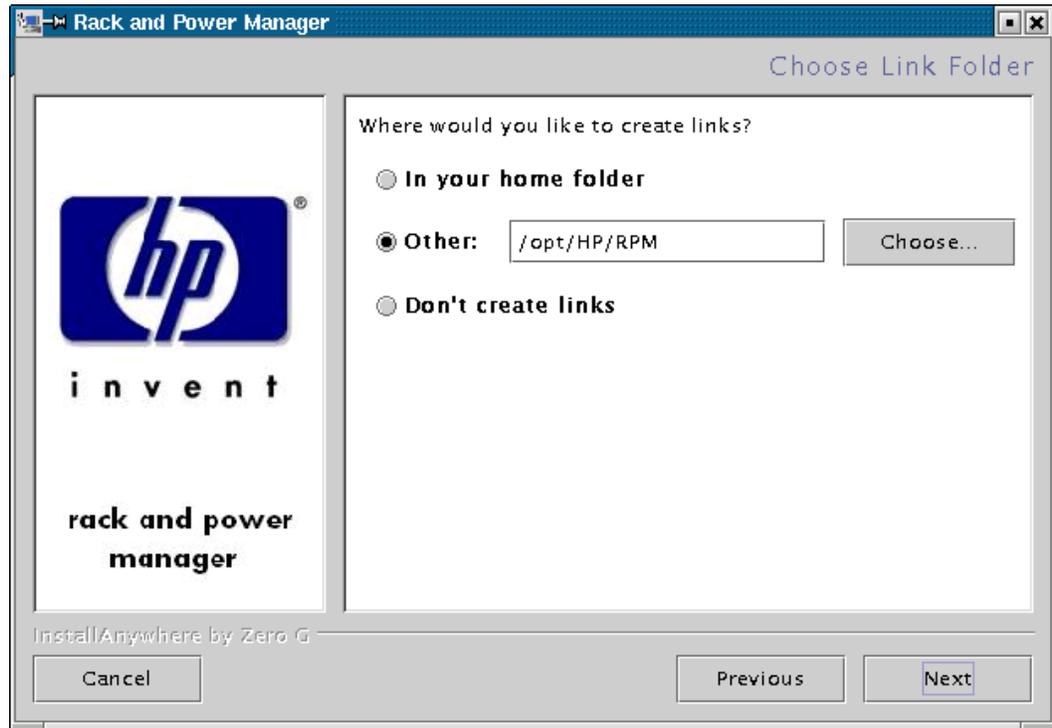
The **Choose Install Directory** screen is displayed.

5. Click **Next** to install the Management Server in the default folder that is displayed in the **Where Would You Like to Install?** field. To specify a different folder, click **Choose**, navigate to the appropriate folder, and click **Next**.



The **Choose Link Folder** screen is displayed.

6. Select the appropriate radio button to create links for Rack and Power Manager:
 - Home folder—Double-click the **Rack and Power Manager** link in the home folder to launch the software.
 - Other—Double-click the **Rack and Power Manager** link located in a specified folder on the hard drive to launch the software.
7. Click **Next**.



The **Choose Passwords** screen is displayed.

8. Enter the password for the first administrator in the **Enter Admin Password** field. Confirm the password by re-entering the password in the **Confirm Admin Password** field. Additional administrator accounts and passwords can be set up on the Rack and Power Manager **User Administration** screen. For more information on adding accounts, refer to “User Administration Screen” in Chapter 4.

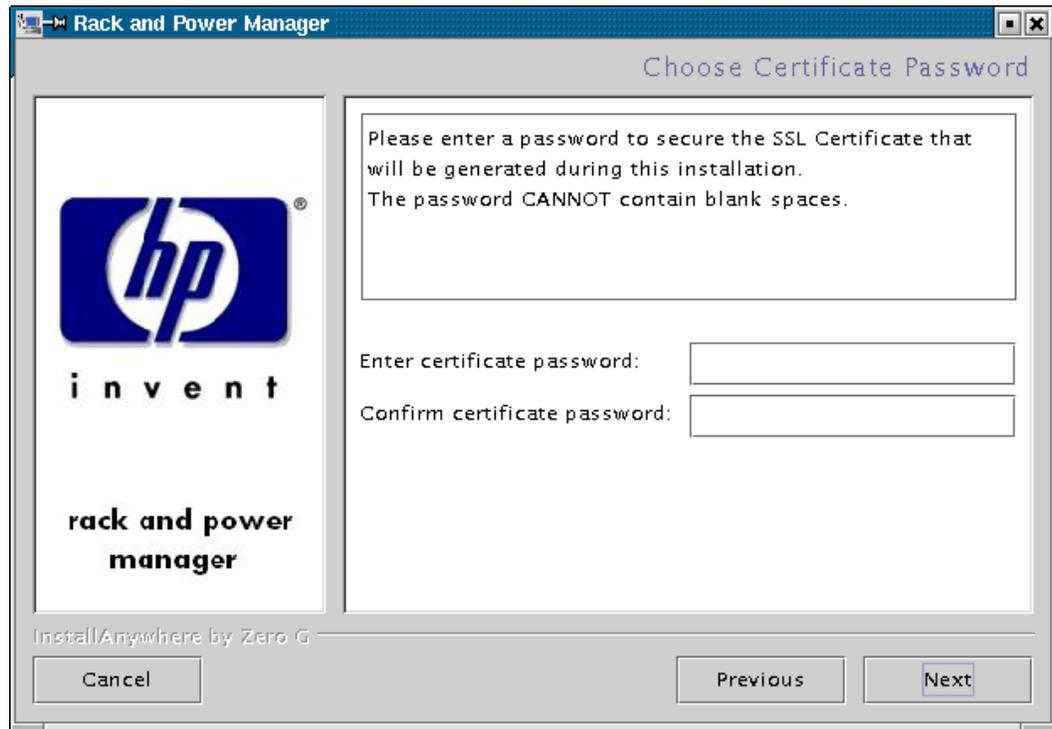
Enter the password needed to allow Rack and Power Manager to communicate with the database in the **Enter Data Access Password** field. Confirm the password by re-entering the password in the **Confirm Data Access Password** field. The database password can be changed after installation is complete on the Rack and Power Manager **Database** screen. For more information on changing the database password, refer to “Database Screen” in Chapter 4.

Click **Next**.

The screenshot shows a window titled "Rack and Power Manager" with a subtitle "Choose Passwords". On the left side, there is the HP logo and the text "invent" and "rack and power manager". The main area contains the following text: "Please enter passwords for the Administrative user account ('admin') and for securing data access between the RPM application and its database." Below this text are four input fields with labels: "Enter Admin Password:", "Confirm Admin Password:", "Enter Database Access Password:", and "Confirm Database Access Password:". At the bottom of the window, there are three buttons: "Cancel", "Previous", and "Next".

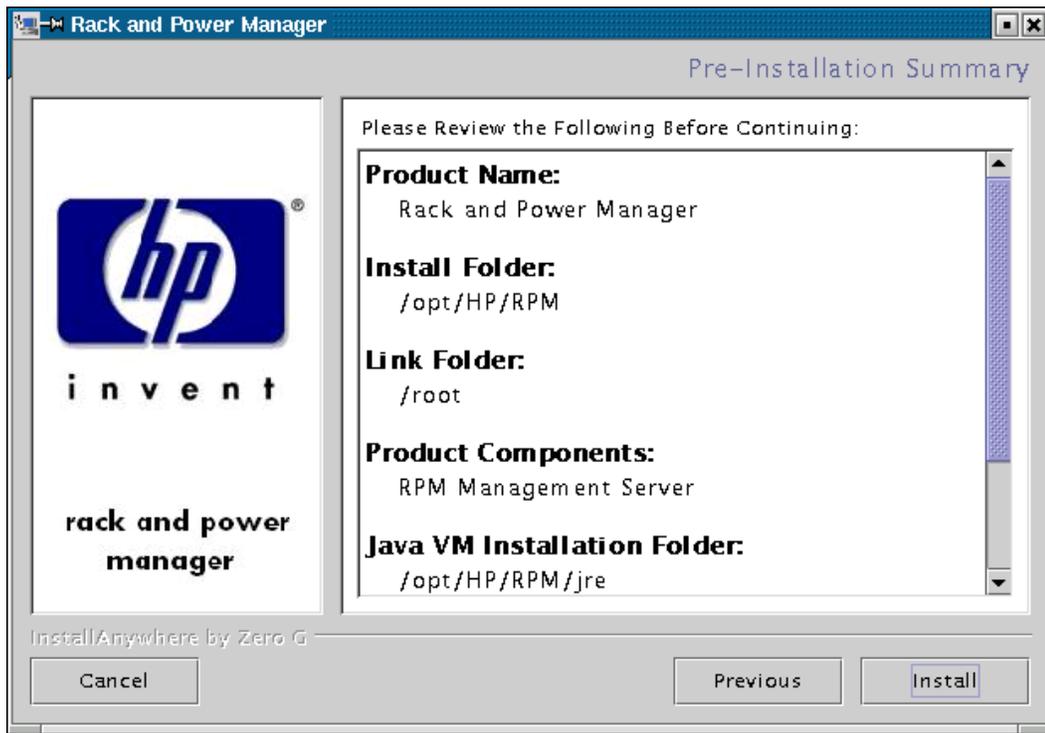
The **Choose Certificate Password** screen is displayed.

9. Enter and confirm a password to secure the SSL certificate. The password cannot contain blank spaces. Click **Next**.

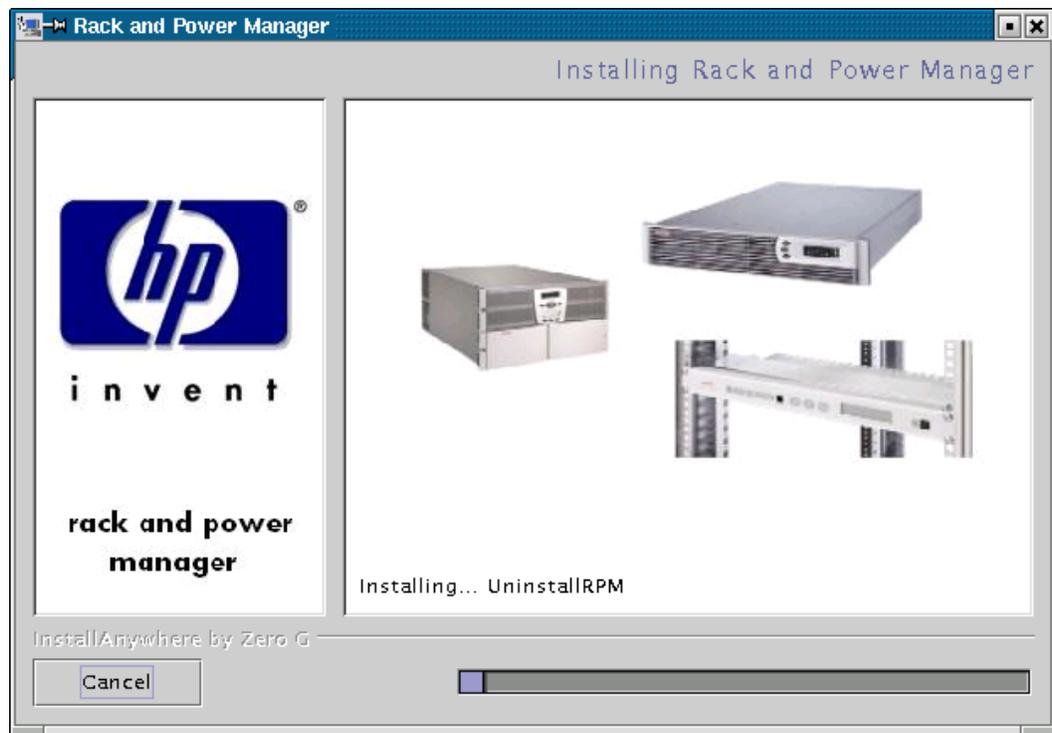


The **Pre-Installation Summary** screen is displayed.

10. Review the installation information and click **Install**.

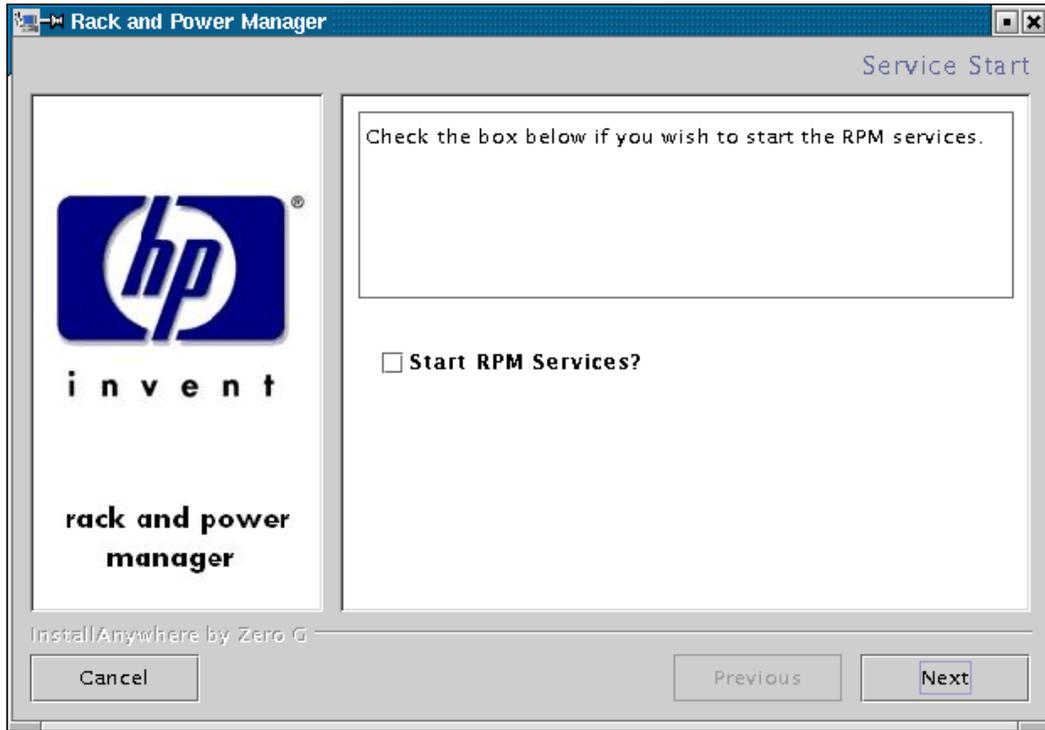


The **Installing Rack and Power Manager** screen is displayed. The Management Server installs, and a status bar indicates the installation progress.



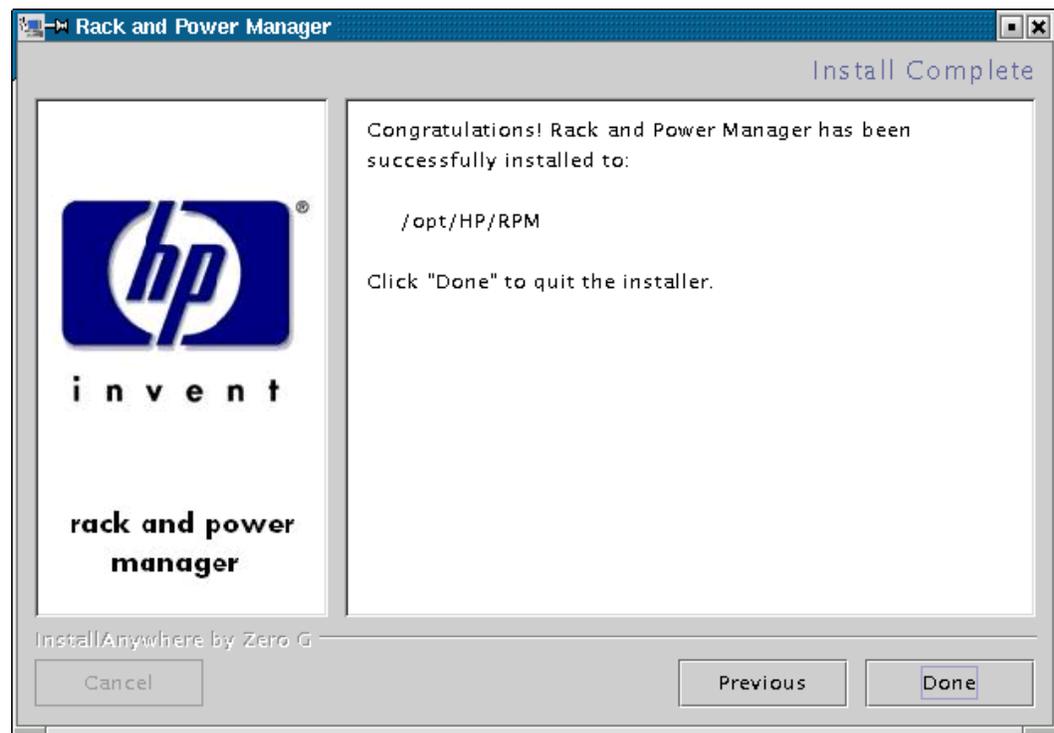
After the installation is complete, the **Service Start** screen is displayed.

11. Select **Start RPM Services?** and click **Next**.



The **Install Complete** screen is displayed.

12. Read the information and click **Done**.



Installing the System Agent Using the GUI Installation Method

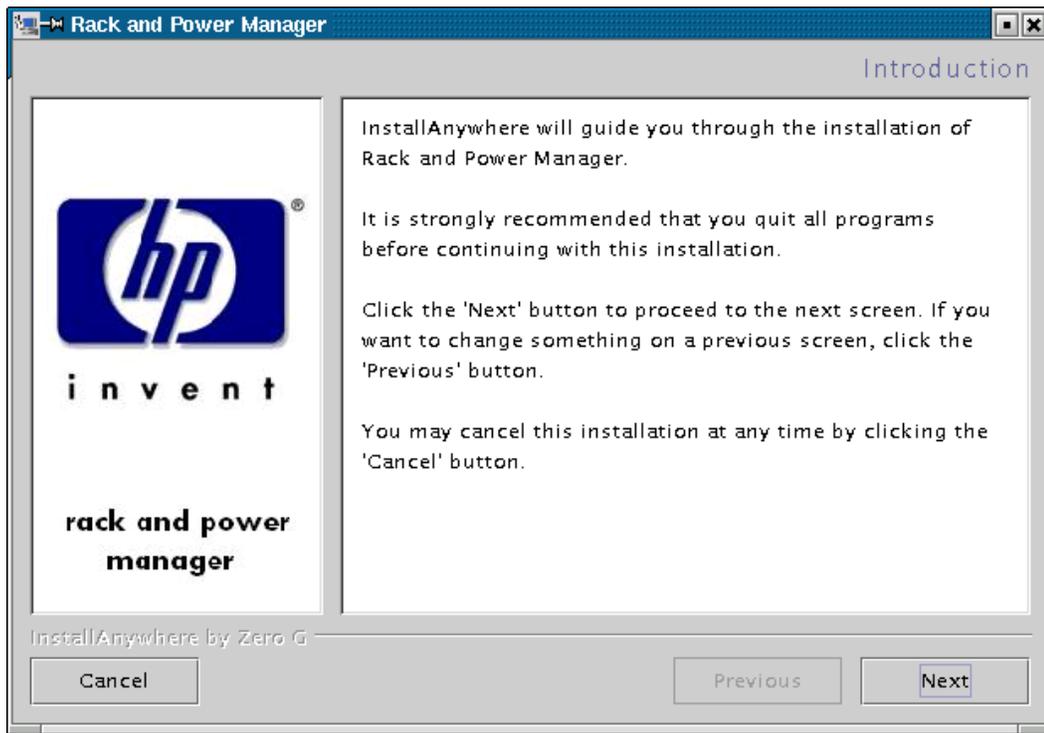
To install the System Agent on a RedHat system using the GUI Installation method:

1. Insert the Rack and Power Management Pack CD into the CD-ROM drive of the computer.

Mount the CD and locate and run the Linux executable file located in the **HPRPM/Linux** folder (`INSTALL.BIN`).

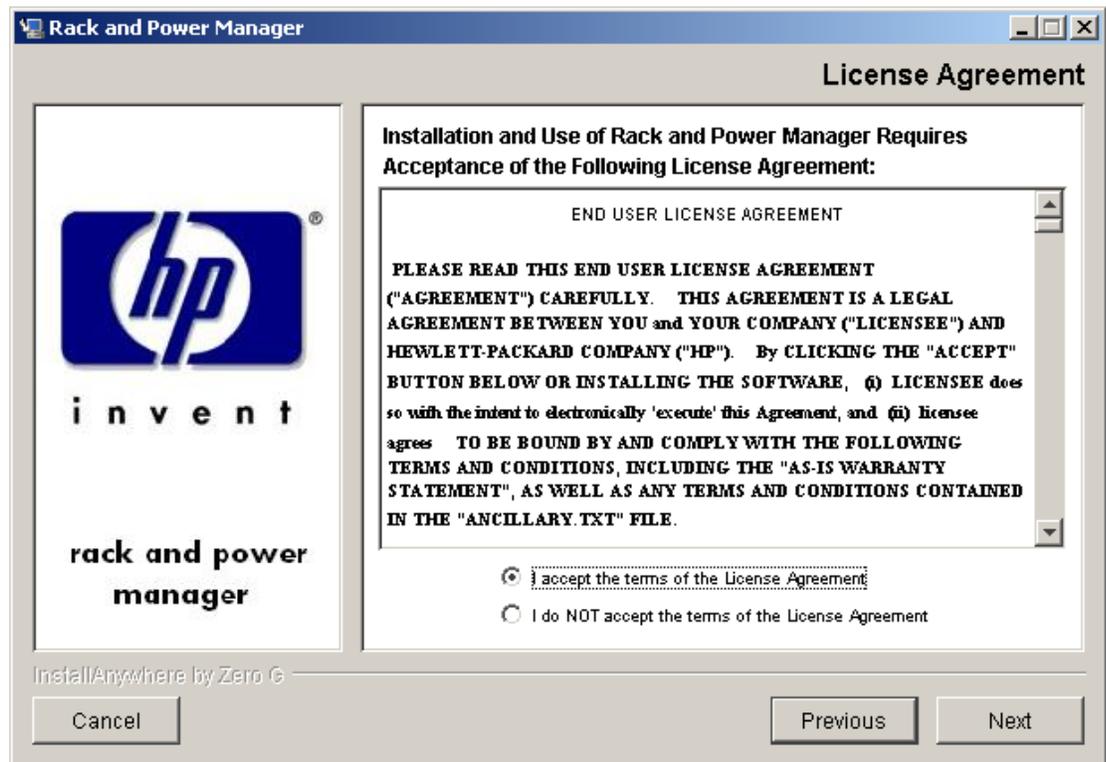
If the operating system running is Japanese, the **Language** screen is displayed. Select the installation language and click **Next**. The **Introduction** screen is displayed.

2. Read the introduction and click **Next**.



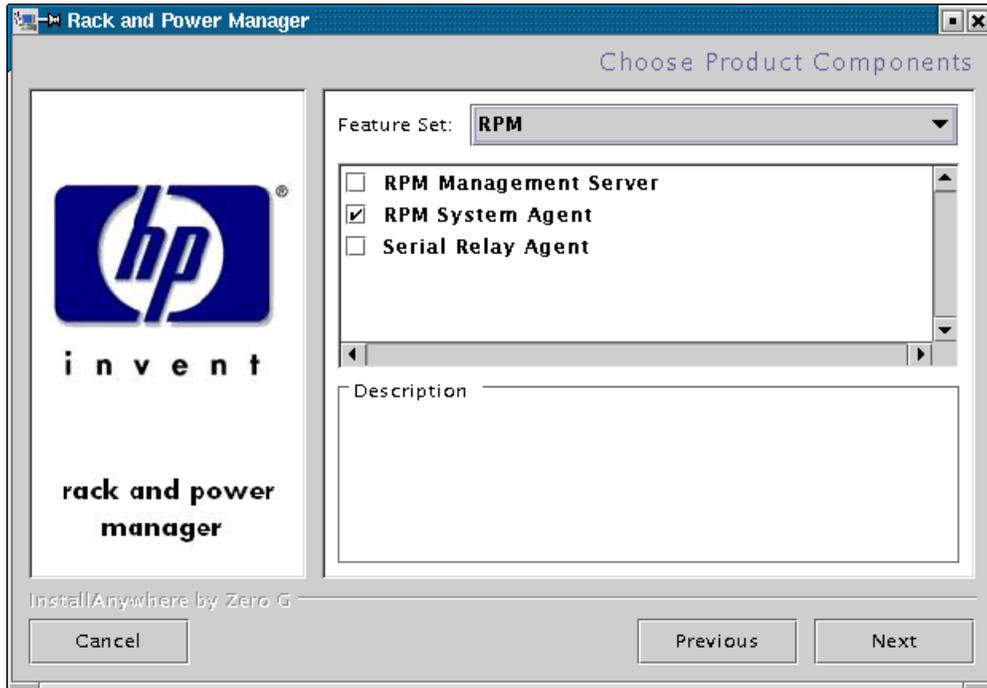
The **License Agreement** screen is displayed.

3. Read the license agreement, select **I accept the terms of the License Agreement**, and click **Next**.



The **Choose Product Components** screen is displayed.

4. Select **RPM System Agent** and click **Next**.

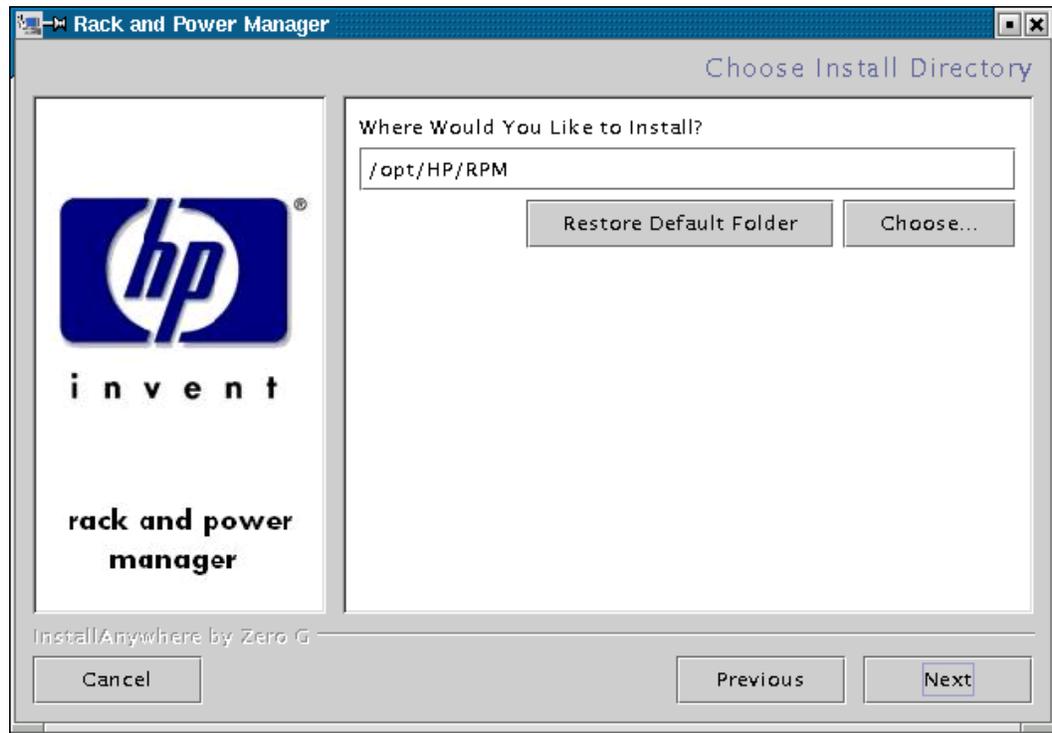


NOTE: Multiple components can be installed at one time. Available components include:

- **Management Server**—Install the Management Server on the computer that will be responsible for managing other systems and devices.
- **System Agent**—Install the System Agent on any computer that will control the shutdown and restart of a UPS load segment or receive commands from the Management Server.
- **Serial Relay Agent**—Install the Serial Relay Agent on any computer that is serially attached to a UPS.

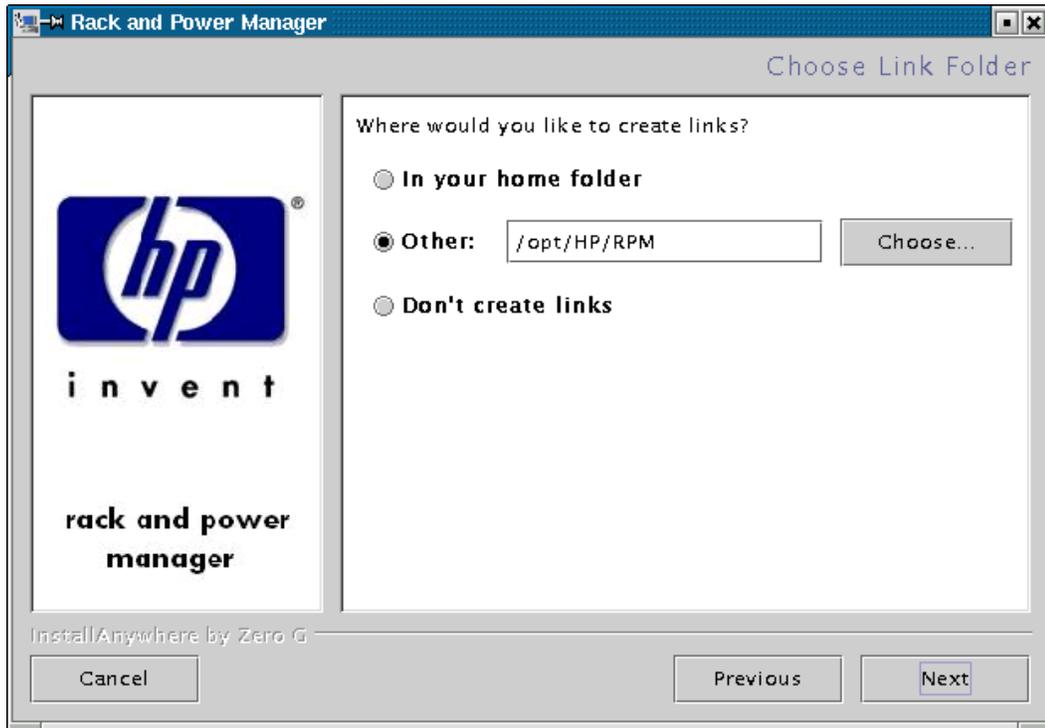
The **Choose Install Directory** screen is displayed.

5. Click **Next** to install the System Agent in the default folder that is displayed in the **Where Would You Like to Install?** field. To specify a different folder, click **Choose**, navigate to the appropriate folder, and click **Next**.



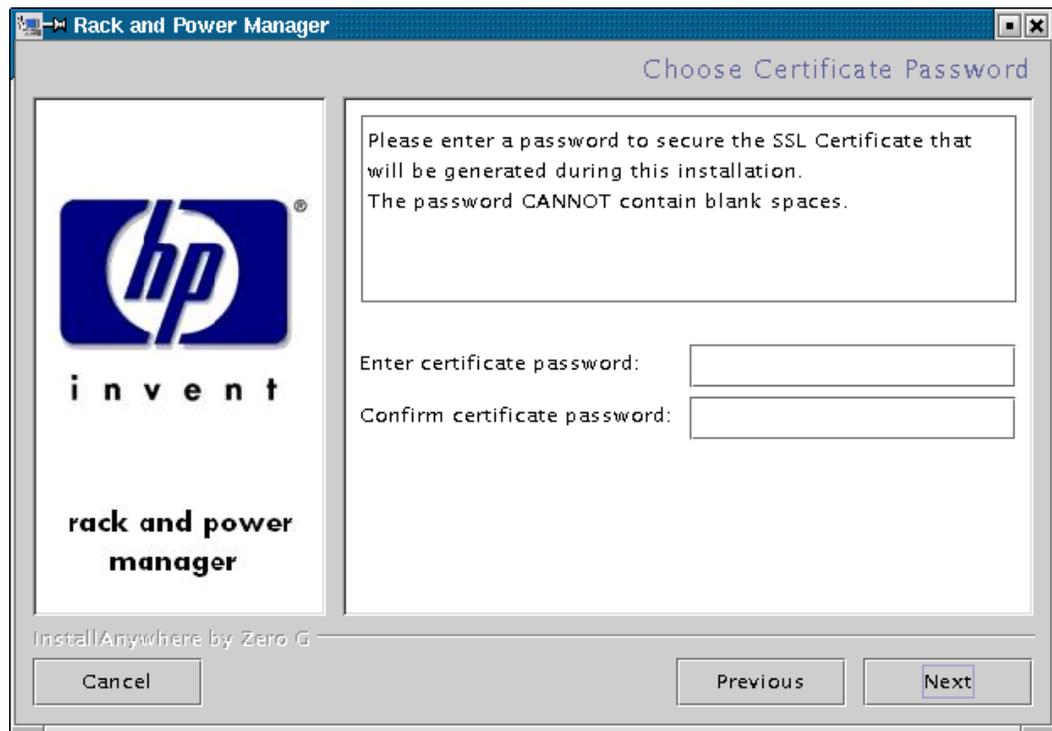
The **Choose Link Folder** screen is displayed.

6. Select the appropriate radio button to create links for Rack and Power Manager:
 - Home folder—Double-click the **Rack and Power Manager** link in the home folder to launch the software.
 - Other—Double-click the **Rack and Power Manager** link located in a specified folder on the hard drive to launch the software.
7. Click **Next**.



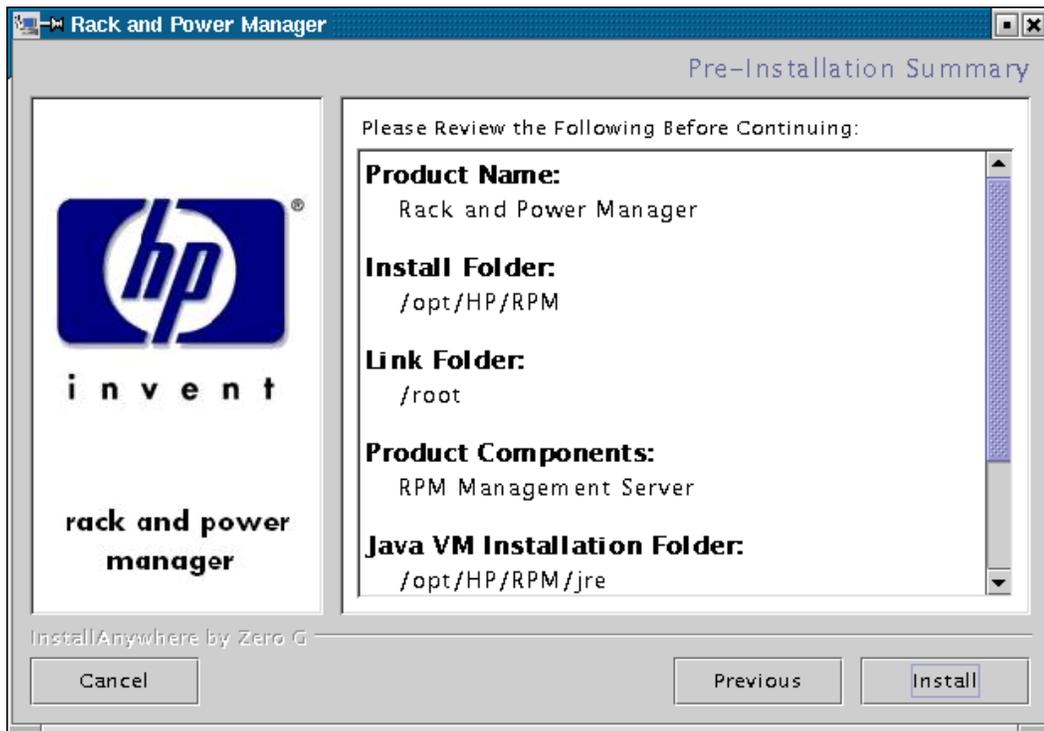
The **Choose Certificate Password** screen is displayed.

8. Enter and confirm a password to secure the SSL certificate. The password cannot contain blank spaces. Click **Next**.

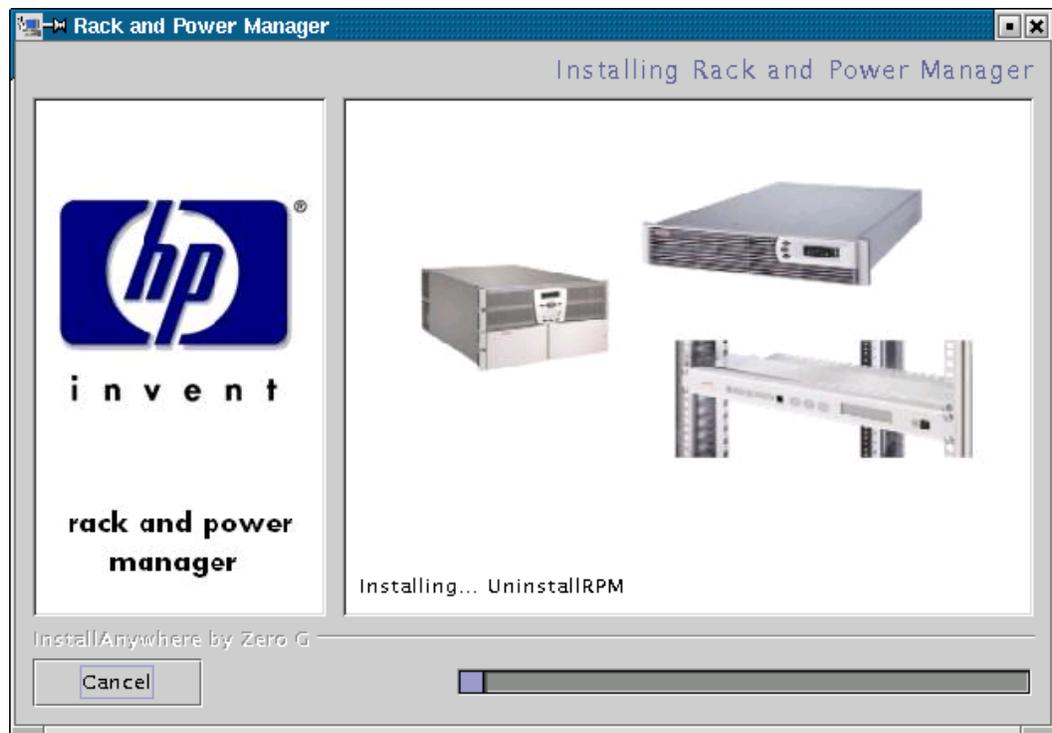


The **Pre-Installation Summary** screen is displayed.

- Review the installation information and click **Install**.

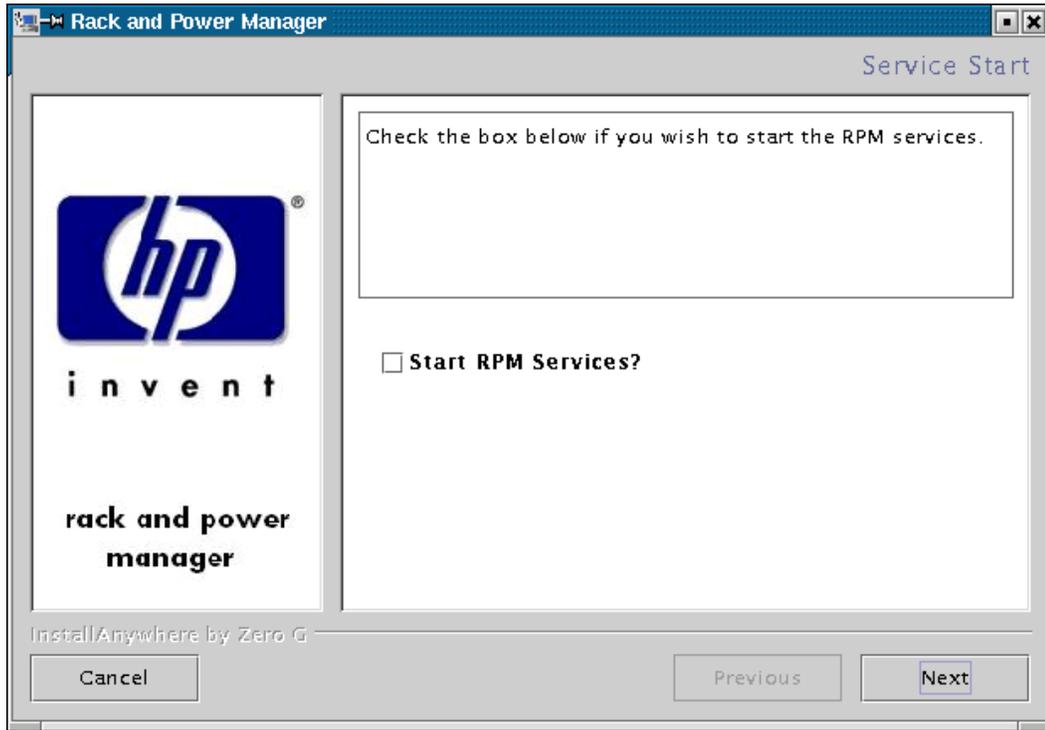


The **Installing Rack and Power Manager** screen is displayed. The System Agent installs, and a status bar indicates the installation progress.



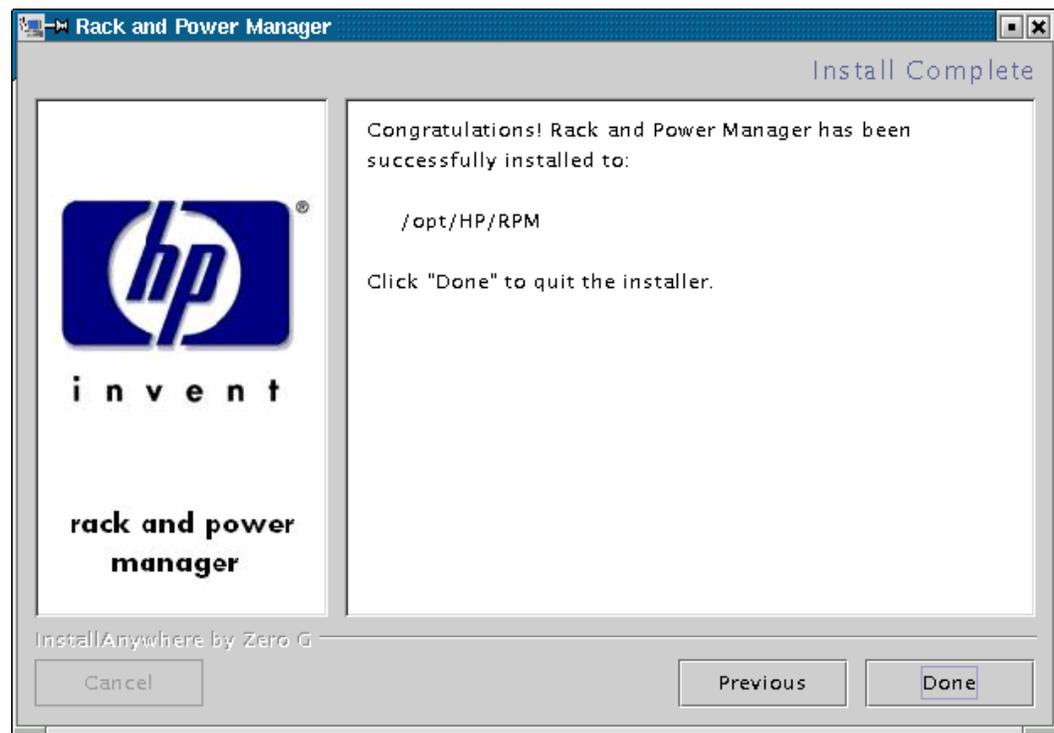
After the installation is complete, the **Service Start** screen is displayed.

10. Select **Start RPM Services?** and click **Next**.



The **Install Complete** screen is displayed.

11. Read the information and click **Done**.



Installing the Serial Relay Agent Using the GUI Installation Method

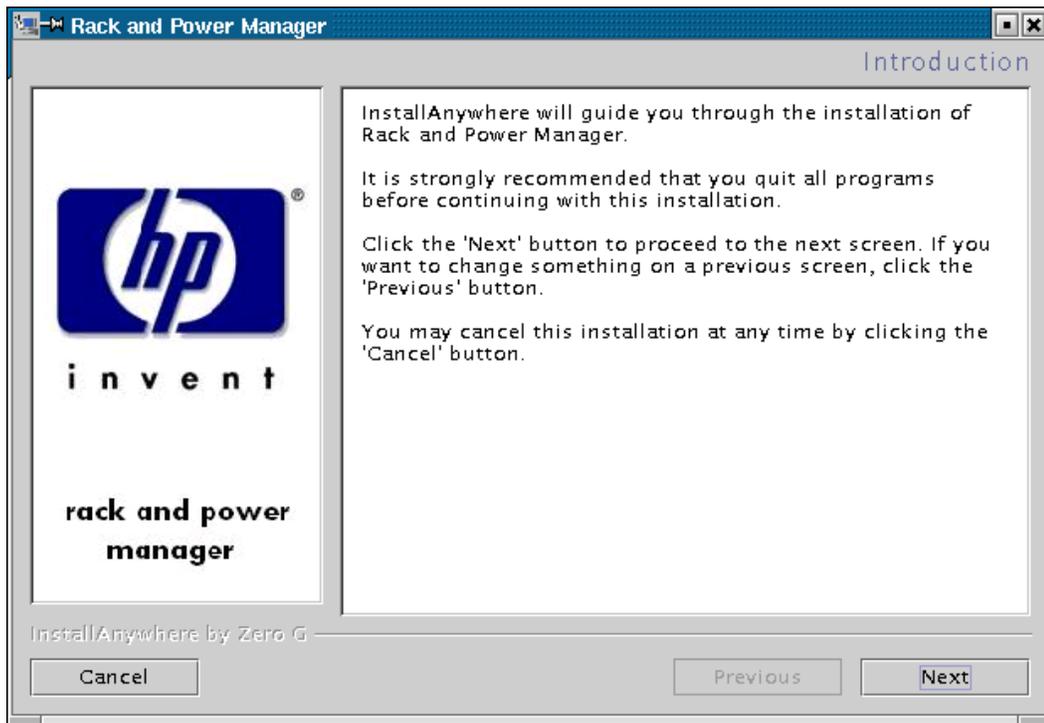
To install the Serial Relay Agent on a RedHat system using the GUI Installation method:

1. Insert the Rack and Power Management Pack CD into the CD-ROM drive of the computer.

Mount the CD and locate and run the Linux executable file located in the **HPRPM/Linux** folder (**INSTALL.BIN**).

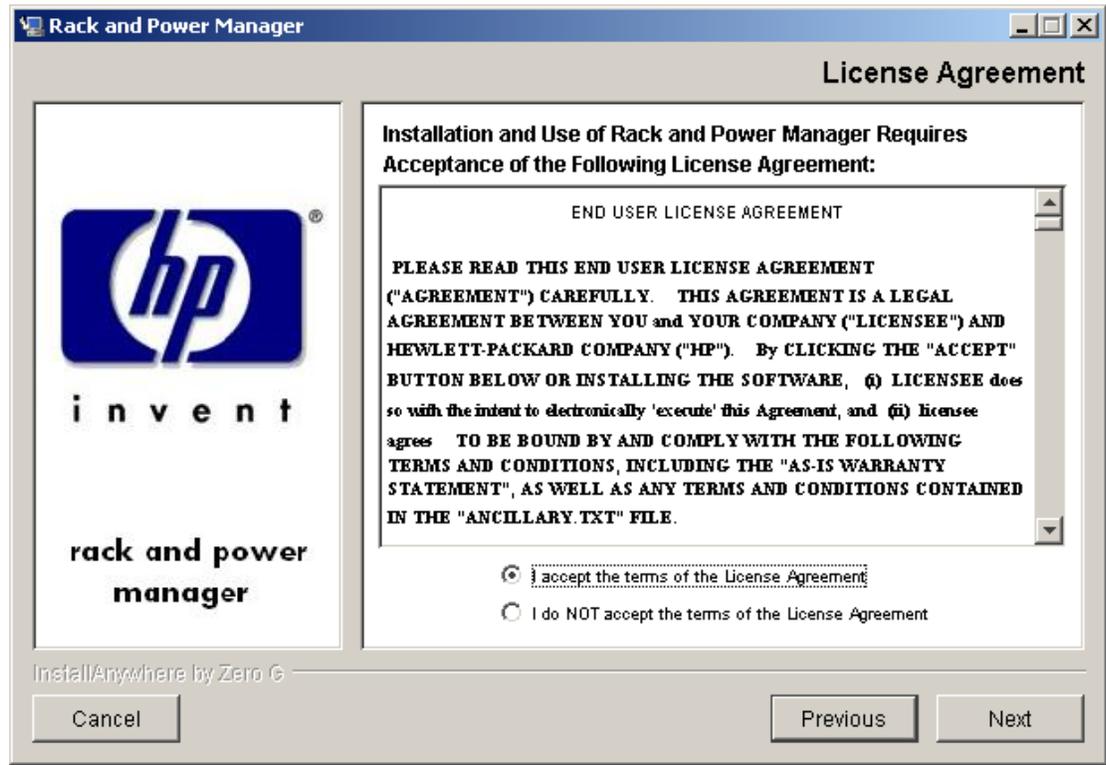
If the operating system running is Japanese, the **Language** screen is displayed. Select the installation language and click **Next**. The **Introduction** screen is displayed.

2. Read the introduction and click **Next**.



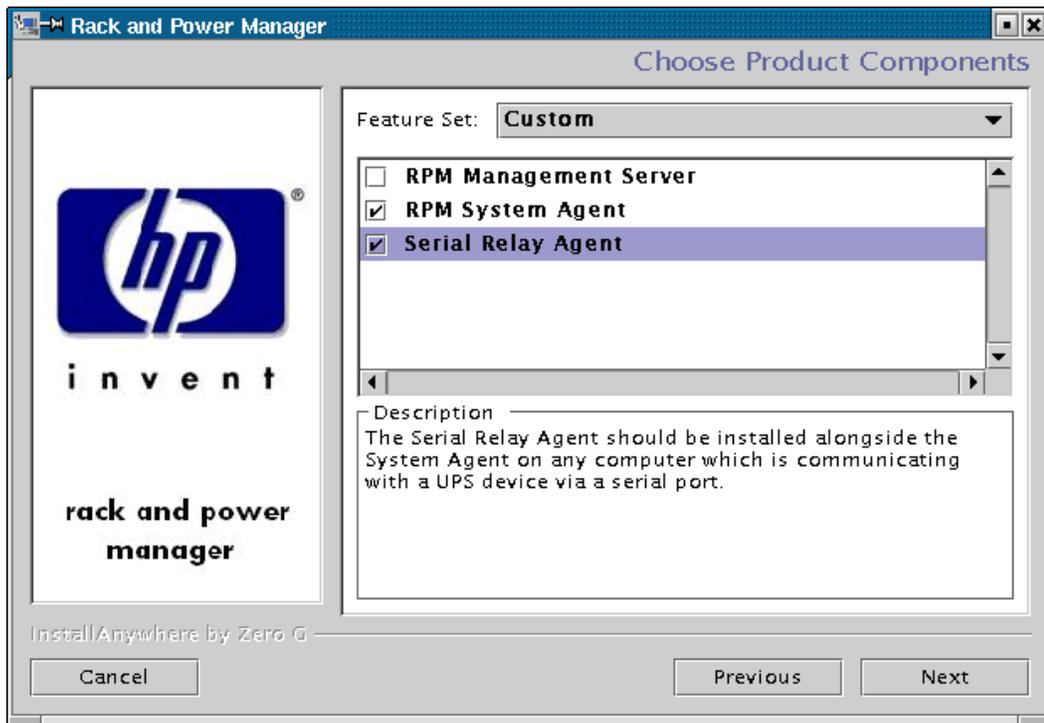
The **License Agreement** screen is displayed.

3. Read the license agreement, select **I accept the terms of the License Agreement**, and click **Next**.



The **Choose Product Components** screen is displayed.

4. Select **Serial Relay Agent** and click **Next**.

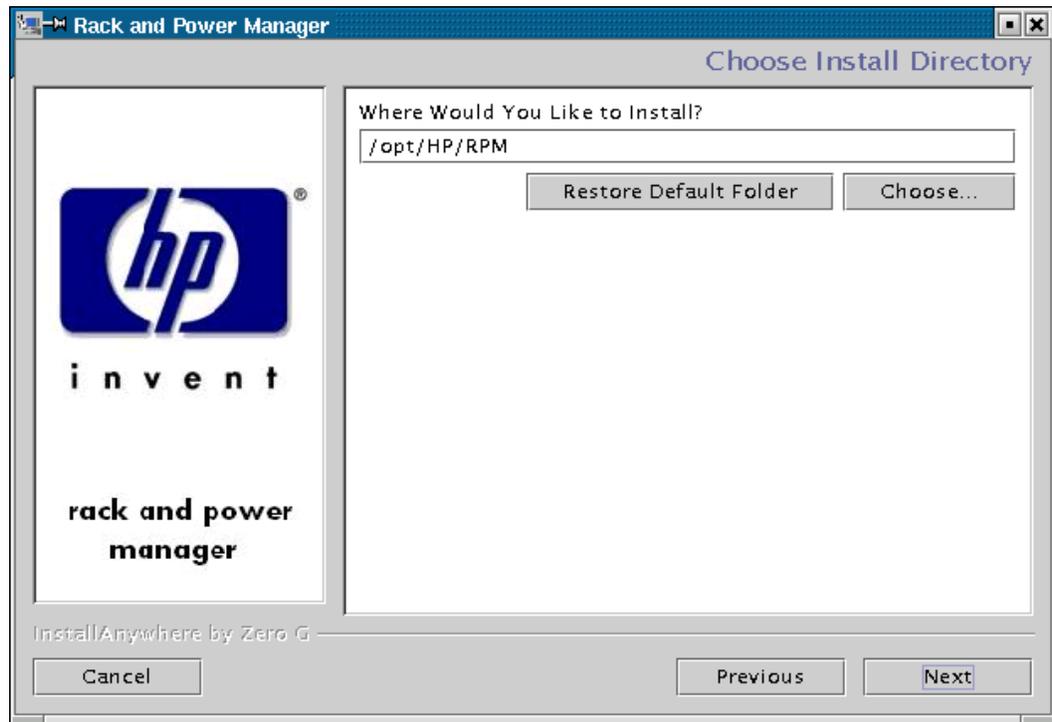


NOTE: Multiple components can be installed at one time. Available components include:

- **Management Server**—Install the Management Server on the computer that will be responsible for managing other systems and devices.
- **System Agent**—Install the System Agent on any computer that will control the shutdown and restart of a UPS load segment or receive commands from the Management Server.
- **Serial Relay Agent**—Install the Serial Relay Agent on any computer that is serially attached to a UPS.

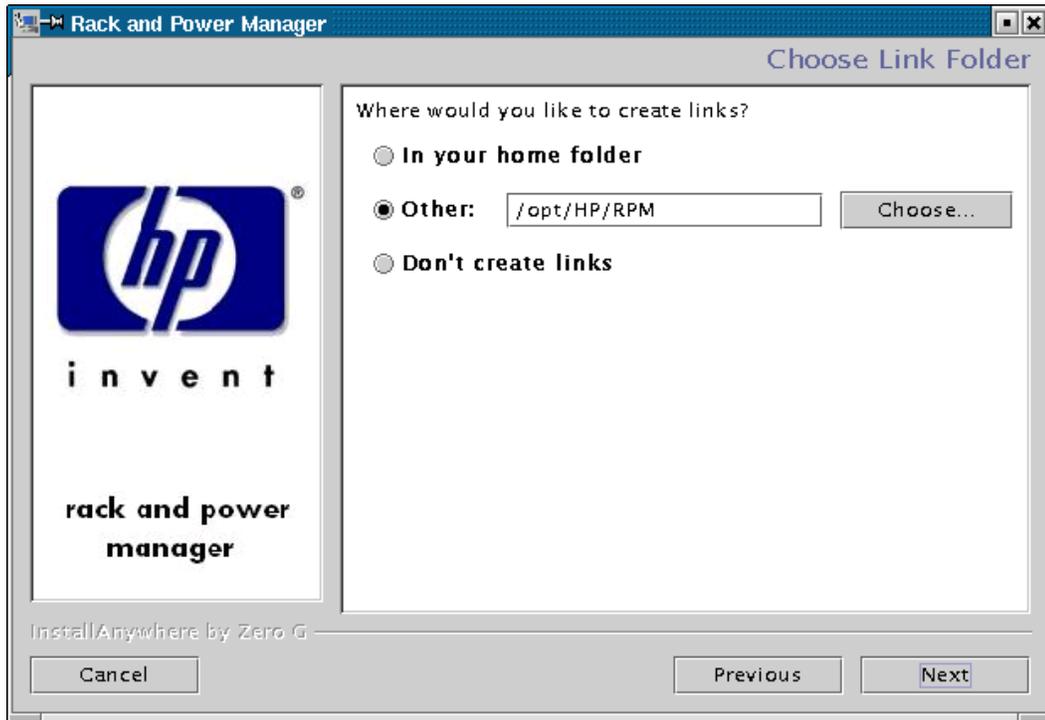
The **Choose Install Directory** screen is displayed.

5. Click **Next** to install the Serial Relay Agent in the default folder that is displayed in the **Where Would You Like to Install?** field. To specify a different folder, click **Choose**, navigate to the appropriate folder, and click **Next**.



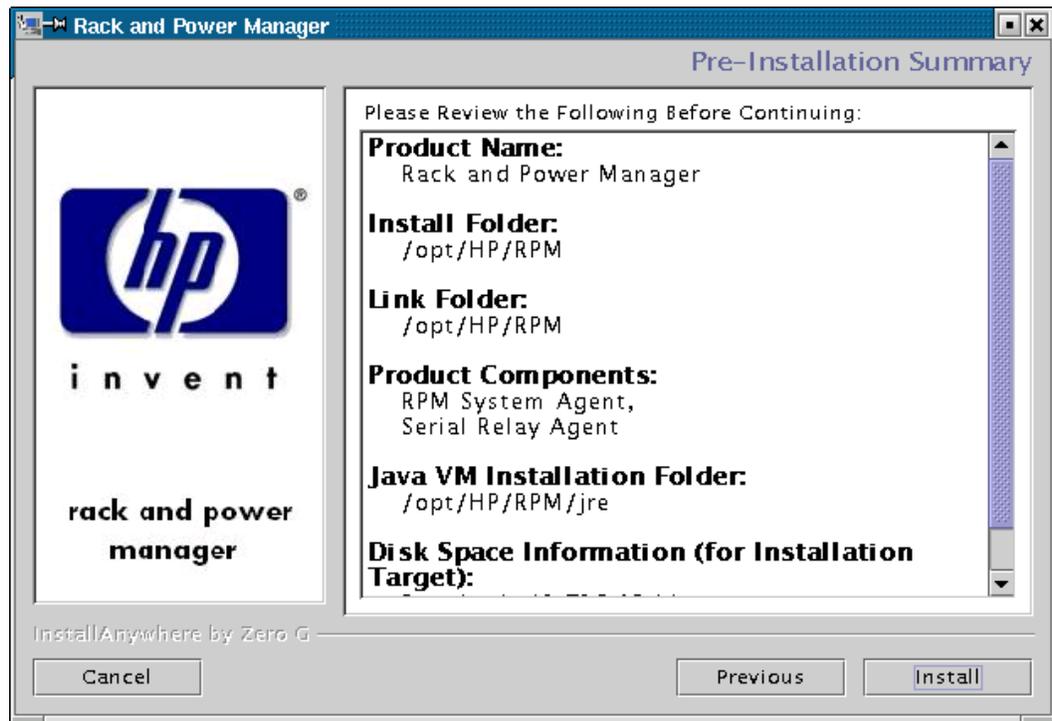
The **Choose Link Folder** screen is displayed.

6. Select the appropriate radio button to create links for Rack and Power Manager:
 - Home folder—Double-click the **Rack and Power Manager** link in the home folder to launch the software.
 - Other—Double-click the **Rack and Power Manager** link located in a specified folder on the hard drive to launch the software.
7. Click **Next**.

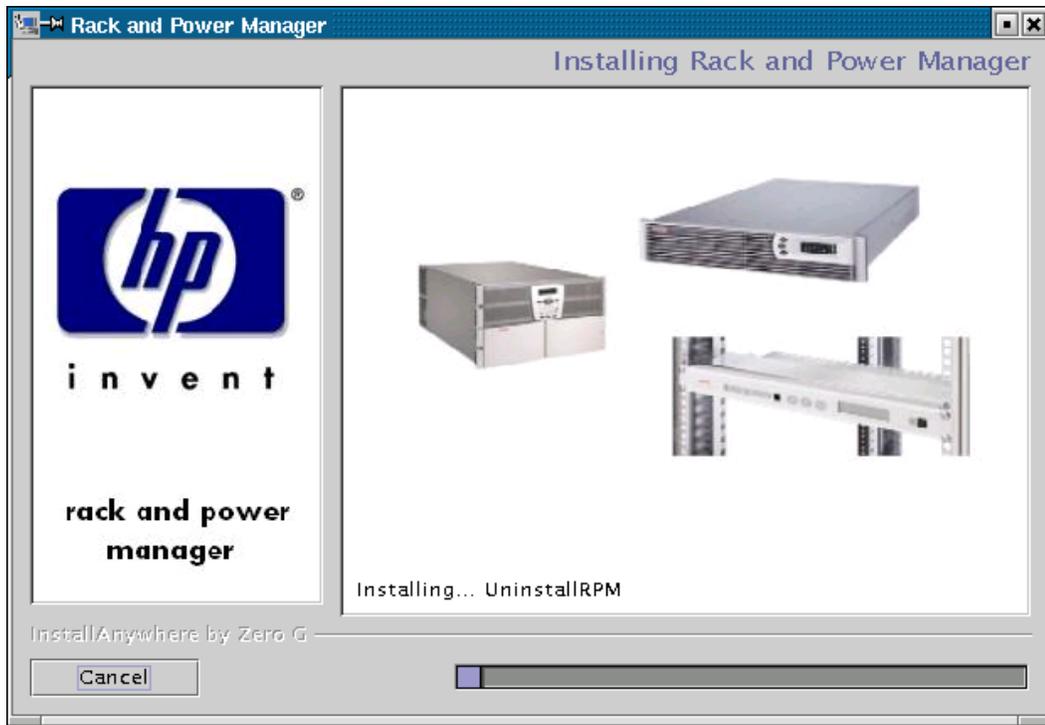


The **Pre-Installation Summary** screen is displayed.

- Review the installation information and click **Install**.

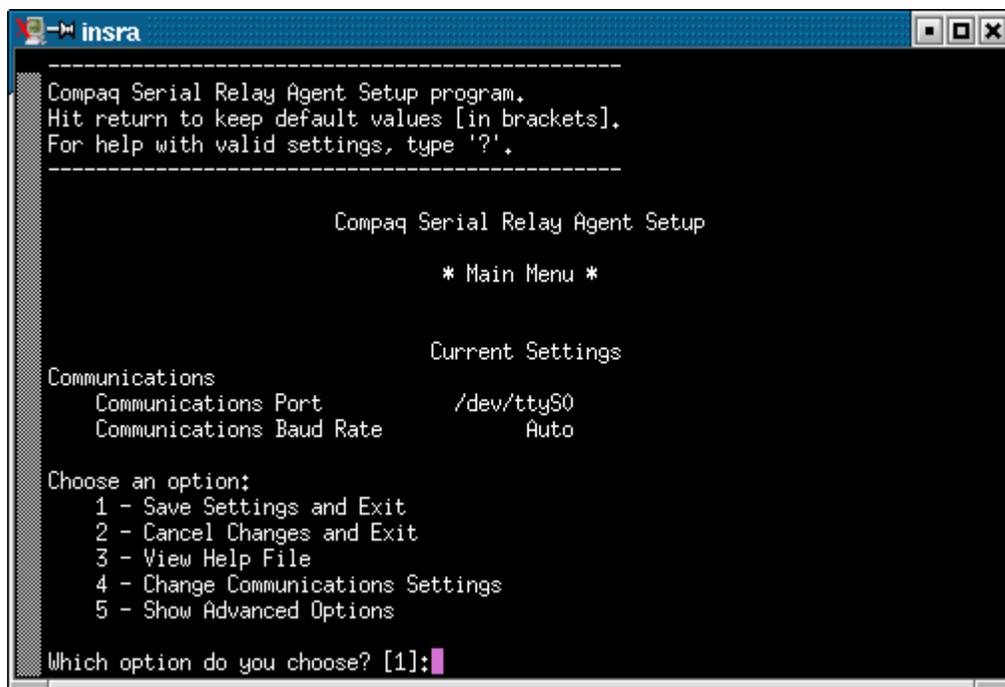


The **Installing Rack and Power Manager** screen is displayed. The Serial Relay Agent installs, and a status bar indicates the installation progress.



The Serial Relay Agent Setup Program runs.

9. Check the current settings displayed on the screen. To adjust the settings, select option **4** and enter the communications port on the computer to which the UPS is attached. Enter the baud rate at which the UPS communicates (9600 or 19200). Select option **1** to save the changes and exit.



```
insra
-----
Compaq Serial Relay Agent Setup program.
Hit return to keep default values [in brackets].
For help with valid settings, type '?'.
-----

Compaq Serial Relay Agent Setup

* Main Menu *

Current Settings

Communications
  Communications Port      /dev/ttyS0
  Communications Baud Rate Auto

Choose an option:
  1 - Save Settings and Exit
  2 - Cancel Changes and Exit
  3 - View Help File
  4 - Change Communications Settings
  5 - Show Advanced Options

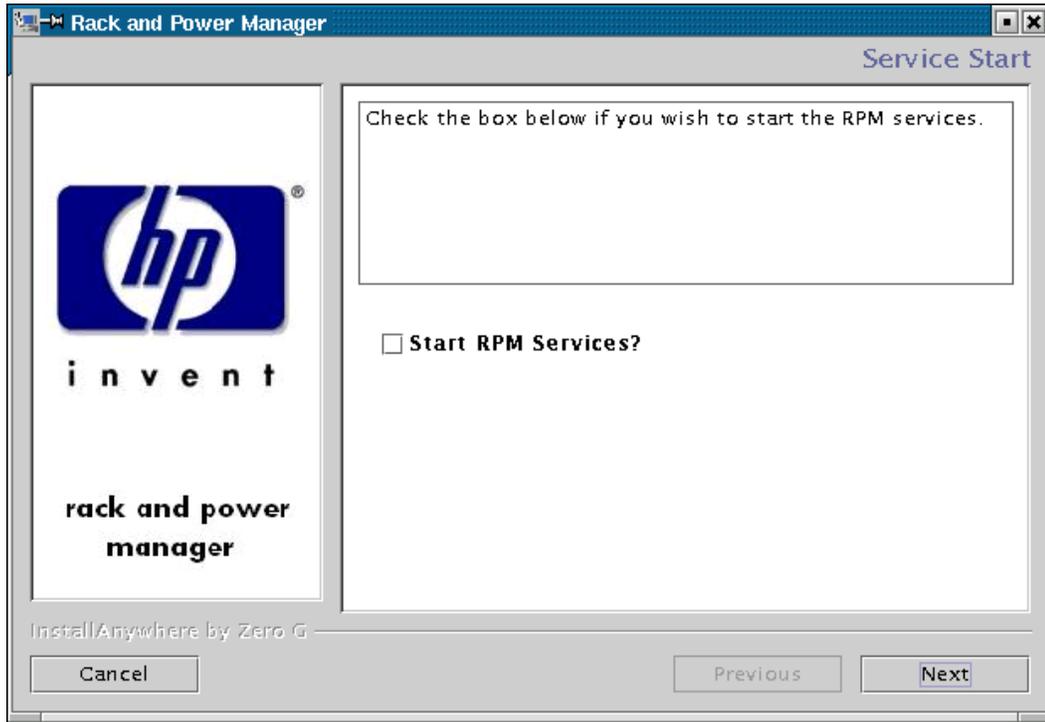
Which option do you choose? [1]:
```

NOTE: Select option 5 to view an extended list of Serial Relay Agent setup options. Select option 3 to display a help file for Serial Relay Agent setup, including advanced options.

A message is displayed asking to start the Serial Relay Agent. Click **Yes**. The installation program attempts to communicate with the UPS. After communication is established, the **Service Start** screen is displayed.

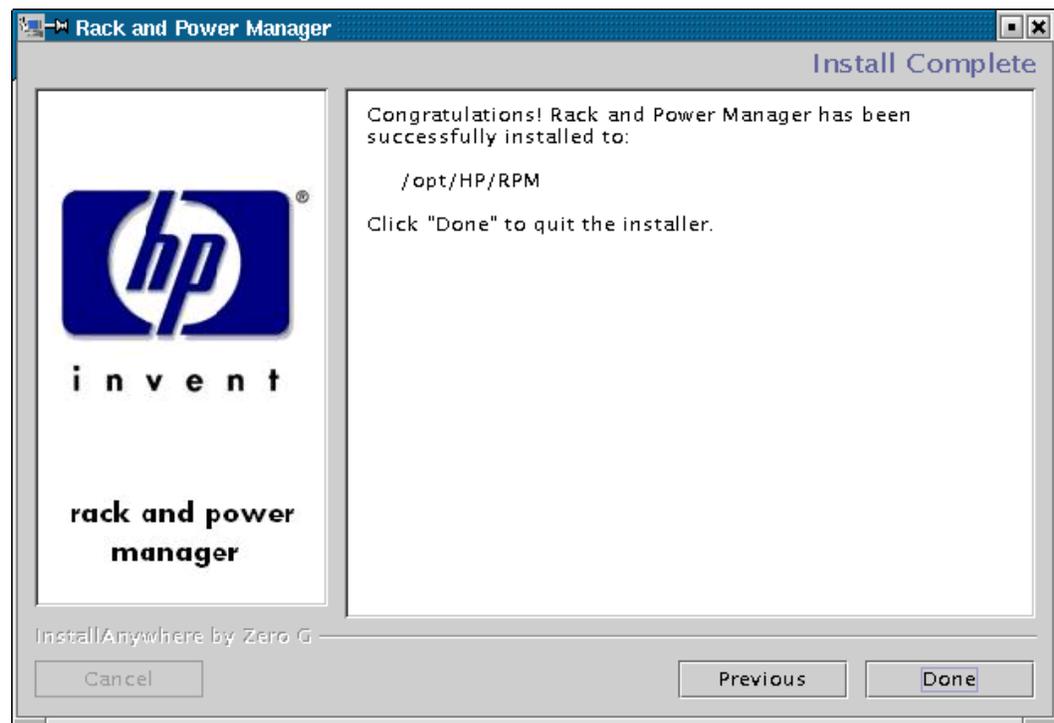
NOTE: If the Serial Relay Agent fails to communicate with the UPS, refer to Chapter 6, "Troubleshooting."

10. Select **Start RPM Services?** and click **Next**.



The **Install Complete** screen is displayed.

11. Read the information and click **Done**.



Installing the System Agent and Serial Relay Agent Using the Silent Installation Method

The System Agent and Serial Relay Agent can be installed using the Silent installation option on any supported RedHat operating system.

To install using the Silent installation option, a properties file must be created using a text editor with the appropriate variables set for the desired installation options.

A description of the variables used on the properties file is included in Table 2-5. Examples of the properties file follow.

Table 2-5: Complete List of Variables

Variable	Function
INSTALLER_UI {should be equal to silent}	Use this variable to indicate the install type.
CHOSEN_INSTALL_SET {agent, SRA, agentSRA}	Use this variable to select which agent component to install. <ul style="list-style-type: none"> • Use <code>agent</code> to install the System Agent. • Use <code>SRA</code> to install the Serial Relay Agent. • Use <code>agentSRA</code> to install both the System Agent and Serial Relay Agent.
USER_INSTALL_DIR {Divisions in the file structure between directories should be indicated with the symbol '\$/\$'. Example: C:/\$/hprpm}	Use this variable to indicate the path to which the agent component is to be installed.
INSTALL_AGENT {equal to true if CHOSEN_INSTALL_SET = agent or CHOSEN_INSTALL_SET = agentSRA}	Use this variable to confirm which agents are to be installed.
USER_INPUT_CERT_PW_1 {password needed if CHOSEN_INSTALL_SET = agent or CHOSEN_INSTALL_SET = agentSRA; should be equal to USER_INPUT_CERT_PW_2}	Use this variable to input the SSL certificate password that will be generated during the install.
USER_INPUT_CERT_PW_2 {password needed if CHOSEN_INSTALL_SET = agent or CHOSEN_INSTALL_SET = agentSRA; should be equal to USER_INPUT_CERT_PW_1}	Use this variable to confirm the SSL certificate password that will be generated during the install.
USER_INPUT_SRA_COM {Communications Port Number the UPS is connected to, needed if CHOSEN_INSTALL_SET = SRA or CHOSEN_INSTALL_SET = agentSRA}	Use this variable to input the COM port number to which the UPS is connected.
USER_INPUT_SRA_PASSWORD {SRA Password needed if CHOSEN_INSTALL_SET = SRA or CHOSEN_INSTALL_SET = agentSRA}	Use this variable to input the password the Serial Relay Agent uses when communicating with the Rack and Power Management Server. The password is <code>MustB6</code> .
USER_INPUT_RESULTS_START_1 {this variable is needed to start the services installed; it should be equal to Start RPM Services?}	Use this variable to start the Rack and Power Manager service.

Example 2-3: Silent System Agent Installation

```
INSTALLER_UI = silent
CHOSEN_INSTALL_SET = agent
USER_INSTALL_DIR = %/%opt%/%HP%/%RPM
INSTALL_AGENT = true
USER_INPUT_CERT_PW_1 = Admin
USER_INPUT_CERT_PW_2 = Admin
USER_INPUT_RESULTS_START_1 = Start RPM Services?
```

Example 2-4: Silent System Agent and Serial Relay Agent Installation

```
INSTALLER_UI = silent
CHOSEN_INSTALL_SET = agentsRA
USER_INSTALL_DIR = %/%opt%/%HP%/%RPM
INSTALL_AGENT = true
USER_INPUT_CERT_PW_1 = Admin
USER_INPUT_CERT_PW_2 = Admin
USER_INPUT_SRA_COM = 2
USER_INPUT_SRA_PASSWORD = Admin
USER_INPUT_RESULTS_START_1 = Start CRPM Services?
```

After saving the text file, run the installer by entering *<path to install executable> -f <path to properties file>* at the command prompt. For example, if the install executable (SETUP.EXE) is in the directory `c:/hprpm` and the properties file (INSTALL.PROP) is in the directory `c:/docs`, from a command prompt at `c:/hprpm`, enter:

```
SETUP.EXE -f C:/DOCS/INSTALL.PROP
```

Installing Components on NetWare Operating Systems

The System Agent and Serial Relay Agent can be installed using the GUI installation option or Silent installation option on any supported NetWare operating system.

Installing the System Agent Using the GUI Installation Method

Installing Rack and Power Manager Agents on NetWare requires two steps. Step one installs files to the NetWare server from a Windows workstation. Step two configures and loads the software on the server.

Requirements for installation:

- A Novell Client must be installed and configured on a Windows workstation.

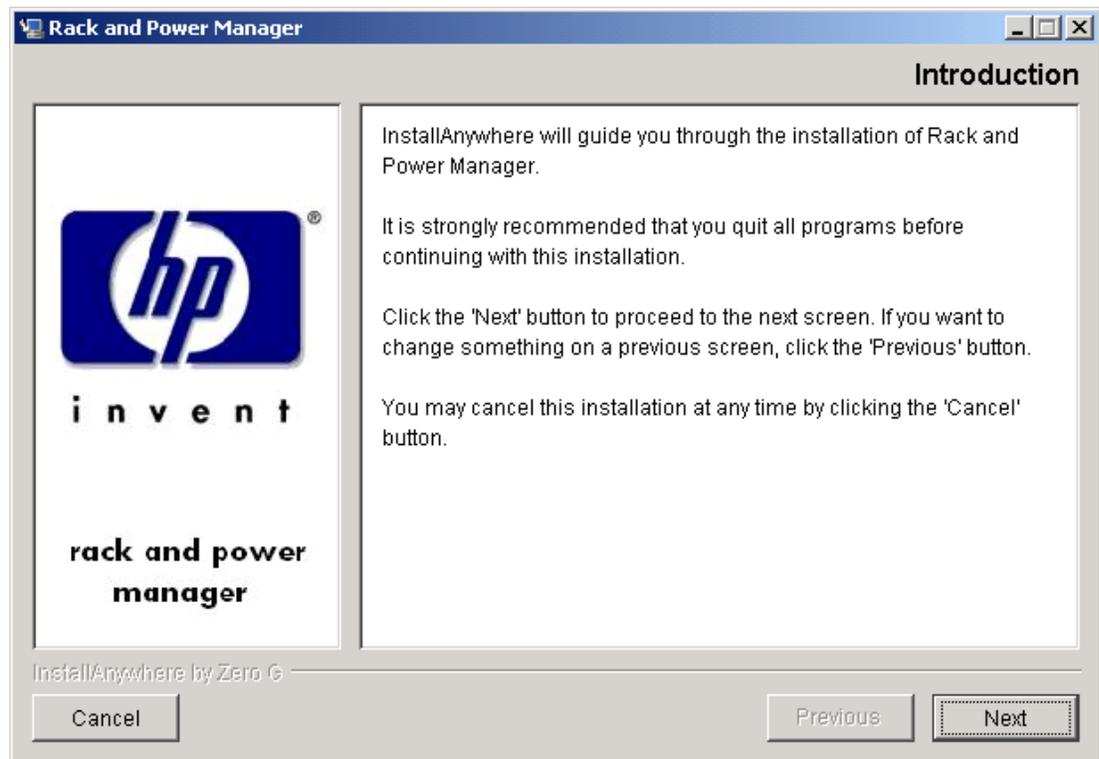
NOTE: The account used to log in to the NetWare server using the Novell Client should have appropriate file system rights to install Rack and Power Manager Agents.
- A drive must be mapped from the Windows workstation running the Novell Client to the root of the `SYS :` volume on the target NetWare server.

To install the System Agent on a NetWare system using the GUI Installation method:

1. Insert the Rack and Power Management CD into the Windows workstation running the Novell Client. Locate and run the NetWare Agent executable located in the **HPRPM/NetWare** folder (`SETUP . EXE`).

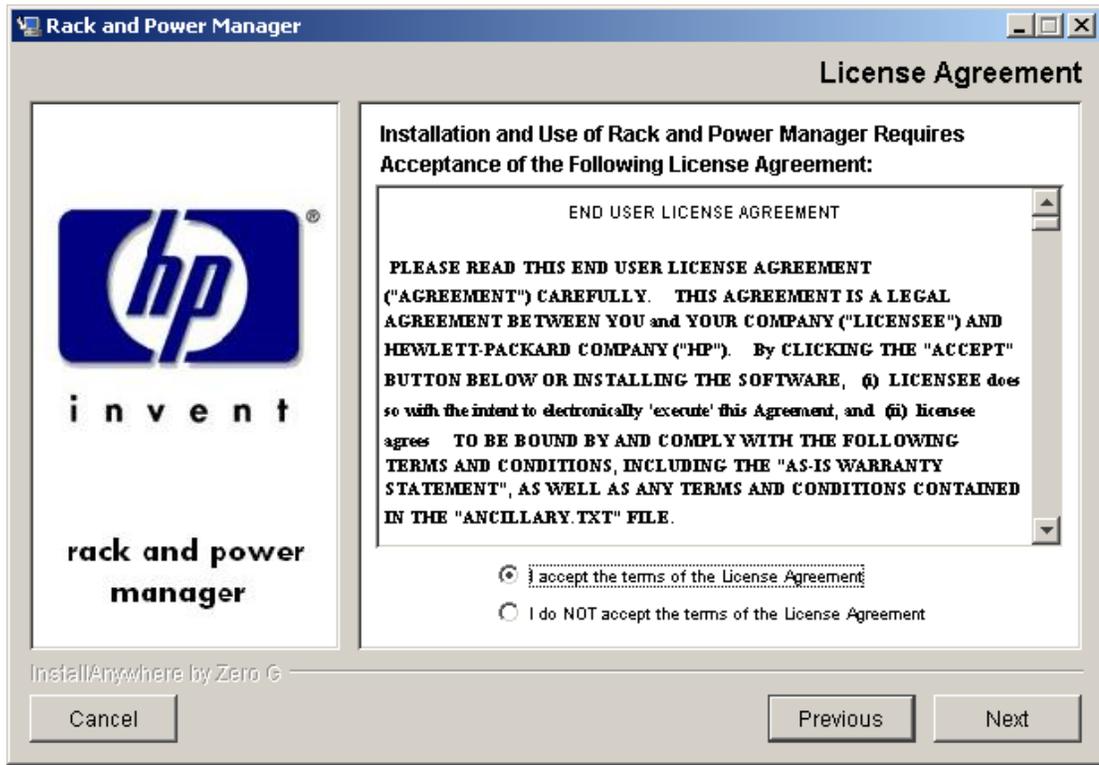
The **Introduction** screen is displayed.

2. Read the introduction and click **Next**.



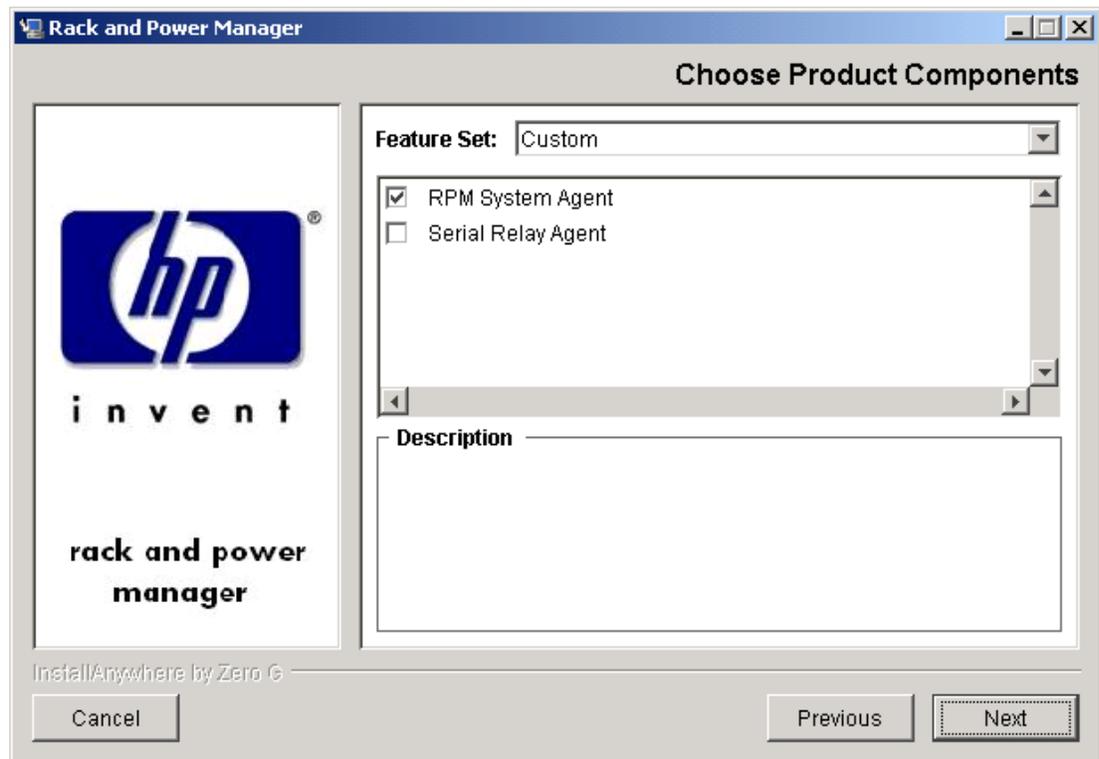
The **License Agreement** screen is displayed.

3. Read the license agreement, select **I accept the terms of the License Agreement**, and click **Next**.



The **Choose Product Components** screen is displayed.

4. Select **RPM System Agent** and click **Next**.

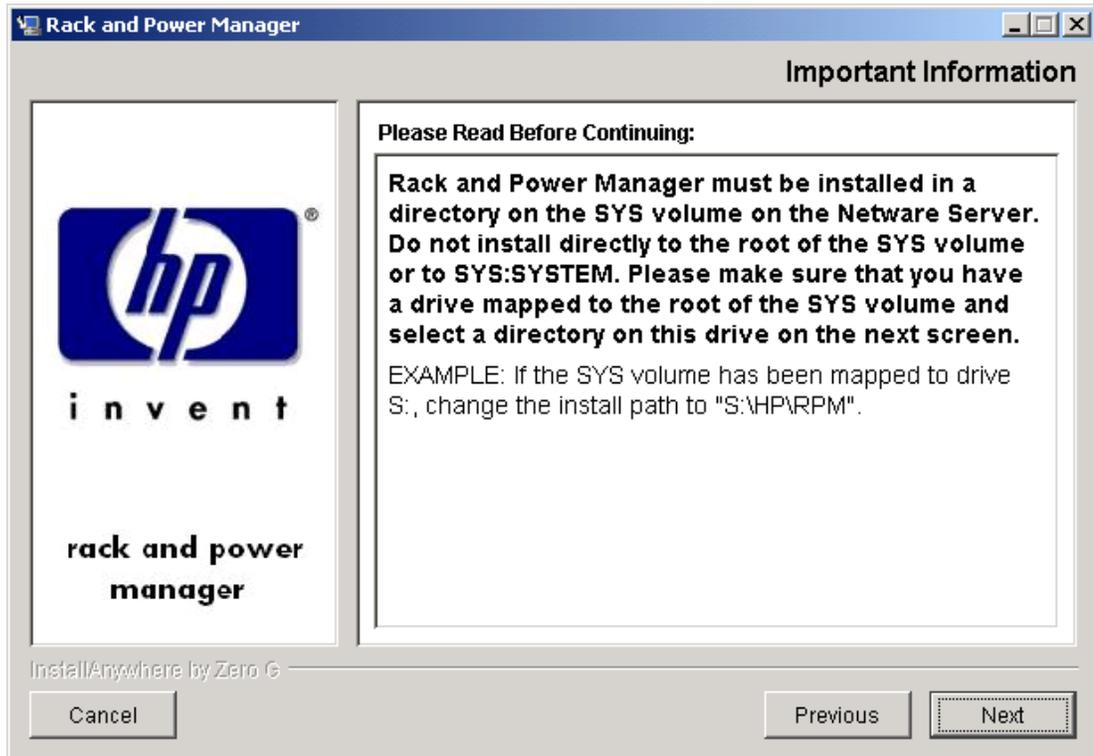


NOTE: Multiple components can be installed at one time. Available components include:

- **System Agent**—Install the System Agent on any computer that will control the shutdown and restart of a UPS load segment or receive commands from the Management Server.
- **Serial Relay Agent**—Install the Serial Relay Agent on any computer that is serially attached to a UPS.

The **Important Information** screen is displayed.

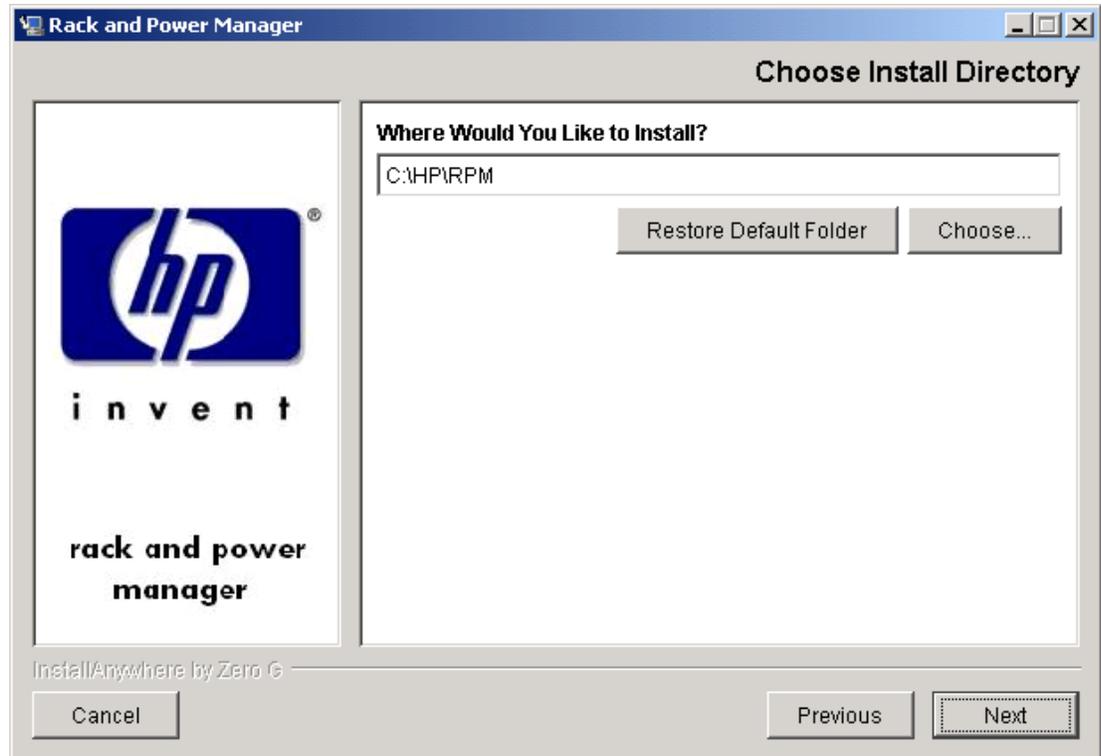
5. Read the information contained on the screen and click **Next**.



The **Choose Install Directory** screen is displayed.

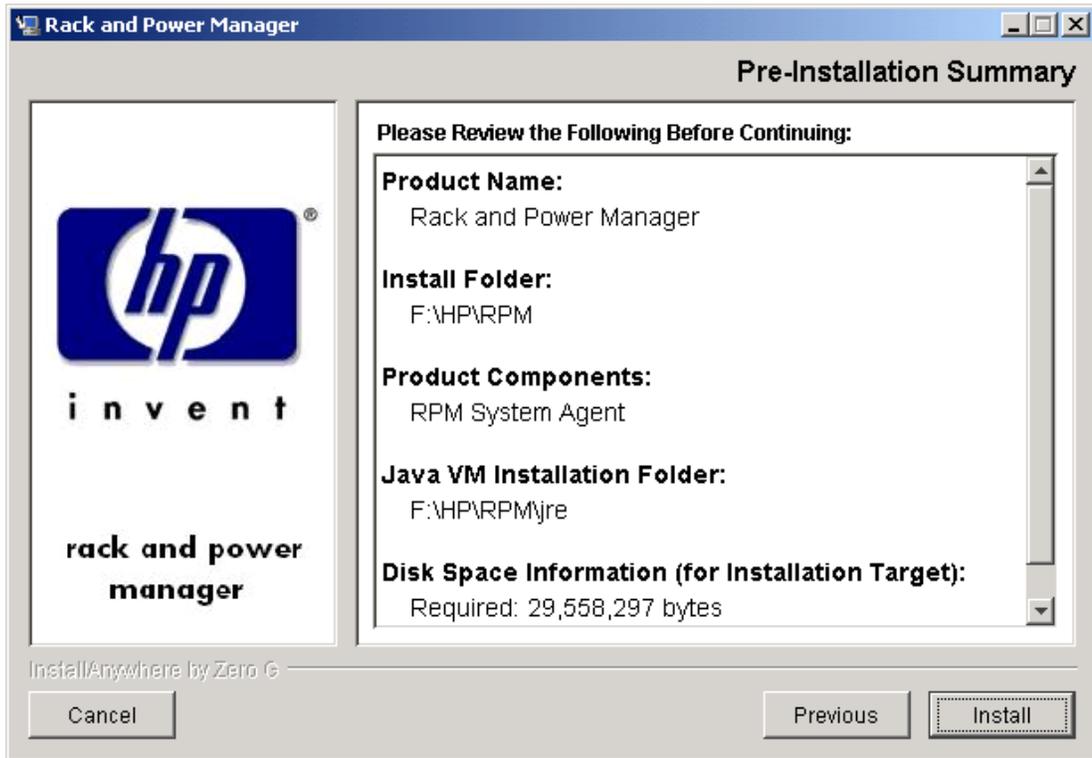
6. Enter the desired install directory in the **Where Would You Like to Install?** field and click **Next**.

NOTE: Be sure to change the default drive letter, if necessary, to the drive mapped to the SYS : volume of the target server.

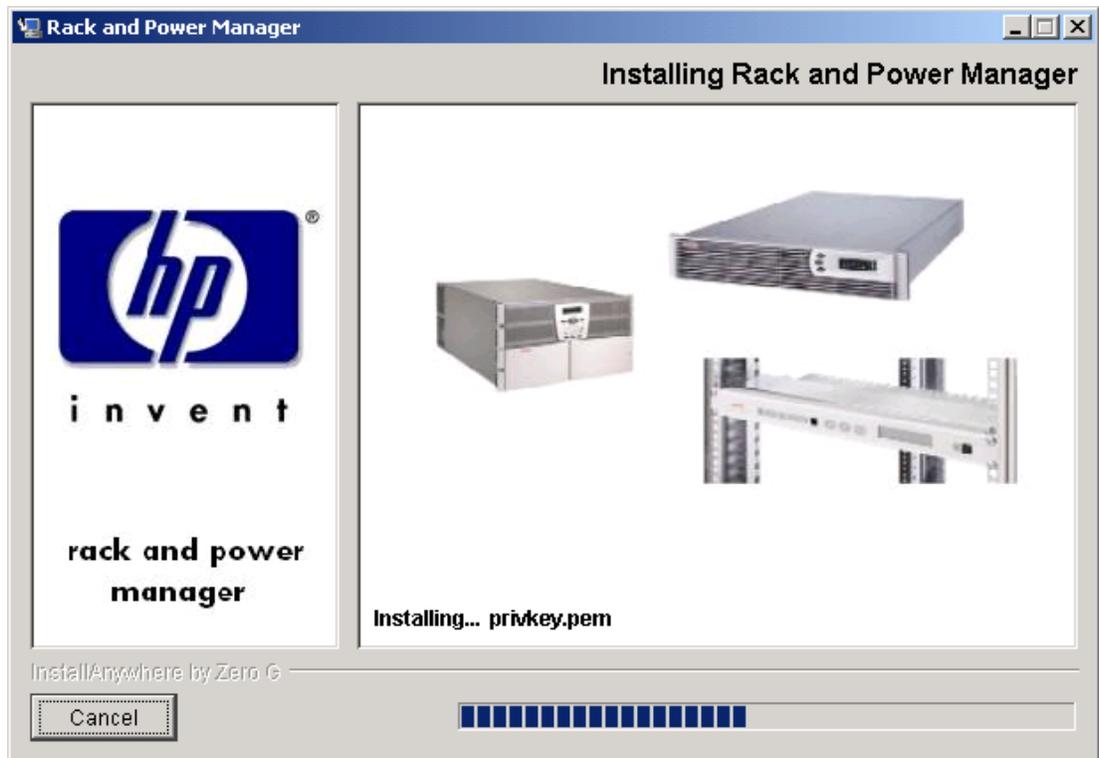


The **Pre-Installation Summary** screen is displayed.

7. Review the installation information and click **Install**.

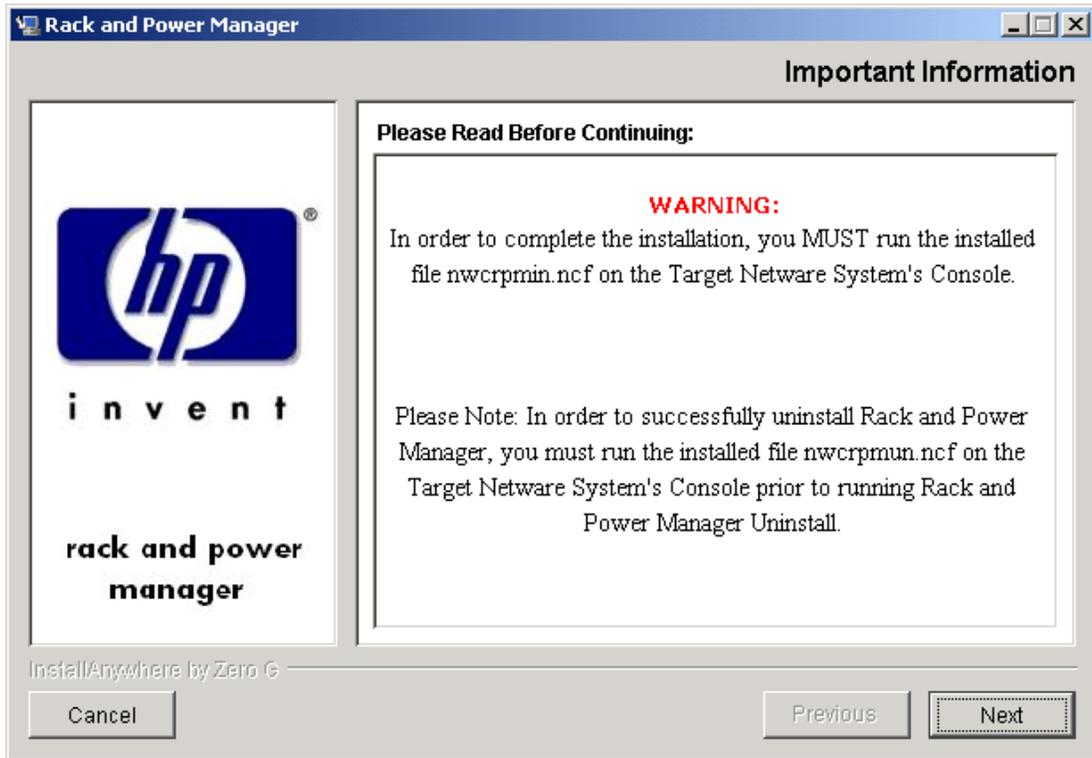


The **Installing Rack and Power Manager** screen is displayed. The agent installs, and a status bar indicates the installation progress.



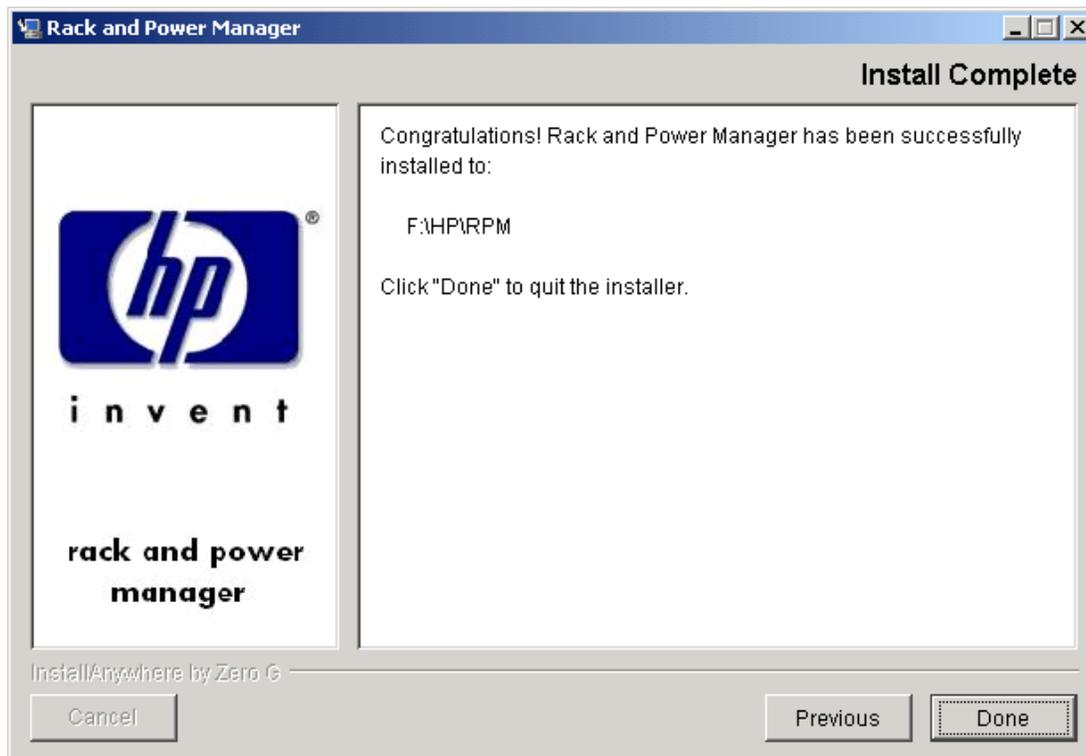
After the installation is complete, the **Important Information** screen is displayed.

8. Read the information contained on the screen and click **Next**.



The **Install Complete** screen is displayed.

9. Read the information and click **Done**.



10. From the NetWare server Console, run the following commands:

```
<INSTALL_PATH>/NWCRPMIN.NCF
CRPMLD.NCF
```

NOTE: The **System Shutdown Agent** screen displays, indicating that the System Agent has been loaded. In normal operation, this screen might be blank.

Installing the Serial Relay Agent Using the GUI Installation Method

Installing Rack and Power Manager Agents on NetWare requires two steps. Step one installs files to the NetWare server from a Windows workstation. Step two configures and loads the software on the server.

Requirements for installation:

- A Novell Client must be installed and configured on a Windows workstation.

NOTE: The account used to log in to the NetWare server using the Novell Client should have appropriate file system rights to install Rack and Power Manager Agents.

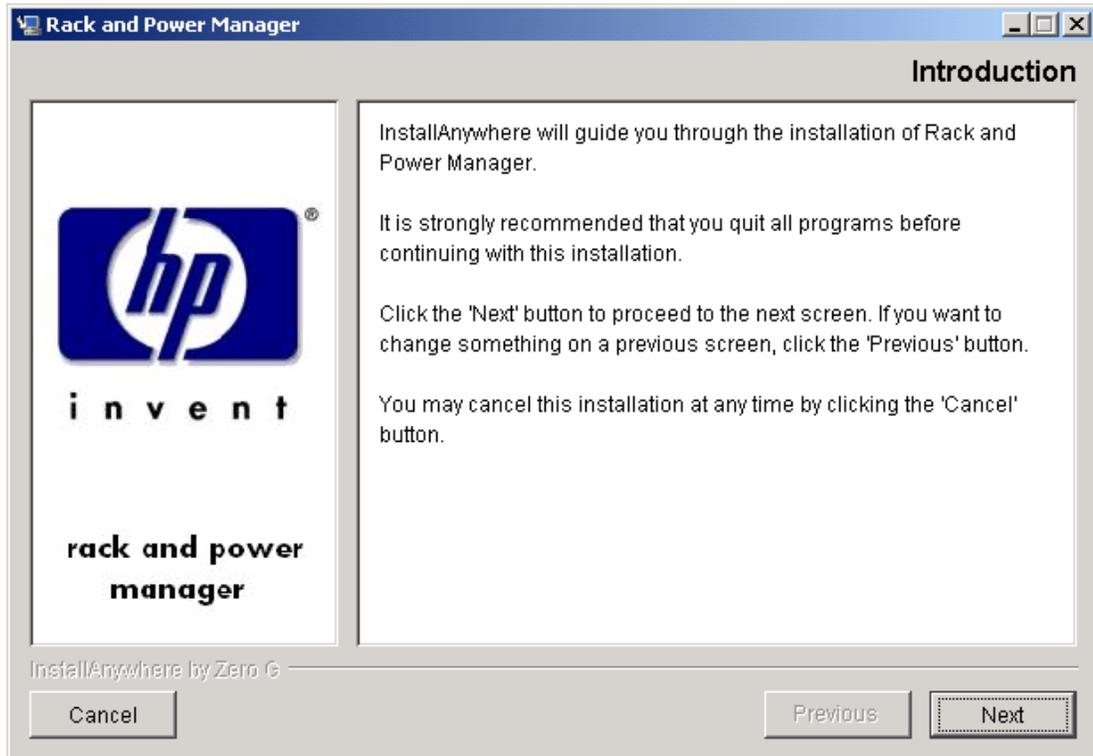
- A drive must be mapped from the Windows workstation running the Novell Client to the root of the SYS: volume on the target NetWare server.

To install the Serial Relay Agent on a NetWare system using the GUI Installation method:

1. Insert the Rack and Power Management CD into the Windows workstation running the Novell Client. Locate and run the NetWare Agent executable located in the **HPRPM/NetWare** folder (SETUP . EXE).

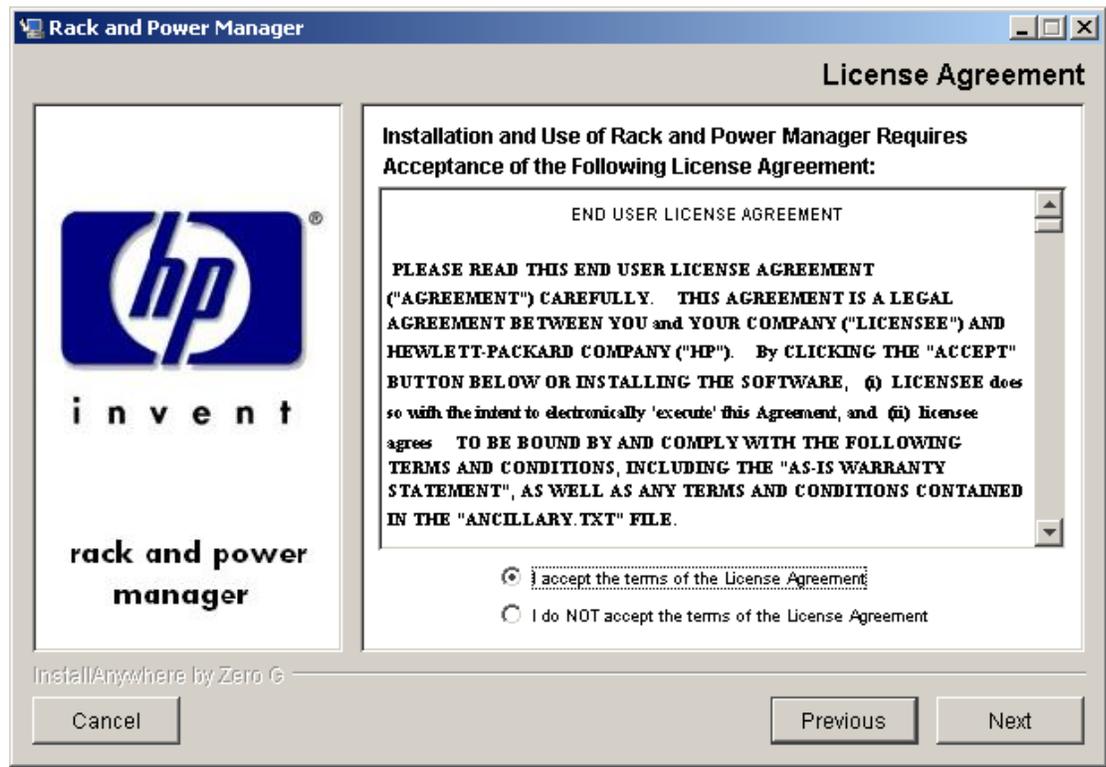
The **Introduction** screen is displayed.

2. Read the introduction and click **Next**.



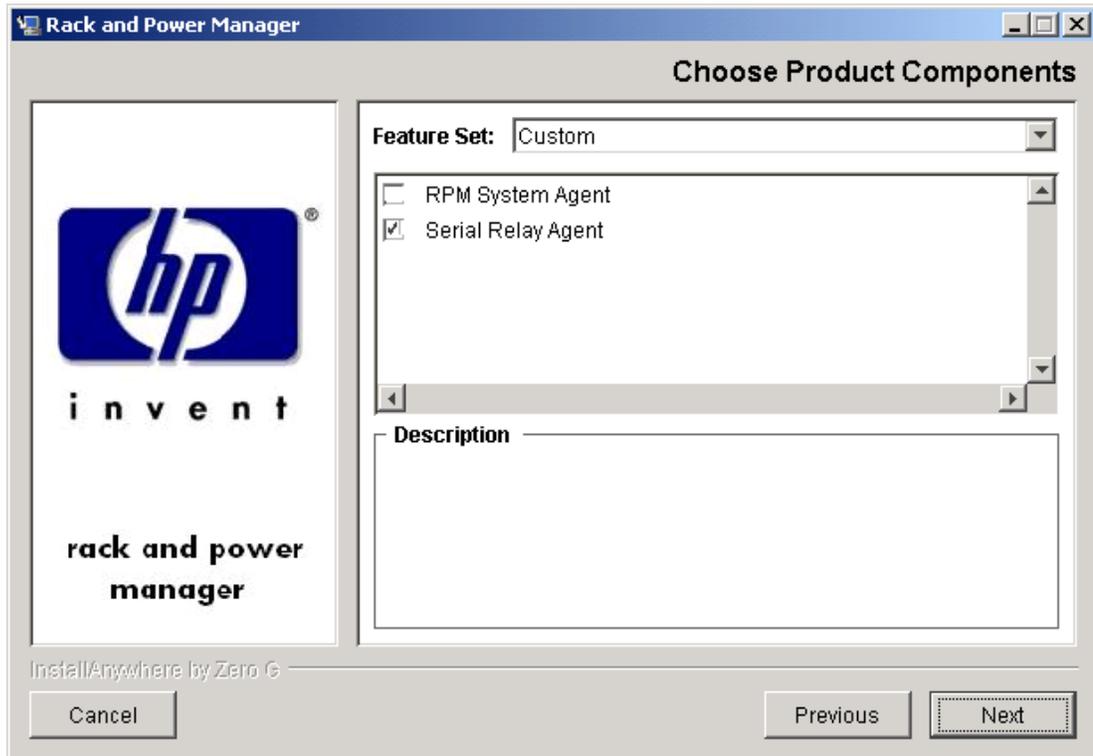
The **License Agreement** screen is displayed.

3. Read the license agreement, select **I accept the terms of the License Agreement**, and click **Next**.



The **Choose Product Components** screen is displayed.

4. Select **Serial Relay Agent** and click **Next**.

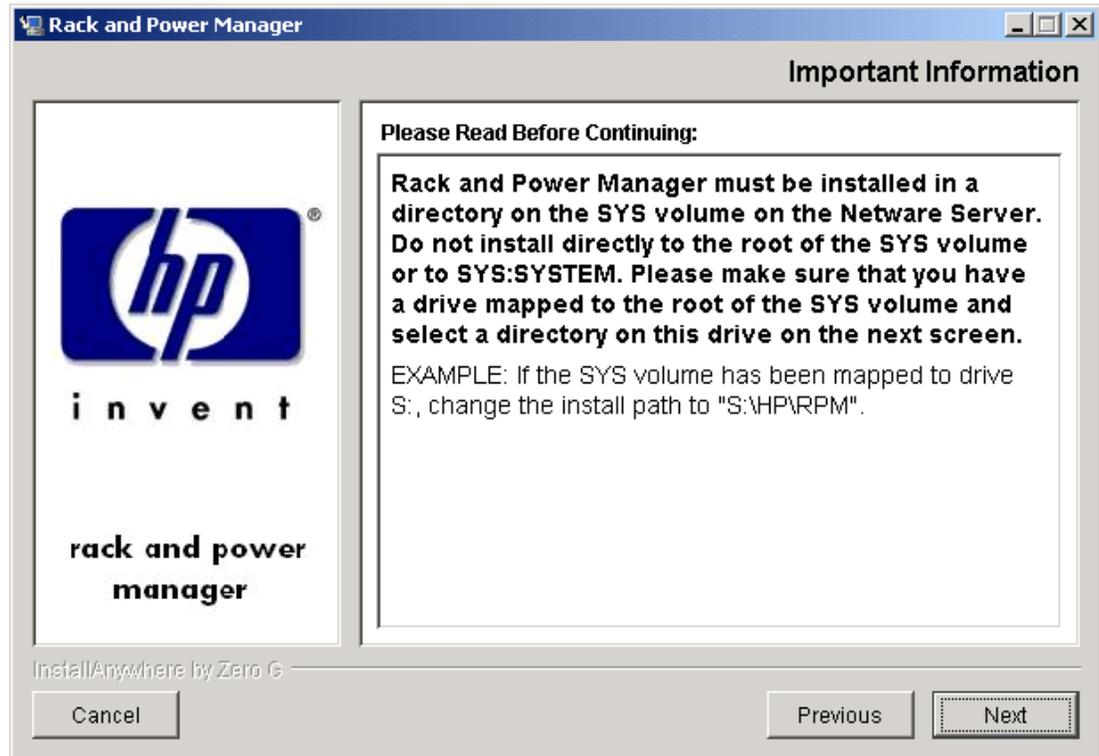


NOTE: Multiple components can be installed at one time. Available components include:

- **System Agent**—Install the System Agent on any computer that will control the shutdown and restart of a UPS load segment or receive commands from the Management Server.
- **Serial Relay Agent**—Install the Serial Relay Agent on any computer that is serially attached to a UPS.

The **Important Information** screen is displayed.

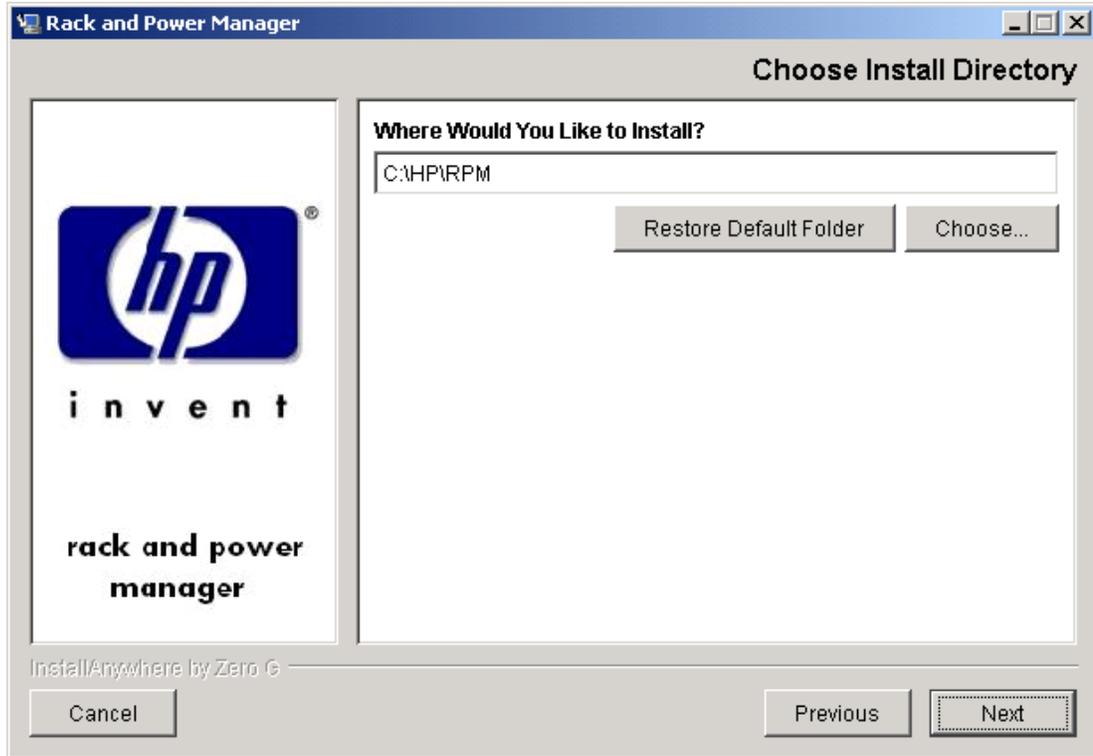
5. Read the information contained on the screen and click **Next**.



The **Choose Install Directory** screen is displayed.

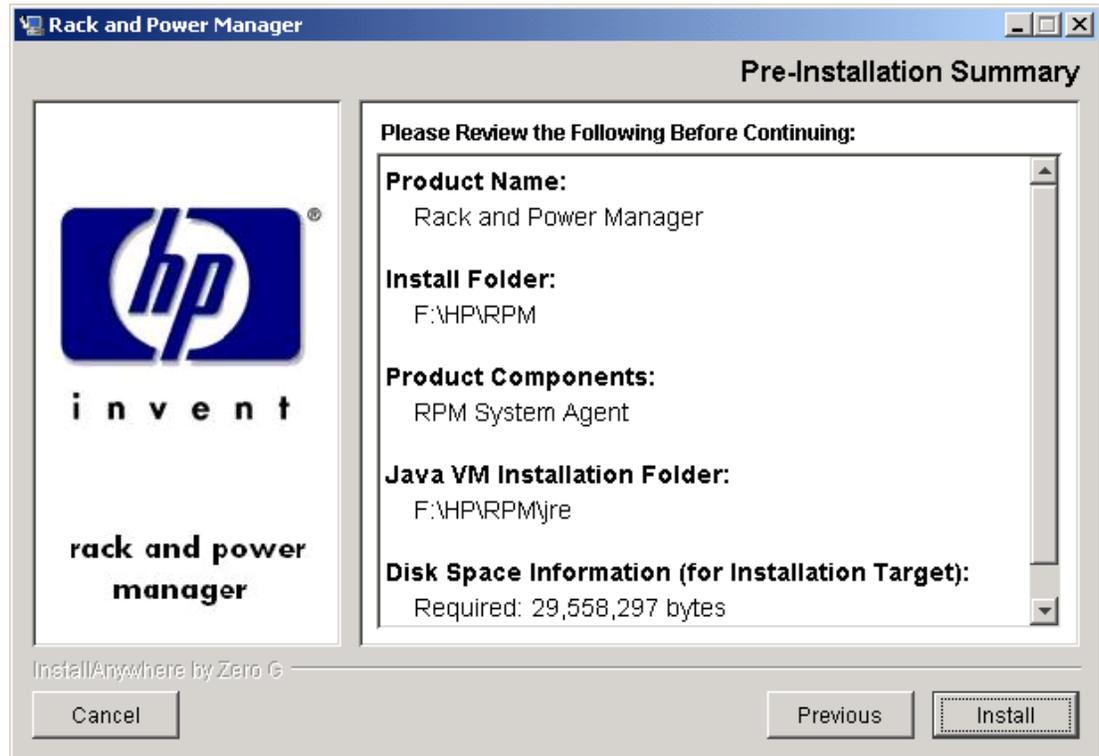
6. Enter the desired install directory in the **Where Would You Like to Install?** field and click **Next**.

NOTE: Be sure to change the default drive letter, if necessary, to the drive mapped to the SYS : volume of the target server.

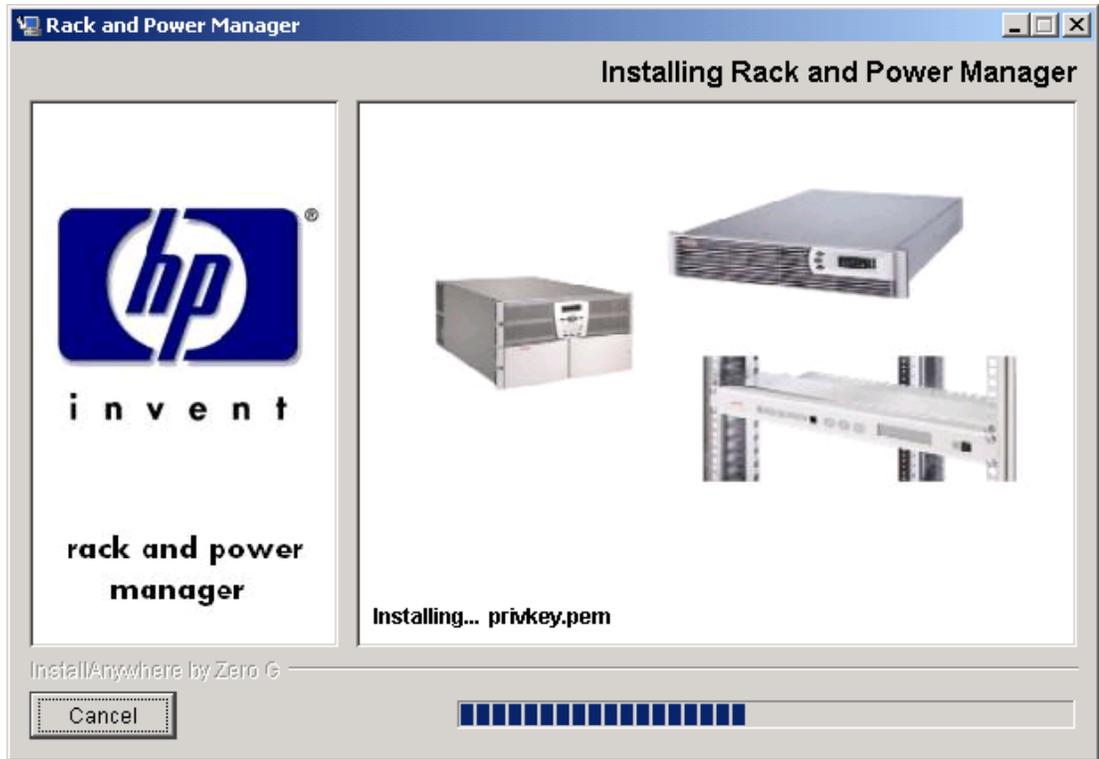


The **Pre-Installation Summary** screen is displayed.

7. Review the installation information and click **Install**.

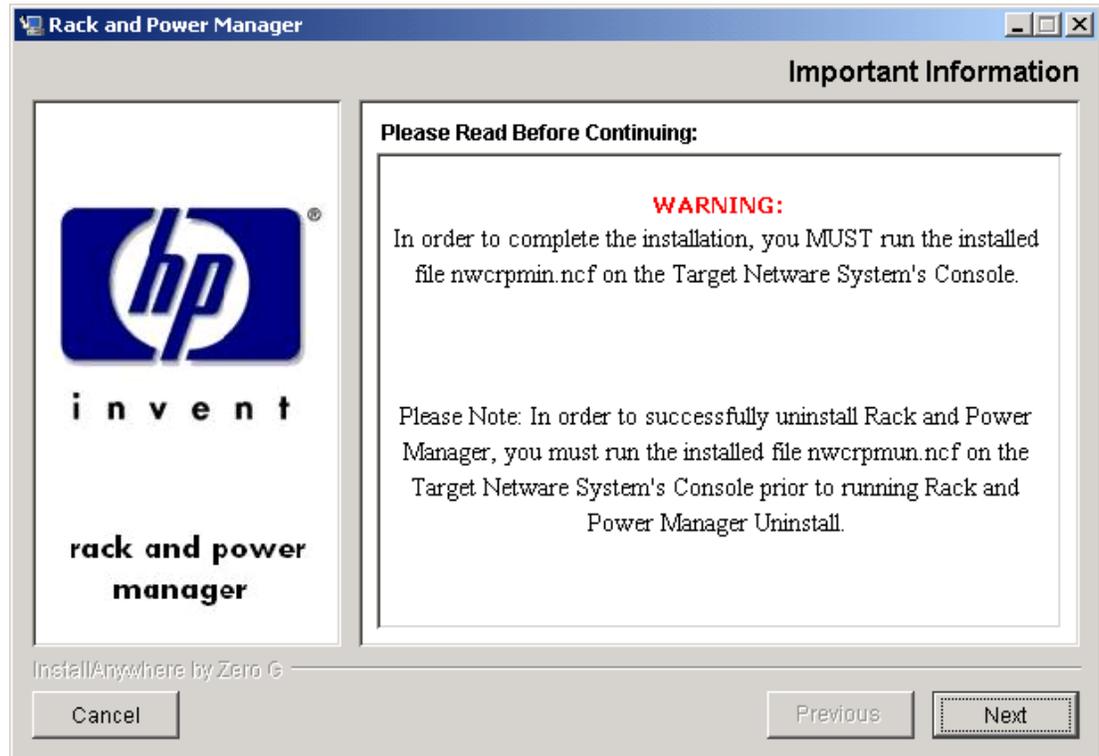


The **Installing Rack and Power Manager** screen is displayed. The agent installs, and a status bar indicates the installation progress.



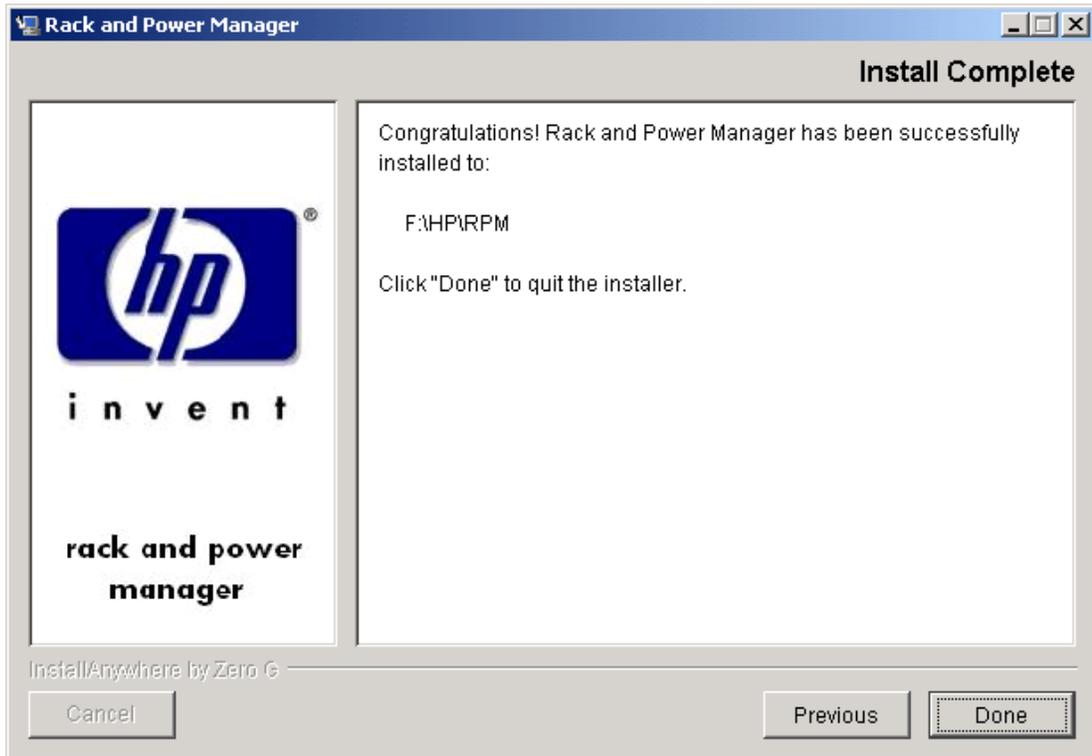
After the installation is complete, the **Important Information** screen is displayed.

8. Read the information contained on the screen and click **Next**.



The **Install Complete** screen is displayed.

9. Read the information and click **Done**.

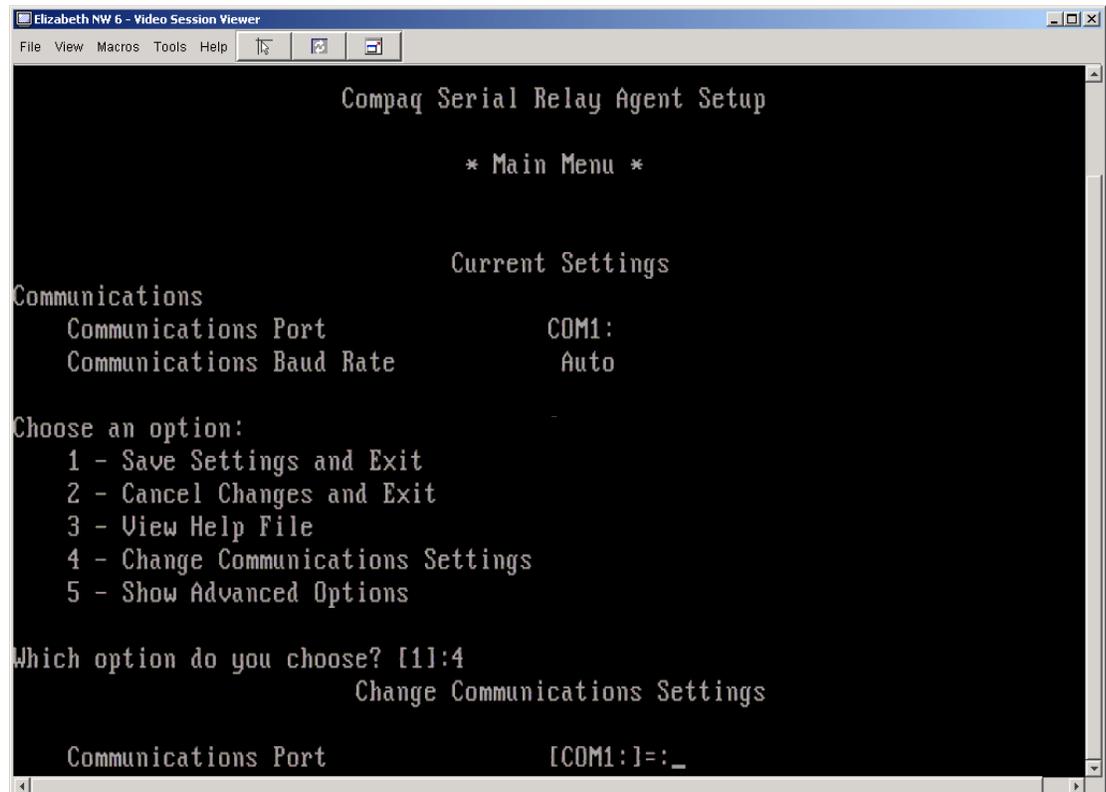


10. From the NetWare server Console, run the following command:

```
<INSTALL_PATH>/NWCRPMIN.NCF
```

The **Serial Relay Agent Setup** screen is displayed, allowing for configuration of the Serial Relay Agent. If it is necessary to reconfigure the Serial Relay Agent after the installation, run `SRASETUP.NLM` from the directory in to which the software was installed (usually `SYS:HP/RPM`).

11. Select option **4** and enter the correct serial (COM) port. Select option **1** to save the changes and exit.



12. Run the following command:

```
CRPMLD.NCF
```

The Serial Relay Agent screen is displayed, indicating that the Serial Relay Agent has been loaded. If correctly configured, the message “UPS communications established” is displayed. This process might take a few moments. If the message does not display, check the hardware configuration and rerun `SRASETUP.NLM`.

Installing the System Agent and Serial Relay Agent Using the Silent Installation Method

The System Agent and Serial Relay Agent can be installed using the Silent installation option on any supported NetWare operating system.

To install using the Silent installation option, a properties file must be created using a text editor with the appropriate variables set for the desired installation options.

A description of the variables used on the properties file is included in Table 2-6. Examples of the properties file follow.

Table 2-6: Complete List of Variables

Variable	Function
INSTALLER_UI {should be equal to silent}	Use this variable to indicate the install type.
CHOSEN_INSTALL_SET {agent, SRA, agentSRA}	Use this variable to select which agent component to install. <ul style="list-style-type: none"> • Use <code>agent</code> to install the System Agent. • Use <code>SRA</code> to install the Serial Relay Agent. • Use <code>agentSRA</code> to install both the System Agent and Serial Relay Agent.
USER_INSTALL_DIR {Divisions in the file structure between directories should be indicated with the symbol '\$/\$'. Example: C:/\$/hprpm}	Use this variable to indicate the path to which the agent component is to be installed.
INSTALL_AGENT {equal to true if CHOSEN_INSTALL_SET = agent or CHOSEN_INSTALL_SET = agentSRA}	Use this variable to confirm which agents are to be installed.
USER_INPUT_CERT_PW_1 {password needed if CHOSEN_INSTALL_SET = agent or CHOSEN_INSTALL_SET = agentSRA; should be equal to USER_INPUT_CERT_PW_2}	Use this variable to input the SSL certificate password that will be generated during the install.
USER_INPUT_CERT_PW_2 {password needed if CHOSEN_INSTALL_SET = agent or CHOSEN_INSTALL_SET = agentSRA; should be equal to USER_INPUT_CERT_PW_1}	Use this variable to confirm the SSL certificate password that will be generated during the install.
USER_INPUT_SRA_COM {Communications Port Number the UPS is connected to, needed if CHOSEN_INSTALL_SET = SRA or CHOSEN_INSTALL_SET = agentSRA}	Use this variable to input the COM port number to which the UPS is connected.
USER_INPUT_SRA_PASSWORD {SRA Password needed if CHOSEN_INSTALL_SET = SRA or CHOSEN_INSTALL_SET = agentSRA}	Use this variable to input the password the Serial Relay Agent uses when communicating with the Rack and Power Management Server. The password is <code>MustB6</code> .
USER_INPUT_RESULTS_START_1 {this variable is needed to start the services installed; it should be equal to Start RPM Services?}	Use this variable to start the Rack and Power Manager service.

Example 2-5: Silent System Agent Installation

```

INSTALLER_UI = silent
CHOSEN_INSTALL_SET = agent
USER_INSTALL_DIR = S:/$HPRPM
INSTALL_AGENT = true
USER_INPUT_CERT_PW_1 = Admin
USER_INPUT_CERT_PW_2 = Admin
USER_INPUT_RESULTS_START_1 = Start RPM Services?

```

Example 2-6: Silent System Agent and Serial Relay Agent Installation

```

INSTALLER_UI = silent
CHOSEN_INSTALL_SET = agentsRA
USER_INSTALL_DIR = S:/$HPRPM
INSTALL_AGENT = true
USER_INPUT_CERT_PW_1 = Admin
USER_INPUT_CERT_PW_2 = Admin
USER_INPUT_SRA_COM = 2
USER_INPUT_SRA_PASSWORD = Admin
USER_INPUT_RESULTS_START_1 = Start CRPM Services?

```

After saving the text file, run the installer by entering *<path to install executable> -f <path to properties file>* at the command prompt. For example, if the install executable (SETUP.EXE) is in the directory *c:/hprpm* and the properties file (INSTALL.PROP) is in the directory *c:/docs*, from a command prompt at *c:/hprpm*, enter:

```
SETUP.EXE -f C:/DOCS/INSTALL.PROP
```

Uninstalling Components From Windows Systems

To remove Rack and Power Manager from a Windows system:

NOTE: If multiple components are installed, the uninstaller will remove all of the installed components. It might be necessary to reinstall any component still needed.

1. Click **Start**, select **Settings**, and click **Control Panel**.
2. Click **Add/Remove Programs**.
3. Select **Rack and Power Manager**.
4. Click **Change/Remove**. The **Uninstall Rack and Power Manager** screen is displayed.

5. Click **Uninstall**. The **Uninstall Complete** screen is displayed.
6. Click **Done**.

NOTE: If you created icons for Rack and Power Manager during the Management Server installation, you can initiate the uninstaller by double-clicking the **Uninstall Rack and Power Manager** icon.

Uninstalling Components From RedHat Systems

NOTE: If multiple components are installed, the uninstaller will remove all of the installed components. It might be necessary to reinstall any component still needed.

To remove Rack and Power Manager from a RedHat system:

1. Navigate to the **Uninstall** folder using a graphical shell.
2. Double-click on the uninstaller program. The **Uninstall Rack and Power Manager** screen is displayed.
3. Click **Uninstall**. The **Uninstall Complete** screen is displayed.
4. Click **Done**.

NOTE: If you created links for Rack and Power Manager during the Management Server installation, you can initiate the uninstaller by double-clicking the **Uninstall Rack and Power Manager** link.

Uninstalling Components From NetWare Systems

To remove Rack and Power Manager from a NetWare system:

NOTE: If multiple components are installed, the uninstaller will remove all of the installed components. It might be necessary to reinstall any component still needed.

1. From the NetWare Server, run the following console command:

```
NWCRPMUN.NCF
```

This will unload all Rack and Power Manager components. Press any key to close the console.

2. From the Windows workstation running the Novell Client, browse to the directory in to which the Rack and Power Manager components were installed. From the UninstallerData folder, run `UNINSTALLCRPM.EXE`.
The **Uninstall Rack and Power Manager** screen is displayed.
3. Click **Uninstall**. The **Uninstall Complete** screen is displayed.
4. Click **Quit**.

Access and Navigation

Browsing to Rack and Power Manager

You can browse to Rack and Power Manager in the following ways:

- Remotely from a browser
- Locally from the desktop

IMPORTANT: For security reasons, do not use the Favorites (bookmark) feature of your browser to mark a sublevel URL that is part of Rack and Power Manager. In addition, linking to a subsection of Rack and Power Manager without going to the main URL could result in unexpected page layout.

NOTE: When browsing to Rack and Power Manager remotely or locally for the first time, a Windows Management Server automatically installs the Java Plug-in on the system.

NOTE: A Linux Management Server is unable to update the Java Plug-in on a remote browser. The remote browser will have to be updated manually. Refer to “Browser Requirements” in Chapter 2 for the correct Java Plug-in version for your browser.

Browsing Remotely

1. Launch a supported browser. The browser window is displayed.
2. In the **Address** field (Microsoft Internet Explorer) or the **Location** field (Netscape Navigator), enter

```
https://hostname:3257/
```

where *hostname* is the IP address or the machine name of the computer on which the Management Server software component is installed.

NOTE: If you are using a proxy server, you might need to add the server hosting Rack and Power Manager to the No Proxy list of servers in the Internet settings for your browser. Refer to the browser help for more information about changing the configuration.

Browsing Locally

Rack and Power Manager can be accessed locally in a number of ways depending on your selections during the Management Server installation.

- Microsoft Windows
 - Program Group—Click **Start**, select **Programs**, and select the **Rack and Power Manager Program Group**. Click **Rack and Power Manager**.
 - Start Menu—Click **Start** and select **Rack and Power Manager**.
 - Desktop Icon—Double-click the **Rack and Power Manager** icon on the desktop.
 - Other—Double-click the **Rack and Power Manager** link located in a specified folder on the hard drive.
- RedHat Linux
 - Home folder—Click the **Rack and Power Manager** link in the home folder.
 - Other—Click the **Rack and Power Manager** link located in a specified folder on the hard drive.

Regarding the Browser Security Alert

Browsing to Rack and Power Manager requires the use of Secure Socket Layer (SSL). SSL is a protocol layer that lies between HTTP and TCP. It provides secure communication between a server and a client and is designed to provide privacy and message integrity. SSL is commonly used in Web-based transactions to authenticate the Web server, which indisputably identifies the server to the browser. SSL also provides an encrypted channel of communication between the server and the browser. This ensures integrity of the data between the Web server and the browser, so that data can neither be viewed nor modified while in transit. Rack and Power Manager uses SSL for all browser-to-Rack and Power Manager communication.

An integral part of SSL is a security certificate, which identifies the Rack and Power Manager Management Server. Your browser might display a security alert when browsing to Rack and Power Manager for one of several reasons:

- The certificate is untrusted, meaning it was signed by a certifying authority that is unknown to your browser.
- The certificate has expired or is not yet valid. This can occur if you issue your own certificate and it has expired.
- The name on the certificate does not match the name of the site in the browser address field.

Establishing a Secure Session

The first time you browse to Rack and Power Manager, the **Secure Session** screen is displayed. To ensure a secure connection to Rack and Power Manager, verify that you are browsing to the desired Management Server.

1. Click **View Certificate**.
2. Verify that the name in the **Issued To** field is the name of the Management Server.
3. Perform any other steps necessary to verify the identity of the Management Server.



CAUTION: If you are not sure this is the desired Management Server, do not proceed. Importing a certificate from an unauthorized server relays your login credentials to that unauthorized server. Exit the certificate window and contact the Rack and Power Manager administrator.

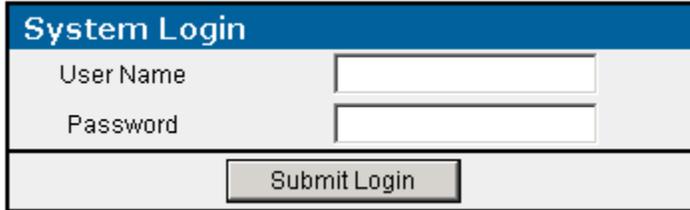
After verifying the Management Server, do one of the following.

- Import the certificate and proceed.
 - a. Click **View Certificate**. The certificate is displayed.
 - b. Click **Install Certificate**. The Certificate Import Wizard runs.
 - c. Click **Next**. The **Certificate Store** screen is displayed.
 - d. Select **Automatically select the certificate store based on the type of certificate** and click **Next**.
 - e. Click **Finish**. A message is displayed asking for verification of the root store.
 - f. Click **Yes**.
- Proceed without importing the certificate by clicking **Yes** on the **Security Alert** window. You will continue to receive the Security Alert each time you log in until you import the certificate. Your data will still be encrypted.
- Exit and import the certificate into your browser from a file provided by the administrator.
 - a. Click **No** on the **Security Alert** window.
 - b. Obtain an exported Rack and Power Manager server certificate file from the administrator.
 - c. Manually import the file into the browser by clicking **Tools, Internet Options, Content, Certificates, and Import**.

Logging In to Rack and Power Manager

Before using Rack and Power Manager, you must log in with a user name and password. The first time you log in, type `admin` as the user name and enter the password you selected during the Management Server installation. Click **Submit Login** to log in.

NOTE: User names and passwords are case-sensitive.



The image shows a web form titled "System Login". It has a blue header with the text "System Login" in white. Below the header, there are two input fields: "User Name" and "Password". Each field has a corresponding text label to its left. Below the input fields, there is a button labeled "Submit Login".

The first time you log in, a screen containing introductory information is displayed. For subsequent logins, the Rack and Power Manager **Home** screen is displayed for administrator level users. For more information on the **Home** screen, refer to “Home Screen” in Chapter 5.

After you are logged in, you can change the user name and password. Refer to “My Account Screen” in Chapter 4 for more information.

Navigating Rack and Power Manager

rack and power manager

Home Devices Queries Settings (Current Query View - All Devices) Logout

CMC devices

- ▶ CMC Rack 94
- ▶ CMC Rack 96

UPS devices

- ▶ UPS Rack 101
- Overview
- Logs and Reports
- Attached Agents
- Power Fail Settings
- Scheduled Shutdowns
- Event Response
- Properties
- Diagnostics
- Manual Control
- ▶ UPS Rack 123
- ▶ UPS Rack 126
- ▶ UPS Rack 128

Devices Home

HELP

Active Alarms

Severity	Device	Description
No Active Alarms		

Opening https://faceless-man2:3257/webpages/xmlAllActiveDeviceAlarms.asp Local intranet

The Rack and Power Manager interface is divided into three frames:

- **Top frame**—Contains the title, a **Home** icon, a **Devices** icon, a **Queries** icon, a **Settings** icon, a **Logo** icon, a **Support** hyperlink, and a **Logout** icon.
 - Click the **Home** icon to view the **Home** screen. For more information, refer to “Home Screen” in Chapter 5.
 - Click the **Devices** icon to view a list of hyperlinks to managed devices. For more information on the Devices menu, refer to Chapter 5.
 - Click the **Queries** icon to display the **Queries** screen. For more information on queries, refer to “Queries Screen” in Chapter 5.
 - Click the **Settings** icon to view a list of hyperlinks to the settings screens. For more information on the Settings menu, refer to Chapter 4.
 - Click the **Logo** icon to connect to the HP website.
 - Click the **Logout** icon to log out of Rack and Power Manager.

IMPORTANT: In the center of the top frame, the name of the current query view is displayed. Only devices included in the current query are displayed in the list of managed devices.

- **Left navigation frame**—Contains a list of managed devices or a list of hyperlinks for configuring the Rack and Power Manager settings. View submenus for each option by clicking the arrow on the left of the option to expand the menu.
- **Main frame**—Contains the various screens of Rack and Power Manager, which are discussed in detail later in this guide. Click the **Help** icon on any screen in the main frame to display the Rack and Power Manager online help.

NOTE: By default, the **Home** screen is displayed in the main frame upon logging in to Rack and Power Manager.

Before Rack and Power Manager can manage devices, the Rack and Power Manager settings must be properly configured. To view a list of hyperlinks for configuring Rack and Power Manager settings, click the **Settings** icon in the top frame of the Rack and Power Manager interface. The available options are displayed in the left navigation frame.

Settings Icon

Hyperlinks listed under the **Settings** icon include:

- Discovery
 - Automatic
 - Manual
 - Discovery Results
- Configuration
 - Device Management
 - Agent Management
- Accounts
 - User Administration
 - My Account
- Server
 - Notification Recipients
 - Session Management
 - System Logs
 - Database
 - Email Server Setup
 - Configuration
 - About RPM

NOTE: Users that do not have administrator rights can only access the **My Account** screen under the **Settings** icon. Administrators have access to all settings screens.

Automatic Discovery Screen

The **Automatic Discovery** screen is only displayed for users who have administrator rights. Automatic discovery is the process that Rack and Power Manager uses to locate and identify devices (UPSs and CMCs) and System Agents on the network. Devices and agents must first be discovered before they can be managed.

The **Automatic Discovery** screen enables you to configure Rack and Power Manager to automatically discover devices and agents according to a schedule.

NOTE: Discovered devices and agents are displayed on the **Discovery Results** screen.

To configure automatic discovery:

1. Add a new range of IP addresses to search.
 - a. Click **Add New IP Range**. The **Add/Edit IP Range** box is displayed.

Add / Edit IP Range										
Description	Beginning IP Address				Ending IP Address				Retries	Timeouts
Medford Office	172	.25	.234	.25	172	.25	.234	.99	3	10 seconds
<input type="button" value="Apply"/> <input type="button" value="Undo Changes"/> <input type="button" value="Cancel"/>										

- b. Enter a description for the IP address range in the **Description** field.
 - c. Enter the beginning and ending IP address for the range.

NOTE: The beginning IP address must be a lower value than the ending IP address.

- d. Enter the number of times you want the timeout process to repeat in the **Retries** field. If the retries value equals zero, the system only sends the initial broadcast message. If the retries setting is greater than zero, more than one discovery request is made. Additional requests seek new devices that were not previously discovered.

NOTE: If the discovery is unsuccessful, your network might be too large for the retries value set on the **Add/Edit IP Range** box. Increase the retries value.

- e. Enter the amount of time the system should wait for responses during discovery in the **Timeouts** field. The timeout setting you choose must be adequate for your network. To ensure that enough time is available to discover all devices, be sure to take into account network traffic and network latency when selecting a timeout value.

NOTE: If the discovery is unsuccessful, your network may be too large for the timeout value set on the **Add/Edit IP Range** box. Increase the timeout value.

2. Click **Apply** to accept the information. Enable automatic discovery by selecting **Enable Automatic Discovery** in the **Status** box.

Status
<input checked="" type="checkbox"/> Enable Automatic Discovery Last run: Tuesday August 20 2002 at 12:40 PM Next run:

- Schedule automatic discoveries by entering the number of days, hours, or minutes that should elapse between each automatic discovery in the **Schedule** box.

Schedule

Automatically Execute Discovery Every:

day(s)	hour(s)	minute(s)
<input style="width: 40px;" type="text" value="1"/>	<input style="width: 40px;" type="text" value="0"/>	<input style="width: 40px;" type="text" value="0"/>

- Enter the SNMP Community Strings, separated by commas, that Rack and Power Manager should use to discover CMC devices (`public` is the default string). If you have not changed the default strings on any devices, this step is optional.

NOTE: Community strings are case-sensitive.

Use Community Strings (optional)

Use These SNMP Strings for Discovery (comma separated list)

- Specify the IP address range or ranges for Rack and Power Manager to use in discovery by selecting the checkbox in the **Use** column next to the range you want to use in the **IP Address Ranges** table. Only devices and agents within the specified ranges are discovered.

IP Address Ranges						
Use	Description	Beginning IP	Ending IP	Retries	Timeouts	Delete
<input checked="" type="checkbox"/>	Houston Office	142.22.236.21	142.22.236.98	3	10 sec	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Medford Office	172.25.234.40	172.25.234.88	3	10 sec	<input type="checkbox"/>

Apply
Execute Discovery Now
Undo Changes
Add New IP Range
Delete Selected IP Range(s)

- Do one of the following:
 - Click **Apply** to accept the information and schedule future automatic discoveries.
 - Click **Execute Discovery Now** to perform an immediate discovery and schedule future automatic discoveries.
 - Click **Undo Changes** to reject all changes and keep the **Automatic Discovery** screen open.

To edit an IP address range:

- Click the hyperlink for the IP address range you want to edit in the **Description** column of the **IP Address Ranges** table. The **Add/Edit IP Range** box is displayed.
- Edit the information as necessary.
- Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Add/Edit IP Range** box open, or click **Cancel** to return to the **Automatic Discovery** screen.

To delete an IP address range:

1. Select the checkbox in the **Delete** column of the **IP Address Ranges** table for the IP address range you want to delete.
2. Click **Delete Selected IP Range(s)**.

Manual Discovery Screen

The **Manual Discovery** screen is only displayed for users who have administrator rights. The **Manual Discovery** screen enables you to manually discover devices (UPSs and CMCs) and agents (System Agents) on your network without scheduling automatic discoveries.

NOTE: Discovered devices and agents display on the **Discovery Results** screen.

To manually discover devices:

1. Add a new IP address range if necessary.
 - a. Click **Add New IP Range**. The **Add/Edit IP Range** box is displayed.

Add / Edit IP Range																	
Description	Beginning IP Address				Ending IP Address				Retries	Timeouts							
Medford Office	172	.	25	.	234	.	25	172	.	25	.	234	.	99	3	10	seconds
<input type="button" value="Apply"/> <input type="button" value="Undo Changes"/> <input type="button" value="Cancel"/>																	

- b. Enter a description for the IP address range in the **Description** field.
- c. Enter the beginning and ending IP address for the range.

NOTE: The beginning IP address must be a lower value than the ending IP address.

- d. Enter the number of times you want the timeout process to repeat in the **Retries** field. If the retries value equals zero, the system only sends the initial broadcast message. If the retries setting is greater than zero, more than one discovery request is made. Additional requests seek new devices that were not previously discovered.

NOTE: If the discovery is unsuccessful, your network might be too large for the retries value set on the **Add/Edit IP Range** box. Increase the retries value.

- e. Enter the amount of time the system should wait for responses during discovery in the **Timeouts** field. The timeout setting you choose must be adequate for your network. To ensure that enough time is available to discover all devices, be sure to take into account network traffic and network latency when selecting a timeout value.

NOTE: If the discovery is unsuccessful, your network might be too large for the timeout value set on the **Add/Edit IP Range** box. Increase the timeout value.

- f. Click **Apply** to accept the information.

2. Configure the discovery.
 - a. Select the type of devices you want to manually discover.
 - b. Enter the IP address of a single device that Rack and Power Manager needs to discover or select the option to manually discover devices within a range of IP addresses.

IMPORTANT: Be sure that the correct radio button is selected. For example, if you enter a single IP address but do not have **Search at this IP Address** selected, discovery will be unsuccessful.

- c. Enter the SNMP Community Strings, separated by commas, that Rack and Power Manager should use to discover CMC devices (`public` is the default string). If you have not changed the default strings on any devices, this step is optional.

NOTE: Community strings are case-sensitive.

Discovery Configuration

Select the type of network resources you want to discover

Discover all resources on the network
 (Recommended)

Discover individual network resources

Uninterruptible Power System (UPS) Devices
 Rack and Power Manager System Agents

Console Management Controllers (CMCs)

Select where to search on the network for resources

Search at this IP Address :

Search for Resources using IP ranges selected from the list

Use Community Strings (optional)

Use These SNMP Strings for Discovery (comma separated list)

3. Specify the IP address range for Rack and Power Manager to use in discovery (if you are using a range of IP addresses for this discovery) by selecting the checkbox in the **Use** column next to the range you want to use in the **IP Address Ranges** table. Only devices and agents within the specified ranges are discovered.

IP Address Ranges						
Use	Description	Beginning IP	Ending IP	Retries	Timeouts	Delete
<input checked="" type="checkbox"/>	Houston Office	142.22.236.21	142.22.236.98	3	10 sec	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Medford Office	172.25.234.40	172.25.234.88	3	10 sec	<input type="checkbox"/>

Apply
Execute Discovery Now
Undo Changes
Add New IP Range
Delete Selected IP Range(s)

4. Click **Undo Changes** to reject all changes and keep the **Manual Discovery** screen open or click **Execute Discovery Now** to perform an immediate manual discovery. After discovery is complete, the **Discovery is complete** box is displayed.



Click the appropriate hyperlink to:

- Return to the **Manual Discovery** screen. For more information, refer to “Manual Discovery Screen” in this chapter.
- View the results of the discovery. For more information, refer to “Discovery Results Screen” in this chapter.
- Manage discovered devices. For more information, refer to “Device Management Screen” in this chapter.
- Manage discovered agents. For more information, refer to “Agent Management Screen” in this chapter.

To edit an IP address range:

1. Click the hyperlink for the IP address range you want to edit in the **Description** column of the **IP Address Ranges** table. The **Add/Edit IP Range** box is displayed.
2. Edit the information as necessary.
3. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Add/Edit IP Range** box open, or click **Cancel** to return to the **Manual Discovery** screen.

To delete an IP address range:

1. Select the checkbox in the **Delete** column of the **IP Address Ranges** table for the IP address range you want to delete.
2. Click **Delete Selected IP Range(s)**.

Discovery Results Screen

The **Discovery Results** screen is only displayed for users who have administrator rights. The **Discovery Results** screen enables you to view the devices and agents discovered by Rack and Power Manager.

Discovered Devices			
Device Type	IP Range	IP Address	Delete
CMC	Houston Office	172.25.234.92	<input type="checkbox"/>
CMC	Houston Office	172.25.234.93	<input type="checkbox"/>
UPS	Medford Office	172.25.234.125	<input type="checkbox"/>
UPS	Medford Office	172.25.234.128	<input type="checkbox"/>
UPS	Medford Office	172.25.234.150	<input type="checkbox"/>

Delete Selection(s)

Discovered Agents			
IP Address	IP Range		Delete
172.25.234.21	Houston Office		<input type="checkbox"/>
172.25.234.24	Houston Office		<input type="checkbox"/>
172.25.234.50	Houston Office		<input type="checkbox"/>
172.25.234.154	Medford Office		<input type="checkbox"/>
172.25.234.202	Medford Office		<input type="checkbox"/>
172.25.234.215	Medford Office		<input type="checkbox"/>

Delete Selection(s)

Keep in mind that:

- If you do not see a device in the discovered list, it was not discovered and is not available to be managed. For troubleshooting discovery, refer to Chapter 6, “Troubleshooting.”
- Discovered devices cannot be worked with until they are added to the managed list on the **Device Management** screen.
- If a device or agent is added to the managed list on the **Device Management** screen or **Agent Management** screen, it will no longer be displayed on the **Discovery Results** screen.
- Previously managed devices and agents will not be discovered again unless they are unmanaged and deleted from the **Discovery Results** screen.

To delete a discovered device:

1. Select the checkbox in the **Delete** column of the **Discovered Devices** table for the device you want to delete.
2. Click **Delete Selection(s)**.

To delete a discovered agent:

1. Select the checkbox in the **Delete** column of the **Discovered Agents** table for the agent you want to delete.
2. Click **Delete Selection(s)**.

Device Management Screen

The **Device Management** screen is only displayed for users who have administrator rights. Each device that will be monitored by Rack and Power Manager must be included in the **Managed Devices** table on the **Device Management** screen.

Managed Devices				
Name	IP Address	Type	Location	Delete
Rack 34 CMC	172.25.234.119	CMC	Medford Office	<input type="checkbox"/>
R3000XR Rack 34	172.25.234.114	UPS	Medford Office	<input type="checkbox"/>

To add a discovered device to the **Managed Devices** table:

1. Click **Add New Device** on the **Managed Devices** table. The **Add Device to Managed Device List** box is displayed.

Add Device to Managed Device List

Add Selected Device	With This Name	At This Location
<input checked="" type="radio"/> This Discovered Device : UPS at 172.25.234.120	<input type="text" value="R3000XR"/>	<input type="text" value="Houston Office"/>
<input type="radio"/> UPS device at this IP address : <input type="text"/>		

2. Select the radio button to the left of the **This Discovered Device:** drop-down box.
3. Select the device you want to add from the **This Discovered Device:** drop-down box.

NOTE: Only devices that are listed on the **Discovery Results** screen are available from the **This Discovered Device:** drop-down box.

4. Enter a name for the device in the **With This Name** field.
5. Do one of the following:
 - Select the location of the device from the **At This Location** drop-down box.
 - Add a new location by selecting **New Location** from the **At This Location** drop-down box. The **Add New Location** box is displayed.

Add New Location

New Location Houston Office

Enter the name of the location in the **New Location** field. Click **Add Location**. The new location is available in the **At This Location** drop-down box on the **Add Device to Managed Device List** box.

6. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Add Device to Managed Device List** box open, or click **Cancel** to return to the **Device Management** screen.

Devices can be manually added to the **Managed Devices** table without being discovered. To add a device that is not discovered:

1. Click **Add New Device** on the **Managed Devices** table. The **Add Device to Managed Device List** box is displayed.

2. Select the radio button and the type of device you are adding from the drop-down box in the **Add Selected Device** column.

IMPORTANT: Be sure to select the correct device type.

3. Enter the IP address of the device you want to add in the **Add Selected Device** column.
4. Enter a name for the device in the **With This Name** field.
5. Do one of the following:
 - Select the location of the device from the **At This Location** drop-down box.
 - Add a new location by selecting **New Location** from the **At This Location** drop-down box. The **Add New Location** box is displayed.

Enter the name of the location in the **New Location** field. Click **Add Location**. The new location is available in the **At This Location** drop-down box on the **Add Device to Managed Device List** box.

6. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Add Device to Managed Device List** box open, or click **Cancel** to return to the **Device Management** screen.

To delete a managed device:

1. Select the checkbox in the **Delete** column of the **Managed Devices** table for the device you want to remove.
2. Click **Delete Selection(s)**.

NOTE: When you delete a device from the **Managed Devices** table, the device is relisted on the **Discovery Results** screen.

To edit a managed device:

1. Click the **Devices** icon in the top frame. Click the hyperlink for the device you want to edit in the left navigation frame. Click the **Properties** hyperlink. The properties screen for the device is displayed.

UPS Properties	
Parameters	Settings
Device Name	T1500XR Rack 34
Device Location	Medford Office
UPS Model	T1500 XR
Contact Information	Site Administrator (800) 555-4444
Power Rating (in VA)	1500
<input type="button" value="Apply"/> <input type="button" value="Undo Changes"/>	

2. Edit the information as necessary.
3. Click **Apply** to accept the information or click **Undo Changes** to reject all changes and keep the properties screen open.

Agent Management Screen

The **Agent Management** screen is only displayed for users who have administrator rights. Each agent that will be monitored by Rack and Power Manager must be included in the **Managed Agents** table on the **Agent Management** screen.

Managed Agents			
Name	IP address	Location	Delete
Proliant DL380	172.25.234.154	Medford Office	<input type="checkbox"/>
Proliant DL580	172.25.234.50	Houston Office	<input type="checkbox"/>
<input type="button" value="Add New Agent"/> <input type="button" value="Delete Selection(s)"/>			

To add a discovered agent to the **Managed Agents** table:

1. Click **Add New Agent** on the **Managed Agents** table. The **Add Agent to Managed List** box is displayed.

Add Agent to Managed List				
Add Selected Agent	With This Name	At This Location	O/S	Function
<input checked="" type="radio"/> This Discovered Agent : <input type="text" value="172.25.234.154"/>	<input type="text" value="Proliant DL380"/>	<input type="text" value="Medford Office"/>	<input type="text" value="Windows 2000"/>	<input type="text" value="SQL Server"/>
<input type="radio"/> New Agent at this IP address : <input type="text"/>				
<input type="button" value="Apply"/> <input type="button" value="Undo Changes"/> <input type="button" value="Cancel"/>				

2. Select the radio button to the left of the **This Discovered Agent:** drop-down box.

3. Select the IP address for the agent you want to add from the **This Discovered Agent:** drop-down box.

NOTE: Only agents that are listed on the **Discovery Results** screen are available from the **This Discovered Agent:** drop-down box.

4. Enter a name for the agent in the **With This Name** field.
5. Do one of the following:
 - Select the location of the device from the **At This Location** drop-down box.
 - Add a new location by selecting **New Location** from the **At This Location** drop-down box. The **Add New Location** box is displayed.

Enter the name of the location in the **New Location** field. Click **Add Location**. The new location is available in the **At This Location** drop-down box on the **Add Agent to Managed List** box.

6. Enter the operating system the agent is running on in the **O/S** field.
7. Enter the function that this system performs in the **Function** field.
8. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Add Agent to Managed List** box open, or click **Cancel** to return to the **Agent Management** screen.

Agents can be manually added to the **Managed Agents** table before being discovered. To add an agent that is not discovered:

1. Click **Add New Agent** on the **Managed Agents** table. The **Add Agent to Managed List** box is displayed.

2. Select the radio button to the left of the **New Agent at this IP address:** field.
3. Enter the IP address of the agent you want to add in the **New Agent at this IP address:** field.
4. Enter a name for the agent in the **With This Name** field.
5. Select the location of the agent from the **At This Location** drop-down box.
6. Enter the operating system the agent is running on in the **O/S** field.

7. Enter the function that this system performs in the **Function** field.
8. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Add Agent to Managed List** box open, or click **Cancel** to return to the **Agent Management** screen.

To edit a managed agent:

1. Click the hyperlink for the agent you want to edit in the **Name** column of the **Managed Agents** table. The **Edit Agent** box is displayed.

Edit Agent			
Name	Location	O/S	Function
Proliant DL580	Houston Office	Linux	Mail Server
<input type="button" value="Apply"/> <input type="button" value="Undo Changes"/> <input type="button" value="Cancel"/>			

2. Edit the information as necessary.
3. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Edit Agent** box open, or click **Cancel** to return to the **Agent Management** screen.

To delete a managed agent:

1. Select the checkbox in the **Delete** column of the **Managed Agents** table for the agent you want to remove.
2. Click **Delete Selection(s)**.

NOTE: When you delete an agent from the **Managed Agents** table, the agent is relisted on the **Discovery Results** screen.

User Administration Screen

The **User Administration** screen is only displayed for users who have administrator rights. The **System Users** table on the **User Administration** screen enables you to add new users, view information about all users with access to Rack and Power Manager, and delete users.

System Users				
Disabled	Logon Name	User Type	Last Logon	Delete
	admin	Admin	Thursday August 22 2002 at 14:20	<input type="checkbox"/>
	LLWicker	User	Thursday August 22 2002 at 14:10	<input type="checkbox"/>
	RKing	Admin	Thursday August 22 2002 at 14:20	<input type="checkbox"/>

To add a new user and assign user rights:

1. Click **Add New User**. The **Account Detail** and **Device Access Profile** tables are displayed.

Account Detail				
Logon Name	Password	Verify Password	Disable Account	Admin
<input type="text" value="LLWicker"/>	<input type="password" value="*****"/>	<input type="password" value="*****"/>	<input type="checkbox"/> Disabled	<input type="checkbox"/> Admin

Device Access Profile				
				Default User Access Rights for All New Devices:
Device Type	Name	Location	IP Address	Access Rights
				<input type="text" value="Read Only"/> <input type="button" value="Set"/>
CMC	Rack 34 CMC	Medford Office	172.25.234.119	<input checked="" type="radio"/> No Access <input type="radio"/> Read Only <input type="radio"/> Read/Write
UPS	R12000XR	Houston Office	172.25.234.120	<input type="radio"/> No Access <input checked="" type="radio"/> Read Only <input type="radio"/> Read/Write
UPS	R3000XR Rack 99	Houston Office	172.25.234.114	<input type="radio"/> No Access <input type="radio"/> Read Only <input checked="" type="radio"/> Read/Write

2. Enter the user's logon name in the **Logon Name** field.
3. Enter the user's password in the **Password** field.
4. Re-enter the user's password in the **Verify Password** field.
5. Select the checkbox in the **Admin** column if the user has administrator rights.

NOTE: Only administrators have the ability to discover and manage devices.

6. Select the user's default access rights for all new devices from the **Default User Access Rights for All New Devices:** drop-down box and click **Set**.
 - Read/Write—Allows the user to log in to Rack and Power Manager and have Read/Write access to already discovered and managed devices.
 - Read Only—Allows the user to log in to Rack and Power Manager and view devices that are already discovered and managed. The user cannot make changes to device settings.
 - No Access—Allows the user to log in to Rack and Power Manager but does not allow the user to view devices to which they have No Access rights assigned.
7. Select the appropriate radio buttons in the **Access Rights** column for each managed device.

8. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the table open, or click **Cancel** to return to the **User Administration** screen.

To edit a user profile:

1. Click the hyperlink for the user profile you want to edit in the **Logon Name** column of the **System Users** table. The **Account Detail** and **Device Access Profile** table for that user are displayed.
2. Edit the information as necessary.
3. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the table open, or click **Cancel** to return to the **User Administration** screen.

To delete a user profile:

1. Select the checkbox in the **Delete** column of the **System Users** table for the profile you want to remove.
2. Click **Delete Selection(s)**.

To disable a user's account without deleting it:

1. Click the hyperlink for the user profile you want to disable in the **Logon Name** column of the **System Users** table. The **Account Detail** and **Device Access Profile** table for that user are displayed.
2. Select the checkbox in the **Disable Account** column to disable the account.
3. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the table open, or click **Cancel** to return to the **User Administration** screen.

My Account Screen

The **Device Access Profile** table on the **My Account** screen displays your device access profile and enables you to change your login password.

Device Access Profile				
Device Type	Name	Location	IP Address	Access Rights
CMC	CMC Rack 34	Medford Office	172.25.234.119	Read Only
CMC	CMC-Rack 35	Medford Office	172.25.234.91	Read Only
UPS	R12000XR Rack 35	Houston Office	172.25.234.120	Read /Write
UPS	R3000XR Rack 34	Houston Office	172.25.234.114	Read /Write

To change your password:

1. Click **Change Password**. The **Change Password** box is displayed.

Change Password

Old Password

New Password

Confirm Password

2. Enter your current password in the **Old Password** field.
3. Enter the new password in the **New Password** field. A password can be between 1 and 50 characters in length. The characters can be alphabetic or numeric (or both). Passwords are case-sensitive.
4. Reenter the new password in the **Confirm Password** field.
5. Click **Apply** to accept the information or click **Cancel** to reject all changes.

Notification Recipients Screen

The **Notification Recipients** screen is only displayed for users who have administrator rights. The **Notification Recipients** screen enables you to set up distribution lists to be used to send email/paging, broadcast, and SNMP trap alerts.

Email/Paging Tab

The **Email/Paging** tab enables you to set up email distribution lists for Rack and Power Manager to recognize. You can set up recognized email addresses to receive alerts when various alarm conditions occur, using the **Event Response** screens for CMCs and UPSs.

Recipient List	Email Address(es)	Delete
Houston Administrators	dc@houadmin.com ■ rk@houadmin.com ■ jm@houadmin.com ■ ms@houadmin.com	<input type="checkbox"/>
Medford Administrators	gb@medadmin.com ■ tb@medadmin.com ■ pn@medadmin.com ■ bs@medadmin.com	<input type="checkbox"/>

To set up a recipient list for email alerts:

1. Configure Rack and Power Manager to send email using the **Email Server Setup** screen. Refer to “Email Server Setup Screen” in this chapter. If Rack and Power Manager is already configured to send email, go to step 2.
2. Click **Add New Email/Paging Recipient List**. The **Email/Paging Recipient(s)** box is displayed.

Email/Paging Recipient(s)

Recipient List
Houston Administrators

Email Address(es)	Email Address(es)
rk@houadmin.com	gb@houadmin.com
jm@houadmin.com	pn@houadmin.com
ms@houadmin.com	bs@houadmin.com
dc@houadmin.com	
tb@houadmin.com	

3. Enter the name of the recipient or group of recipients in the **Recipient List** field.
4. Enter a valid email address for each recipient (up to 10 addresses) in the **Email Address(es)** fields.
5. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Email/Paging Recipient(s)** box open, click **Issue Test Email** to send a test email, or click **Cancel** to return to the **Email/Paging** tab.

To edit a recipient on the email/paging list:

1. Click the hyperlink for the recipient you want to edit in the **Recipient List** column of the **Email/Paging** tab. The **Email/Paging Recipient(s)** box is displayed.
2. Edit the information as necessary.
3. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Email/Paging Recipient(s)** box open, click **Issue Test Email** to send a test email, or click **Cancel** to return to the **Email/Paging** tab.

To delete a recipient from the email/paging list:

1. Select the checkbox in the **Delete** column of the **Email/Paging** tab for the recipient or group of recipients you want to delete.
2. Click **Delete Selection(s)**.

Broadcast Tab

The **Broadcast** tab enables you to set up broadcast distribution lists for Rack and Power Manager to recognize. You can set up recognized IP addresses to receive broadcast alerts when various alarm conditions occur, using the **Event Response** screens for CMCs and UPSs.

IMPORTANT: Any computer running Linux that will be sending or receiving broadcasts must have the Samba packages installed, configured, and running. If the computer running Linux is to receive broadcasts, Samba must be told how to display the received message by adding a message command statement to the **Global Settings** section of the `SMB . CONF` file, such as the following:

```
message command = /bin/csh -c 'cat %s | wall; rm %s' &
```

This statement tells Samba to route the broadcast message to the `wall` command, which will display the message on the system (either in a terminal window, at the console, or in a popup message, depending on the display environment), then delete the message. The Samba processes must be restarted after editing the `SMB . CONF` file to enable the changes. For more information, refer to the Samba documentation at www.samba.org.

In addition, for a Linux Management Server to send broadcasts to either Windows or Linux systems (or both), entries must be added to the `/etc/hosts` file on the Management Server for each host name to which it will broadcast.

For example, to broadcast from a Linux Management Server to a Windows workstation named “george” at IP address 143.85.41.121, add the following line to the `hosts` file:

```
143.85.41.121    george
```

Email / Paging		Broadcast		SNMP Traps	
Recipient List	IP Address(es)				Delete
Houston Administrators	172.25.234.89 ■ 172.25.234.200 ■ 172.25.234.220 ■ 172.25.234.230 ■ 172.25.234.140 ■ 172.25.234.240 ■ 172.25.234.215 ■ 172.25.234.219				<input type="checkbox"/>
		Add New Broadcast Recipient List		Delete Selection(s)	

To set up a recipient list for broadcast alerts:

1. Click **Add New Broadcast Recipient List**. The **Broadcast Recipient(s)** box is displayed.

Broadcast Recipient(s)			
Recipient List			
Houston Administrators			
Name	IP / Host Name	Name	IP / Host Name
Gus	172.25.234.89	Royal	172.25.234.101
Timm	172.25.234.200	Mark	172.25.234.254
Peter	172.25.234.230		
Brian	172.25.234.140		
Darrick	172.25.234.240		
<input type="button" value="Apply"/> <input type="button" value="Undo Changes"/> <input type="button" value="Issue Test Broadcast"/> <input type="button" value="Cancel"/>			

2. Enter the name of the recipient or group of recipients in the **Recipient List** field.
3. Enter the name of each recipient (up to 10 names) in the **Name** fields.
4. Enter a valid Host Name for each named recipient in the **IP/Host Name** fields.

NOTE: If the Management Server is running Windows 2000, you can enter an IP address instead of a Host Name.

5. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Broadcast Recipient(s)** box open, click **Issue Test Broadcast** to send a test broadcast, or click **Cancel** to return to the **Broadcast** tab.

To edit a recipient on the broadcast list:

1. Click the hyperlink for the recipient you want to edit in the **Recipient List** column of the **Broadcast** tab. The **Broadcast Recipient(s)** box is displayed.
2. Edit the information as necessary.
3. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Broadcast Recipient(s)** box open, click **Issue Test Broadcast** to send a test broadcast, or click **Cancel** to return to the **Broadcast** tab.

To delete a recipient from the broadcast list:

1. Select the checkbox in the **Delete** column of the **Broadcast** tab for the recipient or group of recipients you want to delete.
2. Click **Delete Selection(s)**.

SNMP Traps Tab

The **SNMP Traps** tab enables you to set up SNMP trap distribution lists for Rack and Power Manager to recognize. You can set up recognized IP addresses to receive alerts when various alarm conditions occur, using the **Event Response** screens for CMCs and UPSs.

Email / Paging	Broadcast	SNMP Traps
Recipient List		IP Address(es)
Medford Administrators		172.25.234.45 ■ 172.25.234.100 ■ 172.25.234.210 ■ 172.25.234.120 ■ 172.25.234.234
		<input type="checkbox"/>
		<input type="button" value="Delete Selection(s)"/>

To set up a recipient list for SNMP traps:

1. Click **Add New SNMP Recipient List**. The **SNMP Recipients** box is displayed.

SNMP Recipients			
Recipient List			
<input type="text" value="Medford Administrators"/>			
Name	IP Address	Name	IP Address
<input type="text" value="Doug"/>	<input type="text" value="172.25.234.45"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="Darrel"/>	<input type="text" value="172.25.234.100"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="Tom"/>	<input type="text" value="172.25.234.210"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="Jim"/>	<input type="text" value="172.25.234.120"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="David"/>	<input type="text" value="172.25.234.234"/>	<input type="text"/>	<input type="text"/>

2. Enter the name of the recipient or group of recipients in the **Recipient List** field.
3. Enter the name of the each recipient (up to 10 names) in the **Name** fields.
4. Enter a valid IP address for each named recipient in the **IP Address** fields.
5. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **SNMP Recipients** box open, click **Issue Test SNMP Trap** to send a test SNMP trap, or click **Cancel** to return to the **SNMP Traps** tab.

To edit a recipient on the SNMP trap list:

1. Click the hyperlink for the recipient you want to edit in the **Recipient List** column of the **SNMP Traps** tab. The **SNMP Recipients** box is displayed.
2. Edit the information as necessary.
3. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **SNMP Recipients** box open, click **Issue Test SNMP Trap** to send a test SNMP trap, or click **Cancel** to return to the **SNMP Traps** tab.

To delete a recipient from the SNMP trap list:

1. Select the checkbox in the **Delete** column of the **SNMP Traps** tab for the recipient or group of recipients you want to delete.
2. Click **Delete Selection(s)**.

Session Management Screen

The **Session Management** screen is only displayed for users who have administrator rights. The **User Session** box on the **Session Management** screen enables you to control user session parameters.

NOTE: The settings on the **Session Management** screen apply to all users.

User Session	
Enable	Timing
<input checked="" type="checkbox"/>	Automatically logout user after <input type="text" value="50"/> minutes of inactivity [Range: 5 - 60]
<input type="checkbox"/>	Issue reminder <input type="text" value="1"/> minute(s) before automatic logout [Range: 1 - 9]
<input type="button" value="Apply"/> <input type="button" value="Undo Changes"/>	

To configure Rack and Power Manager to log out users after a period of inactivity:

1. Select the **Enable** checkbox to enable the option.
2. Enter the number of minutes that a user must be inactive before being logged out.
3. Click **Apply** to accept the information that has been entered, or click **Undo Changes** to reject all changes and keep the box open.

To issue a reminder to an inactive user before Rack and Power Manager automatically logs out the user:

1. Select the **Enable** checkbox to enable the option.
2. Enter the number of minutes before automatic logout that a reminder should be sent.
3. Click **Apply** to accept the information that has been entered, or click **Undo Changes** to reject all changes and keep the box open.

System Logs Screen

The **System Logs** screen is only displayed for users who have administrator rights. The **System Events** table on the **System Logs** screen shows all the system events that Rack and Power Manager has recorded since the last time the list was cleared. The amount of available history information is determined by the settings on the **Database** screen.

NOTE: System logs do not contain data from individual devices. Device data can be found on the **Logs and Reports** screen for each device.

System Events	
Description	Date&Time
User [admin] logged in from [172.25.234.210].	Friday August 09 2002 at 12:01...
User [admin] logged in from [172.25.234.219].	Thursday August 08 2002 at 2...
User [admin] logged in from [172.25.234.210].	Thursday August 08 2002 at 0...
User [admin] logged in from [172.25.234.219].	Thursday August 08 2002 at 0...
LLWicker at 172.25.234.219 Discovery Cancelled changed from false to true	Thursday August 08 2002 at 0...
LLWicker at 172.25.234.219 Removed Discovered Device 172.25.234.90	Thursday August 08 2002 at 0...
LLWicker at 172.25.234.219 Removed from managing 90 CMC	Thursday August 08 2002 at 0...
User [admin] logged in from [172.25.234.219].	Thursday August 08 2002 at 0...
LLWicker at 172.25.234.219 Added Broadcast Recipient List named test	Thursday August 08 2002 at 0...
User [admin] logged in from [172.25.234.219].	Wednesday August 07 2002 at...
User [admin] logged in from [172.25.234.219].	Wednesday August 07 2002 at...
LLWicker at 172.25.234.219 Managed Device 246 UPS	Wednesday August 07 2002 at...
LLWicker at 172.25.234.219 Managed Device 150 UPS	Wednesday August 07 2002 at...
LLWicker at 172.25.234.219 Managed Device 129 UPS	Wednesday August 07 2002 at...

Events listed can be sorted by description or date and time by clicking on the column heading. System events include information such as user login times and changes to user profiles.

- To print the log, click **Print Reports** at the bottom of the screen.
- To refresh the log, click **Refresh List** at the bottom of the screen.

Database Screen

The **Database** screen is only displayed for users who have administrator rights. The **Database** screen enables you to set the number of records and days to which system and device logs are limited and change the password for the system database.

To configure the log settings:

Log Settings					
Parameter	Log Interval	Record Count		Log History	
		Unlimited	Limit To	Unlimited	Limit To
Device Data Logs	20 min	<input checked="" type="radio"/>	<input type="radio"/> 1000 Records	<input checked="" type="radio"/>	<input type="radio"/> 30 day(s)
System Event Logs	n/a	<input checked="" type="radio"/>	<input type="radio"/> 1000 Records	<input checked="" type="radio"/>	<input type="radio"/> 30 day(s)
		Apply		Undo Changes	

1. Select the log interval from the **Log Interval** drop-down box for Device Data logs. The log interval is the amount of time that elapses before the latest device logs are transferred to the database. For example, if the log interval is set to 20 minutes, device logs are transferred to the database every 20 minutes.
2. Configure the number of records that will be stored in the database for device data logs and system event logs. Select the **Unlimited** radio button in the **Record Count** column to keep records in the database as long as there is available space on the Management Server hard drive. Select the **Limit To** radio button and enter a value to limit the number of records kept in the database. The maximum limit is determined by available disk space.

NOTE: When the Management Server begins to run out of disk space or the configured limit of records is reached, the Management Server overwrites the oldest records in the database.

3. Configure the length of time records that will be stored in the database for device data logs and system event logs. Select the **Unlimited** radio button in the **Log History** column to keep records in the database as long as there is available space on the Management Server hard drive. Select the **Limit To** radio button and enter the number of days that records are kept in the database before being overwritten.

NOTE: When the Management Server begins to run out of disk space or the configured limit of records is reached, the Management Server overwrites the oldest records in the database.

NOTE: If the record count is set too low, the database will not accumulate 30 days of data.

4. Click **Apply** to accept the information that has been entered, or click **Undo Changes** to reject all changes and keep the screen open.

To change the database password:

1. Click **Change Password**.

The screenshot shows a window titled "RPM Database Account - SYSDBA". At the bottom center of the window is a button labeled "Change Password".

The **Change Password** box is displayed.

The screenshot shows a dialog box titled "Change Password". It contains three text input fields: "Old Password", "New Password", and "Confirm Password". Below the fields are two buttons: "Apply" and "Cancel".

2. Enter the current password in the **Old Password** field. The default password is `admin`.
3. Enter the new password in the **New Password** field. A password can be between 1 and 50 characters in length. The characters can be alphabetic or numeric (or both). Passwords are case-sensitive.
4. Reenter the new password in the **Confirm Password** field.
5. Click **Apply** to accept the information or click **Cancel** to reject all changes.

Email Server Setup Screen

The **Edit Server Setup** screen is only displayed for users who have administrator rights. The **Edit Server Properties** box on the **Email Server Setup** screen enables you to set Rack and Power Manager to send alert messages through email.

The screenshot shows a dialog box titled "Edit Server Properties". It contains a table with two columns: "Parameter" and "Setting".

Parameter	Setting
IP Address for SMTP Email Server	172.25.234.101
Email From Address:	LWicker@hp.com
Send Email(s) Marked as Being From :	Rack and Power Manager

At the bottom of the dialog box are two buttons: "Apply" and "Undo Changes".

To configure Rack and Power Manager to use the mail server:

1. Enter the IP address of the outgoing SMTP email server.
2. Enter the email address from which email alert messages are sent.

3. Enter the name that Rack and Power Manager will mark messages as being sent from.
4. Click **Apply** to accept the information that has been entered, or click **Undo Changes** to reject all changes and keep the box open.

NOTE: Only servers using SMTP are supported.

Configuration Screen

The **Configuration** screen is only displayed for users who have administrator rights. The **Server Properties** box on the **Configuration** screen enables you to update the Management Server configuration.

Server Properties	
Static IP Network	DHCP Networks
<input checked="" type="radio"/> Standard IP Routing Only	<input type="radio"/> Enable DNS Resolution
Page Refresh Rate	
<input type="text" value="5"/> (5 to 60 seconds)	
<input type="button" value="Apply"/> <input type="button" value="Undo Changes"/>	

To update the configuration:

1. Select one of the following:
 - **Standard IP Routing Only**—Enables you to enter a host name or IP address in any field that requires a device address. The IP address or host name is stored, depending on what you entered. If you have a mixed network configuration (for example, static IP addresses for servers and dynamic IP addresses for workstations), select this option and enter the host name when appropriate.
 - **Enable DNS Resolution**—Enables you to enter a host name in any field that requires a device IP address. If an IP address is entered, a reverse DNS lookup is performed and only the host name is stored.

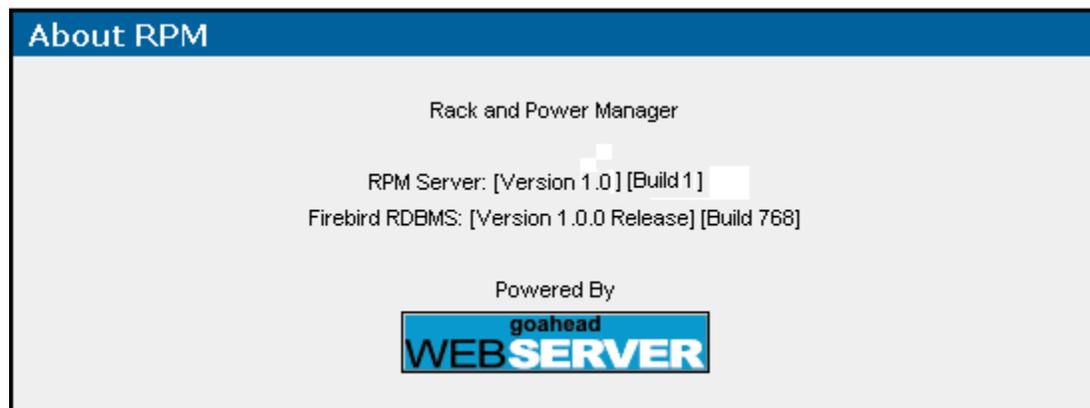
NOTE: The Management Server should be configured to support DNS resolution.

2. Enter the number of seconds that should elapse before Rack and Power Manager pages are refreshed.
3. Click **Apply** to accept the information that has been entered, or click **Undo Changes** to reject all changes and keep the box open.

About RPM Screen

The **About RPM** screen is only displayed for users who have administrator rights. The **About RPM** screen enables you to view revision and build information about the version of Rack and Power Manager you are currently running.

NOTE: The versions shown are for example only.



After the Rack and Power Manager settings are properly configured and devices and agents are discovered and managed, each device can be set up and monitored using the **Devices** icon, the **Queries** icon, and the **Home** icon.

Devices Icon

Click the **Devices** icon in the top frame to view a list of hyperlinks for device configuration. Device configuration hyperlinks are available for UPSs and CMCs and include:

- Devices Home
- CMC Devices:
 - Overview
 - Logs and Reports
 - Sensor Setup
 - Accessory Setup
 - Event Response
 - Properties
 - Manual Control
- UPS Devices:
 - Overview
 - Logs and Reports
 - Attached Agents
 - Power Fail Settings
 - Scheduled Shutdowns
 - Event Response
 - Properties
 - Diagnostics
 - Manual Control

Devices Home Screen

Active Alarms		
Severity	Device	Description
	Royal's CMC	Voltage Below Minimum
	Royal's CMC	Humidity Above Maximum
	T1000XR	Connection lost to device
	T2200XR	Input AC Under Voltage
	T2200XR	On Battery

Access the **Devices Home** screen by clicking the **UPS Devices** or **CMC Devices** hyperlink in the left navigation frame. The **Devices Home** screen summarizes the current active alarms for all devices that are monitored from your location. The information in the **Active Alarms** table automatically refreshes every five seconds.

The icon in the **Status** column allows you to determine the status of a device at a glance.

Table 5-1: Status Icons

Icon	Device Status
	A minor problem is detected.
	A major problem is detected.
	A critical problem is detected.

CMC Devices

Expand the menu for each CMC by clicking on the arrow to the right of the CMC device name in the left navigation frame. The hyperlinks in the expanded menu for CMC devices let you configure and monitor each managed CMC. To maximize the features of Rack and Power Manager, be sure to set up the sensors, accessories, and event responses for each CMC. The CMC name, location, and IP address are listed in the top right corner of each screen.

NOTE: Click the name of a CMC in the left navigation frame to view the **Devices Home** screen for all devices.

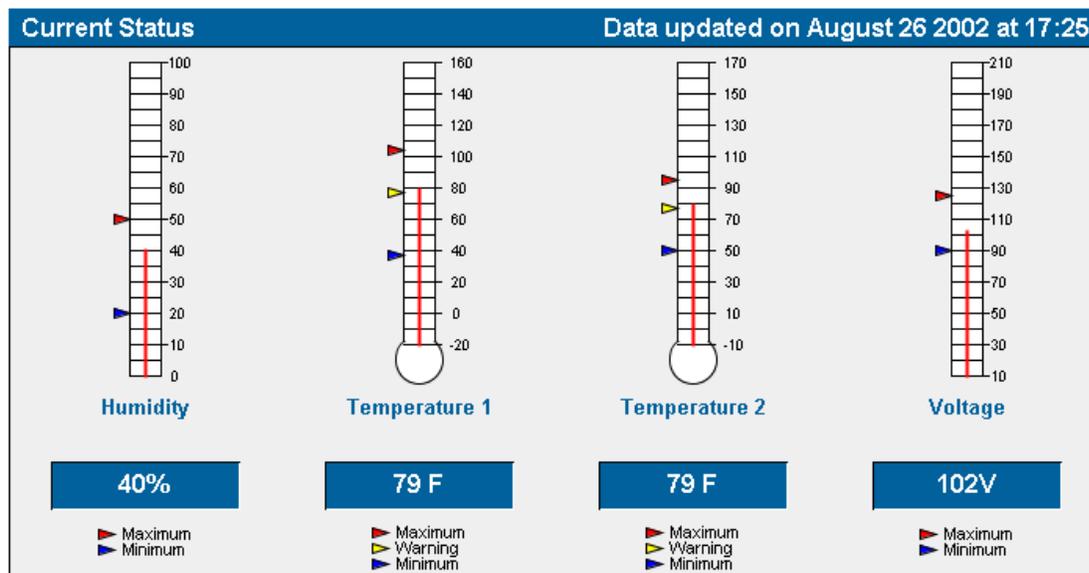
Device Overview Screen

The **Device Overview** screen displays the following information for each CMC:

- Device name
- Device location
- IP address
- Current status
- Active alarms
- Component status

The information automatically refreshes every five seconds.

The status is presented in graphical format in the **Current Status** box. Status information includes humidity, temperature 1, temperature 2, and voltage. A disabled item indicates that the corresponding sensor is not connected or is not enabled on the **Sensor Setup** screen. If the external temperature sensors are not connected, the internal temperature of the CMC is displayed.



NOTE: The arrows reflect the settings made on the **Sensor Setup** screen. For more information, refer to "Sensor Setup Screen" in this chapter.

The icons in the **Active Alarms** table allow you to determine the rack status detected by each CMC at a glance.

Active Alarms	
Severity	Description
	Humidity Above Maximum
	Input 3 Opened
	Input 4 Opened
	Temperature 1 Above Warning
	Temperature 2 Above Warning
	Voltage Above Maximum

Table 5-2: Status Icons

Icon	Device Status
	Normal operation
	Minor problem (for example, an open door)
	Major problem (for example, high temperature)
	Critical problem (for example, faulty connection)

The rack status is presented in text format in the **Component Status** table.

Component Status	
Component	Current Status
Fan 1	fan is switched on by temperature sensor 1
Front Door Rack 1	closed
Front Door Rack 2	closed
Humidity	humidity normal
Lock 1	OK
Lock 2	OK
Rear Door Rack 1	closed
Rear Door Rack 2	closed
Relay 1	OK
Relay 2	OK
Temp 1	temperature normal
Temp 2	temperature normal
Voltage	voltage normal

Logs and Reports Screen

The **Logs and Reports** screen shows all alarm conditions recorded by the CMC since the last time the list was cleared. The amount of available history information is determined by the settings on the **Database** screen.

All Logs		
Severity	Description	Date&Time
✓	Voltage Normal	Monday August 26 2002 at 17:3...
✓	Humidity Normal	Monday August 26 2002 at 17:3...
▽	Device settings changed	Monday August 26 2002 at 17:3...
◇	Voltage Maximum changed from 95 to 125	Monday August 26 2002 at 17:3...
◇	Humidity Maximum changed from 39 to 60	Monday August 26 2002 at 17:3...
✓	Input 3 Closed	Monday August 26 2002 at 17:3...
✓	Input 4 Closed	Monday August 26 2002 at 17:3...
▽	Input 3 Opened	Monday August 26 2002 at 17:3...
▽	Input 4 Opened	Monday August 26 2002 at 17:3...
✗	Humidity Above Maximum	Monday August 26 2002 at 17:3...
✗	Voltage Above Maximum	Monday August 26 2002 at 17:3...
▽	Device settings changed	Monday August 26 2002 at 17:3...
◇	Voltage Maximum changed from 125 to 95	Monday August 26 2002 at 17:3...
◇	Humidity Maximum changed from 50 to 39	Monday August 26 2002 at 17:3...
▽	Device settings changed	Monday August 26 2002 at 17:2...

All Logs
 Environmental Logs
 Event Logs
 Change Logs

Logs can be viewed by:

- **All Logs**—Displays a complete list of all changes, alarms, and events
- **Environmental Logs**—Displays a list of conditions that occurred within the rack environment, such as high temperature or intrusion detected
- **Event Logs**—Displays a list of actions that the CMC takes in response to a condition, such as locking doors or turning off fans
- **Change Logs**—Displays a list of settings that have been changed for the CMC, such as temperature ranges that have been modified

NOTE: You can sort the logs for all views by clicking a column heading in the log table.

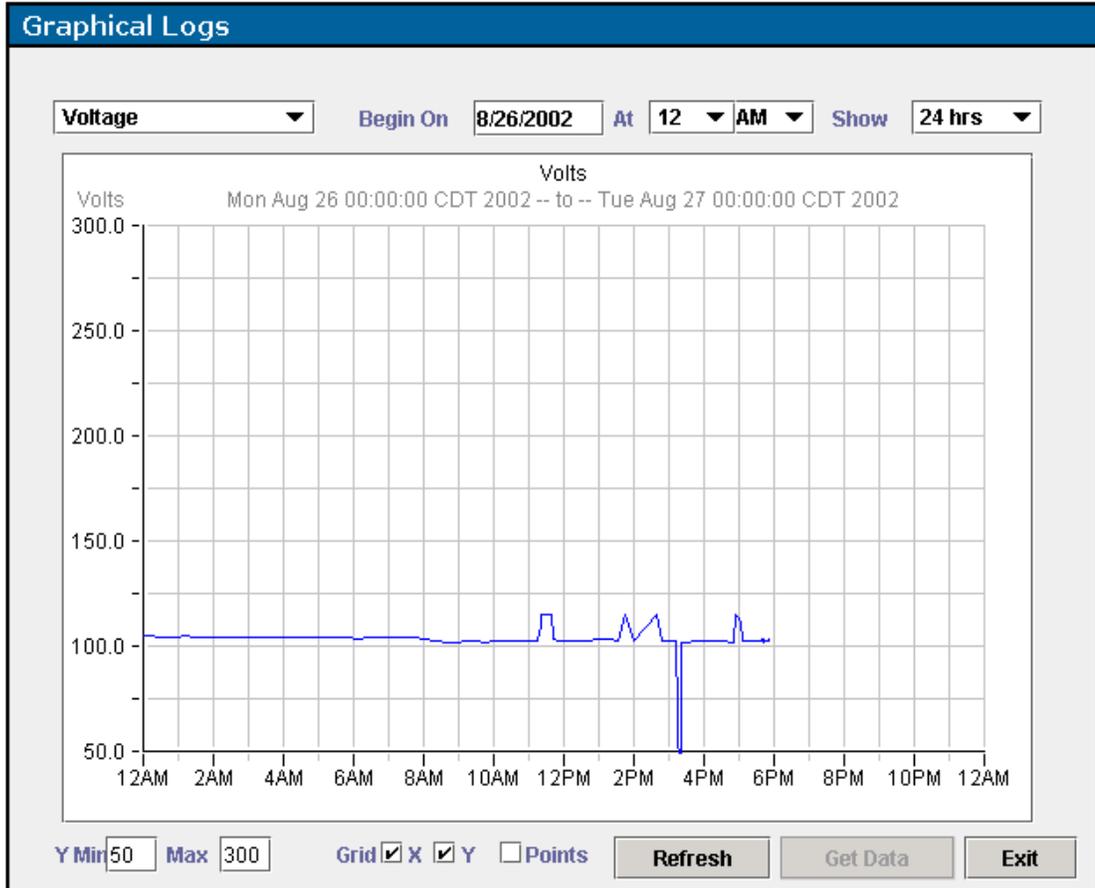
On the **Logs and Reports** screen:

- To refresh the log, click **Refresh List** at the bottom of the screen.
- To print the log, click **Print Reports** at the bottom of the screen.
- To delete all log entries, click **Clear Logs** at the bottom of the screen.

NOTE: You cannot select and delete individual entries in this list, but logs can be further sorted by severity, date and time, and description.

- To view graphical logs:
 - a. Click **Graphical Logs Screen** at the bottom of the screen. The **Graphical Logs** box is displayed. The **Graphical Logs** box enables you to configure the graphical log settings.

NOTE: The amount of available history information is determined by the settings on the **Database** screen. For more information, refer to “Database Screen” in Chapter 4.



- b. Select the type of graphical logs you want to view from the drop-down box in the top left corner.
- c. Select the date and time from which you want to start graphing.
- d. Select the length of time you want to graph.
- e. Click **Get Data** to display the graph.
- f. Click **Refresh** to update the graph that is currently on screen.

After the graphical log is displayed:

- a. Edit the minimum and maximum values for the Y axis of the graph.
- b. Select whether to show grid lines for each axis.
- c. Select whether to include data points on the graph.

- d. Click **Get Data** to update the graph.
- e. Click **Refresh** to update the graph that is currently on-screen.
- f. Click **Exit** to close the **Graphical Logs** box and return to the **Logs and Reports** screen.

Sensor Setup Screen

The **Sensor Setup** screen enables you to configure the sensors connected to the CMC.

Sensor Setup									
Icon	Parameter	Available	Event Thresholds						
			Minimum		Warning		Maximum		
	Temperature 1	<input checked="" type="checkbox"/>	37	° F	82	° F	104	° F	
	Temperature 2	<input checked="" type="checkbox"/>	50	° F	82	° F	95	° F	
	Humidity	<input checked="" type="checkbox"/>	20	%	---	-	60	%	
	Voltage	<input checked="" type="checkbox"/>	90	V	---	-	125	V	
	Shock	<input checked="" type="checkbox"/>	5 (Shock Sensitivity)						
	Smoke	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Switch Fans Off <input checked="" type="checkbox"/> Unlock Doors						
Parameter	Available	Labels	Switch Fans Off		Shock Sensor				
1	Intrusion 1	<input checked="" type="checkbox"/>	Front Door Rack 1		Both		<input checked="" type="checkbox"/> Disable		
2	Intrusion 2	<input checked="" type="checkbox"/>	Rear Door Rack 1		Both		<input checked="" type="checkbox"/> Disable		
3	Intrusion 3	<input checked="" type="checkbox"/>	Front Door Rack 2		Both		<input checked="" type="checkbox"/> Disable		
4	Intrusion 4	<input checked="" type="checkbox"/>	Rear Door Rack 2		Both		<input checked="" type="checkbox"/> Disable		
AUX1	Auxiliary 1	<input type="checkbox"/>			Normally Open				
AUX2	Auxiliary 2	<input type="checkbox"/>			Normally Open				

For each sensor listed, select **Available** to enable a sensor that is connected to the CMC. If a sensor is not connected and is shown as available, the CMC will erroneously detect an alarm condition and send alerts.

NOTE: For the initial system installation and boot, the CMC automatically recognizes installed sensors and fans.

NOTE: If an installed sensor is to be no longer used, disconnect the sensor from the rear of the CMC and deselect the **Available** checkbox on the **Sensor Setup** screen.

The sensor entries have additional checkboxes and fields that are used to define setpoints to which alerts can be associated:

- **Temperature 1 and 2**—Configure the temperature setpoints.
 - Set the minimum acceptable temperature. The minimum temperature must be within the 0° C to 37° C (32° F to 100° F) range.
 - Set the warning temperature. The warning temperature must be within the 0° C to 93° C (32° F to 200° F) range.
 - Set the maximum acceptable temperature. The maximum temperature must be within the 0° C to 93° C (32° F to 200° F) range.

NOTE: The **Sensor Setup** screen displays temperature unit in either °C or °F. Select the unit of temperature on the **CMC Properties** screen.

- **Humidity**—Set the minimum and maximum acceptable values. The minimum and maximum humidity must be within the 0% to 100% range.
- **Voltage**—Set the minimum and maximum acceptable values. The minimum and maximum voltage must be within the 0 V to 255 V range.
- **Shock**—Set the sensitivity of the detector. Type 10 in this field for maximum sensitivity; 5 is the default value.
- **Smoke**—Select a checkbox to determine whether the fans are to be turned off and the rack doors unlocked if the sensor detects smoke.



CAUTION: To minimize potential damage from smoke and fire, it is recommended that both fans be set to turn off when smoke is detected.

- **Intrusion x**—Use these fields and checkboxes to configure door intrusion.

IMPORTANT: For the door-locking feature to work properly, you must assign at least one intrusion sensor to each lockset.

- a. Type a description of the door in the **Labels** field.
 - b. Select an option from the drop-down box to determine which fans, if any, are to be switched off when the door is opened.
 - c. Click **Disable** to disregard the shock sensor alert when the door is opened.
- **Auxiliary x**—Use these fields and checkboxes for any supported detectors connected to the appropriate input ports on the rear of the CMC. Enter the description of the sensor type into the text field. For more information about auxiliary sensors, refer to the CMC documentation.

After entering information on this screen, do one of the following:

- Click **Apply** at the bottom of the screen to accept the information that has been entered.
- Click **Undo Changes** to reject all changes and keep the screen open.

After the CMC sensors are set up, the CMC automatically activates the following alert actions:

- Temperature 1 or Temperature 2 is detected below minimum, at warning, or above maximum—An internal CMC alarm sounds and both alarm relays are triggered.

NOTE: For more information about alarm relays, refer to “Accessory Setup Screen” in this chapter.

- Humidity is detected below minimum or above maximum—An internal CMC alarm sounds and both alarm relays are triggered.
- Voltage is detected below minimum or above maximum—An internal CMC alarm sounds and both alarm relays are triggered.
- Smoke is detected—Fans are turned off and rack doors are unlocked if these options are selected on the **Sensor Setup** screen.
- Intrusion is detected—Fans are turned off and the shock sensor is disabled if these options are selected on the **Sensor Setup** screen.

Additional alert actions are configured on the **Event Response Overview** screen.

Accessory Setup Screen

The **Accessory Setup** screen enables you to enter information about the accessories connected to the CMC. After entering information on this screen, do one of the following:

- Click **Apply** at the bottom of the screen to accept the information that has been entered.
- Click **Undo Changes** to reject all changes and keep the screen open.

Fans Tab

Select the **Fans** tab to configure the fan settings.

Fans		Alarm Relays	Lockset 1	Lockset 2
Description	Available	Start At	Hysteresis	
 Fan 1	<input checked="" type="checkbox"/>	95 °F	5 °F	° F
 Fan 2	<input checked="" type="checkbox"/>	95 °F	5 °F	° F
Apply		Undo Changes		

1. Select **Available** for each fan that is connected to the CMC. If a fan that is not connected is shown as available, the CMC will erroneously detect an alarm condition and send alerts.
2. Enter the temperature at which fans turn on in the **Start At** field.
3. Set the operating range for the fan in the **Hysteresis** field. For example, if the **Hysteresis** value is set to 8° and the **Start At** value to 75°, the fan switches on when the temperature reaches 75° and switches off when the temperature has decreased by 8° (to 67°).

Alarm Relays Tab

Select the **Alarm Relays** tab to configure the alarm relays. Alarm relays provide additional means for notification of an alarm condition. The setting of the logic radio buttons determines the alert behavior when an alarm condition occurs.

Fans		Alarm Relays	Lockset 1	Lockset 2
Description	Available	Alarm Logic	Local Silence Button	
1 Alarm Relay 1	<input type="checkbox"/>	Close at Alarm	<input type="checkbox"/>	Enabled
2 Alarm Relay 2	<input type="checkbox"/>	Close at Alarm	<input type="checkbox"/>	Enabled
		Apply	Undo Changes	

1. Select **Available** for each alarm relay that is connected to the CMC. If an alarm relay that is not connected is shown as available, the CMC will erroneously detect an alarm condition and send alerts. For more information about alarm relays, refer to the CMC documentation.
2. Select the appropriate logic in the **Alarm Logic** field:
 - If an alarm occurs when **Close at Alarm** is selected, an electrical circuit closes. For example, a light switches on, a door opens, or a siren sounds.
 - If an alarm occurs when **Open at Alarm** is selected, a signal turns off. For example, a green light that indicates normal operation switches off to denote abnormal status for the detector providing the input.
3. Select **Enabled** in the **Local Silence Button** field to allow the external alarm to be silenced by pressing the Enter/Alarm Silence button on the CMC front panel. An external alarm (a horn or siren, for example) connected to the alarm relay can be silenced for just the current alarm. This acknowledges the alarm condition while the cause is corrected and still allows subsequent alarm conditions to register at the CMC and set off a new audible alarm.

Locksets Tabs

Select the **Lockset 1** tab to configure the first lockset. Select the **Lockset 2** tab to configure the second lockset. To set each lockset to lock and unlock rack doors:

Fans		Alarm Relays		Lockset 1		Lockset 2			
<div style="display: flex; justify-content: space-between;"> 🔒 1 Lock Set Status <input checked="" type="checkbox"/> Available </div>									
Locks / Unlocks		Yes	No	Locks / Unlocks		Yes	No		
<input checked="" type="checkbox"/> 1	Door/Panel 1	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/> 3	Door/Panel 3	<input type="radio"/>	<input checked="" type="radio"/>		
<input checked="" type="checkbox"/> 2	Door/Panel 2	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="checkbox"/> 4	Door/Panel 4	<input type="radio"/>	<input checked="" type="radio"/>		
Lockset Event				Unlock Upon Event?					
Power Failure				<input type="radio"/> No	<input type="radio"/> Yes	<input checked="" type="radio"/> Enable Concealed Door Release			
Low Battery				<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> Enable Concealed Door Release			
Network Failure				<input checked="" type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> Enable Concealed Door Release			
Communications Failure				<input type="radio"/> No	<input type="radio"/> Yes	<input checked="" type="radio"/> Enable Concealed Door Release			
				<input type="button" value="Apply"/> <input type="button" value="Undo Changes"/>					

1. Select **Available** in the **Lock Set Status** field for each lockset that is connected to the CMC. If a lockset that is not connected is shown as available, the CMC will erroneously detect an alarm condition and send alerts.
2. Click **Yes** for each rack door that the lock set operates. Each lockset operates two rack doors.

IMPORTANT: For the door-locking feature to work properly, you must assign at least one intrusion sensor to each lockset. Refer to “Sensor Setup Screen” in this chapter for information on setting up the intrusion sensors.

3. Click **Yes** in the **Unlock Upon Event?** column to automatically unlock the doors during a power failure, low battery warning, network failure, or communications failure. Click **Enable Concealed Door Release** to be able to manually open locked doors using a hidden switch. For more information about the concealed door release, refer to the CMC documentation.

NOTE: Rack and Power Manager cannot detect the concealed door release. Be sure that the concealed door release option is not selected for CMCs that control racks without a concealed door release.

Event Response Overview Screen

The **Event Response Overview** screen contains a **Supported Events** table that summarizes the manner in which alerts are issued for each alarm condition on the CMC.

Supported Events		Copy Event Configuration from : 91 <input type="button" value="Copy"/>			
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 Minumum	✓	✓	✓	✓	✓
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	-	-	-	-	-

When a new CMC is installed or a new sensor is connected to an existing CMC, enter the event response information for the related alarm conditions.

- To copy the event response configuration of another CMC, select the CMC you want to copy in the **Copy Event Configuration from:** field and click **Copy**.
- To edit the response of individual events, click the hyperlink for the event response you want to configure in the **Description** column. The **Event Response** screen is displayed.

The **Event Response** screen enables you to configure event responses for supported events. For each event, Rack and Power Manager can be configured to send alert notifications (email and broadcast messages and SNMP traps), run a computer command, and initiate a device action (release a lockset or turn off a fan).

To configure each supported event response:

1. Select the event you want to configure from the **Select Event** drop-down box.

The screenshot shows a blue header bar with the text "Select Event". Below the header is a white dropdown menu with a blue border. The selected item is "Temperature 1 Above Warning" with a small downward arrow on the right side.

2. Select the **Alert Notifications** tab, the **Commands** tab, or the **Device Actions** tab.

Alert Notifications Tab

Select the **Alert Notifications** tab to configure the alert notifications.

NOTE: Before an alert notification can be set up, you must first configure the notification recipients. For information about configuring notification recipients, refer to “Notification Recipients Screen” in Chapter 4.

Alert Notifications		Commands	Device Actions
Notification Type	Recipient List	Delay	Delete
Broadcast	Houston Administrators	1	<input type="checkbox"/>
Email/Paging	Houston Administrators	1	<input type="checkbox"/>
SNMP Traps	Houston Administrators	1	<input type="checkbox"/>

Buttons: Add New Alert Notification, Delete Selection(s), Return to Event Summary

To add an alert notification:

1. Click **Add New Alert Notification**. The **Add/Edit Notification** box is displayed.

The screenshot shows a dialog box titled "Add / Edit Notification". It has three columns: "Notification Type", "Recipient List", and "Delay". Under "Notification Type", "Email/Paging" is selected in a dropdown. Under "Recipient List", "Houston Administrators" is selected in a dropdown. Under "Delay", the number "1" is entered in a text box, and the "Sec" radio button is selected. At the bottom, there are three buttons: "Apply", "Undo Changes", and "Cancel".

2. Select the type of notification from the **Notification Type** drop-down box. Available options are email/paging, broadcast, and SNMP traps.
3. Select the group of recipients that should receive the alert notification from the **Recipient List** drop-down box. Recipient lists are configured on the **Notification Recipients** screen.
4. Enter the notification delay in the **Delay** column and select a radio button for either seconds or minutes. The delay is the amount of time that elapses between the occurrence of the event and the sending of the notification.
5. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Add/Edit Notification** box open, or click **Cancel** to return to the **Alert Notifications** tab.

To edit an alert notification:

1. Select the event you want to edit from the **Select Event** drop-down box.
2. Click the hyperlink for the notification you want to edit in the **Notification Type** column of the **Alert Notifications** tab. The **Add/Edit Notification** box is displayed.
3. Edit the notification type, the recipient list, and the notification delay.
4. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Add/Edit Notification** box open, or click **Cancel** to return to the **Alert Notifications** tab.

To delete an alert notification:

1. Select the checkbox in the **Delete** column of the **Alert Notifications** tab for the notification you want to delete.
2. Click **Delete Selection(s)**.

To return to the **Event Response Overview** screen, click **Return to Event Summary**.

Commands Tab

Select the **Commands** tab to configure the computer commands.

Alert Notifications		Command	Device Actions	
Command	Execute On	Delay	Delete	
CopyFiles.bat	SQL Database Server	0 sec	<input type="checkbox"/>	
Add New Command		Delete Selection(s)	Return to Event Summary	

To add a command:

1. Click **Add New Command**. The **Add/Edit Command** box is displayed.

Add / Edit Command		
Command	Execute On	Delay
<input type="text" value="CopyFiles.bat"/>	SQL Database Server	0 <input checked="" type="radio"/> Sec <input type="radio"/> Min
<input type="button" value="Apply"/> <input type="button" value="Undo Changes"/> <input type="button" value="Cancel"/>		

2. Enter the command (for example, `C:\start.bat` or `/opt/snapshot.sh`), select the server that the command will run on, and set the notification delay.

NOTE: Rack and Power Manager cannot run a command on a server unless the server has a System Agent installed. The batch file or script that will be run must reside on the server on which the command will be executed.

3. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Add/Edit Command** box open, or click **Cancel** to return to the **Commands** tab.

IMPORTANT: Remote command execution can be a very powerful tool and should be tested thoroughly before being used for the first time in response to an event. Command execution behavior varies by operating system, and, in general, commands to be executed should be put into a batch file or shell script depending on the operating system that will be executing the commands. Using a batch file or shell script gives you more control over the circumstances in which commands are executed and allows the commands to run in a copy of the environment.

When selecting commands to be executed in the batch file or script file, choose programs and processes that do not require user input or interaction. Since the commands can be executed at any time, it is difficult to predict if a user will be available to interact with any programs that are launched. Verify that specified drive mappings, user specific directories, and programs that require special rights are accessible by the batch file or script file.

Most operating systems have a method for spawning new processes. In Windows operating systems, commands can be preceded with `START`, and in most Linux/Unix systems, `sh` can be used. When designing your batch file or script file, determine which commands require a separate process and which commands can be run one after another in the same process. Refer to the documentation that came with your operating system for more information on batch files or script files.

To edit a command:

1. Select the event you want to edit from the **Select Event** drop-down box.
2. Click the hyperlink for the command you want to edit in the **Command** column of the **Commands** tab. The **Add/Edit Command** box is displayed.
3. Edit the command, the server that the command will run on, and the command delay.
4. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Add/Edit Command** box open, or click **Cancel** to return to the **Commands** tab.

To delete a command:

1. Select the checkbox in the **Delete** column of the **Commands** tab for the command you want to delete.
2. Click **Delete Selection(s)**.

To return to the **Event Response Overview** screen, click **Return to Event Summary**.

Device Actions Tab

Device actions can be taken on the device you are configuring and on other managed devices. For example, if a CMC detects an over-temperature condition, a device action can be configured to shut down the UPS load segments to which servers affected by the condition are connected.

Select the **Device Actions** tab to configure the device actions.



CAUTION: For each device action that you set, you may need to configure the normal, opposite response. For example, if you configure the CMC to turn on a fan when the temperature exceeds normal, you may also want to configure the CMC to turn off the fan when the temperature returns to normal.

Alert Notifications		Commands		Device Actions	
Target Device	Action to Perform	Delay	Delete		
CMC-Rack 35	Set Alarm Relay 1 to Active	0	<input type="checkbox"/>		
R3000XR Rack 34	Turn Off Load Segment 1	0	<input type="checkbox"/>		
Add New Device Action		Delete Selection(s)		Return to Event Summary	

To add a device action:

1. Click **Add New Device Action**. The **Add/Edit Device Action** box is displayed.

Add / Edit Device Action		
Target Device	Action to Perform	Delay
CMC-Rack 35	Set Alarm Relay 1 to Active	0
		<input checked="" type="radio"/> Sec <input type="radio"/> Min
<input type="button" value="Apply"/> <input type="button" value="Undo Changes"/> <input type="button" value="Cancel"/>		

2. Enter the target device, the action to perform, and the notification delay.
3. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Add/Edit Device Action** box open, or click **Cancel** to return to the **Device Actions** tab.

To edit a device action:

1. Select the event you want to edit from the **Select Event** drop-down box.
2. Click the hyperlink for the device action you want to edit in the **Target Device** column of the **Device Actions** tab. The **Add/Edit Device Action** box is displayed.
3. Edit the target device, the action to perform, and the action delay.
4. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Add/Edit Device Action** box open, or click **Cancel** to return to the **Device Actions** tab.

To delete a device action:

1. Select the checkbox in the **Delete** column of the **Device Actions** tab for the device action you want to delete.
2. Click **Delete Selection(s)**.

To return to the **Event Response Overview** screen, click **Return to Event Summary**.

Properties Screen

The **Properties** screen enables you to enter and view general information about the CMC.

Device Properties Box

Information entered in the **Device Properties** box is used by Rack and Power Manager to identify devices.

Device Properties	
Parameters	Settings
Device Name	CMC Rack 34
Device Location	Medford Office
Temperature Format	Fahrenheit
Audible Alarm	<input checked="" type="checkbox"/>
 Enable Local Alarm Silence Button	<input checked="" type="checkbox"/>
Language	English
SNMP:	
Contact Information	LVicker (800) 555-4444
Read Community String	public
Write Community String	public
Device Password	***** <input checked="" type="checkbox"/> Enable
<input type="button" value="Apply"/> <input type="button" value="Undo Changes"/>	

After entering information in the **Device Properties** box, do one of the following:

- Click **Apply** at the bottom of the screen to accept the information that has been entered.
- Click **Undo Changes** to reject all changes and keep the box open.

Table 5-3: CMC Device Properties

Table Item	Comments
Device Name	Enter the name of the CMC to aid in identification when sending alert messages and viewing from the console.
Device Location	Select the physical location of the CMC to aid in identification when alert messages are sent.
Temperature Format	Select the temperature unit of measure (0° C to 98° C, 32° F to 200° F).
Audible Alarm	Enable or disable audible alarms.
Enable Local Alarm Silence Button	Select the checkbox to allow an active audible alarm to be silenced when the Enter/Alarm Silence button on the CMC front panel is pressed. New alarm conditions will continue to signal audible alarms after Enter/Alarm Silence is pressed.
Language	Select the language to display on the CMC LCD menu. Available languages are English, French, Italian, German, Spanish, Dutch, and Japanese.
SNMP Contact Information	Enter the user name, email address, or pager number of a person who can provide direct physical access to the room or building where the CMC is located in case of an emergency. This person need not have responsibility for actually maintaining the CMC.
SNMP Read Community String	Edit the SNMP Read Community string if necessary. The SNMP Read Community string displayed on the CMC Properties screen must match that on the CMC device. IMPORTANT: If you edit the string on this screen, be sure to make the same change for the CMC device using a terminal emulation program.
SNMP Write Community String	Edit the SNMP Write Community string if necessary. The SNMP Write Community string displayed on the CMC Properties screen must match that on the CMC device. IMPORTANT: If you edit the string on this screen, be sure to make the same change for the CMC device using a terminal emulation program.
Device Password	Enter a password for the CMC hardware and select Enable to activate the password. Passwords can be no longer than six characters. Characters can only be capital letters or numbers. If the password is enabled, the password is required to change the CMC IP address and settings, using the front panel controls or a terminal program. This password is different than the login password for Rack and Power Manager, which is set on the My Account screen.

Version Control Table

The **Version Control** table lists the hardware, software, firmware, and MIB versions the CMC is currently running. The status column indicates updated versions that are available.

Version Control		
Description	Version	Update Available
Hardware	05	N/A
Software	1.12	N/A
Firmware	2.04	N/A
MIB	1.1	N/A

Compare the **Version** column to the **Update Available** column. If an update is available, click **Update**.

Manual Control Screen

The **Manual Control** screen enables you to control fans and alarm relays and unlock doors while the rack is being accessed (for maintenance, for example).

Only locksets, fans, and alarm relays that are enabled on the **Accessory Setup** screen display options on the **Manual Control** screen.

Locksets Box

To manually control locksets, select the appropriate settings for each lockset and click **Apply** to accept the information.

- Select **Lock** to lock the doors.
- Select **Timed Unlock for x minutes** to unlock the doors for x amount of time.
- Select **Unlock** to unlock the doors immediately.
- Select **Enable CDR** to activate the concealed door release. Because Rack and Power Manager cannot detect the concealed door release, be sure that this option is not selected for CMCs that control racks without a concealed door release.

NOTE: If the door is unlocked using the concealed door release, the door remains unlocked for the amount of time that is entered in the **Timed Unlock** entry box for that lockset.

Locksets		
Device	Current State	Set To
LockSet 1	Lock	<input type="radio"/> Timed Unlock for <input type="text" value="10"/> secs <input type="radio"/> Unlock <input type="radio"/> Enable CDR
LockSet 2	Lock	<input type="radio"/> Timed Unlock for <input type="text" value="10"/> secs <input type="radio"/> Unlock <input type="radio"/> Enable CDR

Fans Box

To manually control fans, select the appropriate setting for each fan and click **Apply** to accept the information. Options are **On**, **Off**, or **Auto**.

NOTE: When set to Auto, the fans behave according to the settings on the **Accessory Setup** screen.

Fans		
Device	Current State	Set To
Fan 1	Auto	<input type="radio"/> On <input type="radio"/> Off
Fan 2	Auto	<input type="radio"/> On <input type="radio"/> Off
<input type="button" value="Apply"/>		

Alarm Relays Box

To manually control alarm relays, select the appropriate setting for each alarm relay and click **Apply** to accept the information. Options are **Switched** or **Not Switched**.

Alarm Relays		
Device	Current State	Set To
Relay 1	Inactive	<input type="radio"/> Activate
Relay 2	Inactive	<input type="radio"/> Activate
<input type="button" value="Apply"/>		

UPS Devices

Expand the menu for each UPS by clicking on the arrow to the right of the UPS device name in the left navigation frame. The hyperlinks in the expanded menu for UPS devices let you configure and monitor each managed UPS. To maximize the features of Rack and Power Manager, be sure to set up the attached agents, power failure settings, scheduled shutdowns, and event responses for each UPS. The UPS name, location, and IP address are listed in the top right corner of each screen.

NOTE: Click the name of a UPS in the left navigation frame to view the **Active Alarms** screen for all devices.

Device Overview Screen

The **Device Overview** screen displays the following information for each UPS:

- UPS name
- UPS location
- IP address
- Current status
- Date/Time stamp
- Active alarms

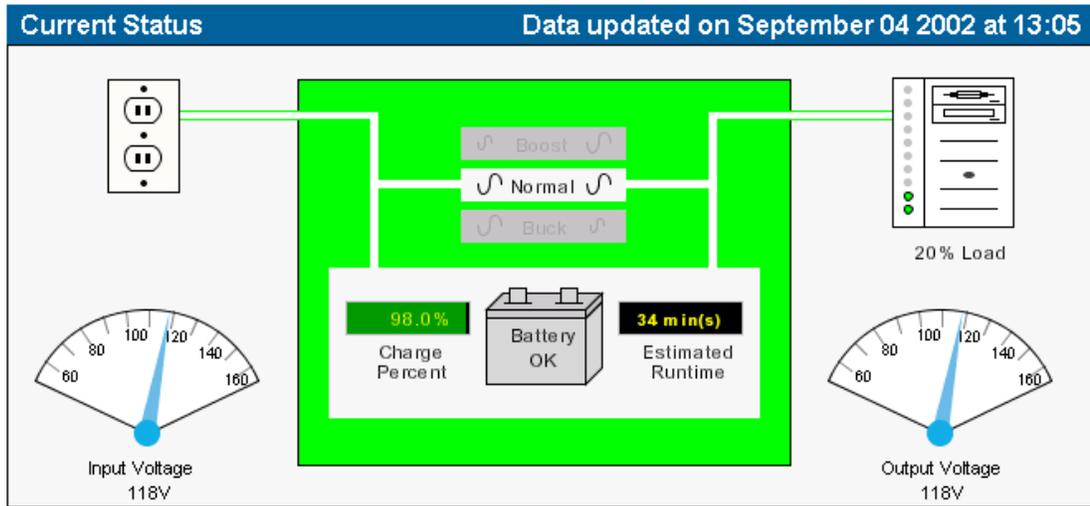
The information automatically refreshes every 15 seconds.

Current Status Box

The status is presented in graphical format in the **Current Status** box. Status information includes:

- Input voltage—The voltage level that is supplying power to the UPS.
- Charge percent—The amount of battery charge by percent.
- Battery status—The current state of the battery.
- Estimated runtime—The time in minutes that the UPS will remain on battery.
- Percent load—The percent of the UPS's capacity that is being used.
- Output voltage—The voltage level that the UPS is supplying to the load segments.
- Buck—The UPS automatically decreases high input voltage to prevent the UPS from going on battery.
- Boost—The UPS automatically increases low input voltage to prevent the UPS from going on battery.

- On battery—The UPS is operating from battery power.
- Overload—The load is greater than the load for which the UPS is intended.



Active Alarms Table

The icons in the **Active Alarms** table allow you to determine the alarm status of the UPS at a glance.

Active Alarms	
Severity	Description
✘	Input AC Under Voltage
✘	On Battery

Table 5-4: Status Icons

Icon	Device Status
✔	Normal operation
▽	Minor problem (for example, a battery is low)
✘	Major problem (for example, a UPS is On Boost)
✖	Critical problem (for example, faulty connection)

Logs and Reports Screen

The **Logs and Reports** screen shows all the events that have occurred with the UPS since the last time the list was cleared. The amount of available history information is determined by the settings on the **Database** screen.

All Logs		
Severity	Description	Date&Time
✘	On Battery	Wednesday September 04 2002 ...
✘	Input AC Under Voltage	Wednesday September 04 2002 ...
◇	Max Runtime changed from disabled to enabled on Segment 3	Wednesday September 04 2002 ...
◇	Max Runtime changed from disabled to enabled on Segment 2	Wednesday September 04 2002 ...
◇	Max Runtime changed from disabled to enabled on Segment 1	Wednesday September 04 2002 ...
✘	On Buck	Wednesday September 04 2002 ...
◇	Device connected	Wednesday September 04 2002 ...

All Logs
 Power Logs
 Event Logs
 Change Logs

Logs can be viewed by:

- **All Logs**—Displays a complete list of all changes and events
- **Power Logs**—Displays a list of power conditions, such as a loss of utility power
- **Event Logs**—Displays a list of actions that the UPS takes in response to a condition, such as shutting down a load segment
- **Change Logs**—Displays a list of settings that have been changed for the UPS, such as power failure settings that have been modified

NOTE: You can sort the logs for all views by clicking a column heading in the log table.

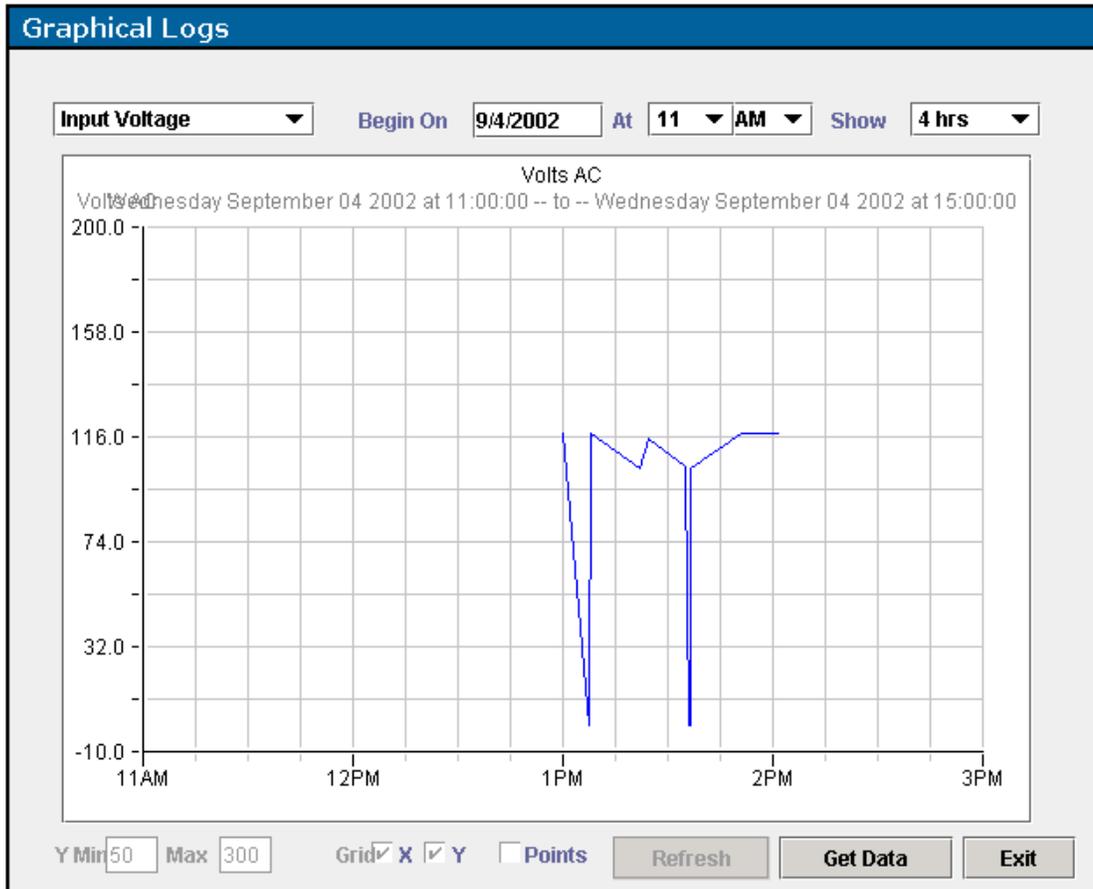
On the **Logs and Reports** screen:

- To refresh the log, click **Refresh List** at the bottom of the screen.
- To print the log, click **Print Reports** at the bottom of the screen.
- To delete all log entries, click **Clear Logs** at the bottom of the screen.

NOTE: You cannot select and delete individual entries in this list, but logs can be further sorted by severity, date and time, and description.

- To view graphical logs:
 - a. Click **Graphical Logs Screen** at the bottom of the screen. The **Graphical Logs** box enables you to configure the graphical log settings.

NOTE: The amount of available history information is determined by the settings on the **Database** screen. For more information, refer to “Database Screen” in Chapter 4.



- b. Select the type of graphical logs you want to view from the drop-down box in the top left corner.
- c. Select the date and time from which you want to start graphing.
- d. Select the length of time you want to graph.
- e. Click **Get Data** to display the graph.
- f. Click **Refresh** to update the graph that is currently on screen.

After the graphical log is displayed:

- a. Edit the minimum and maximum values for the Y axis of the graph.
- b. Select whether to show grid lines for each axis.
- c. Select whether to include data points on the graph.
- d. Change the parameters and click **Get Data** to update the graph.

- e. Click **Refresh** to update the graph that is currently on-screen.
- f. Click **Exit** to close the **Graphical Logs** box and return to the **Logs and Reports** screen.

Attached Agents Screen

Information on the **Attached Agents** screen summarizes the agents attached to each load segment of the UPS. Only agents included in the **Managed Agent** table on the **Agent Management** screen are available on the **Attached Agents** screen.

NOTE: One agent can be attached to more than one UPS or UPS load segment. For example, a server that has two power supplies can have each power supply connected to two different UPSs or UPS load segments. To configure redundant support, attach the agent for that server to two UPSs.

IMPORTANT: When planning a redundant configuration, consider that in normal operating conditions, servers with multiple power supplies equally distribute the power load across each power feed. A server with two power supplies applies 50 percent of the load to each power feed. In the event that one power feed fails, the second power feed must be able to handle 100 percent of the load. Ensure that each UPS in the redundant configuration can support the entire load in the event of a power failure.

Redundant UPS configurations should be tested thoroughly to ensure the load handling capabilities and power fail settings of each UPS prior to an actual power failure event.

Attached Agents						
Load Segment	Name	IP Address	Location	OS	Function	Delete
1	Proliant DL 590	172.25.234.215	Medford Office	Win NT 4.0	Email Server	<input type="checkbox"/>
2	Proliant DL380	172.25.234.202	Medford Office	Win 2000	Database	<input type="checkbox"/>
3	Proliant DL760	172.25.234.221	Medford Office	RedHat Linux	Web Server	<input type="checkbox"/>

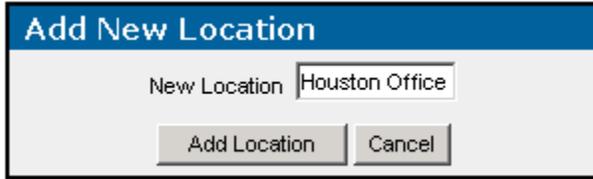
To add or edit an attached agent:

1. Click **Attach Managed Agent** at the bottom of the screen or click the hyperlink for an existing agent in the **Name** column. The **Add/Edit Attachment** box is displayed.

Add / Edit Attachment				
Load Segment	Managed Agents	Location	OS	Function
1	Proliant DL 590	Medford Office	Win NT 4.0	Email Server
<input type="button" value="Apply"/> <input type="button" value="Undo Changes"/> <input type="button" value="Cancel"/>				

2. Select the load segment to which the agent is attached in the **Load Segment** drop-down box.
3. Select the server name in the **Managed Agents** drop-down box.

4. Do one of the following:
 - Select the location of the device from the **Location** drop-down box.
 - Add a new location by selecting **New Location** from the **Location** drop-down box. The **Add New Location** box is displayed.



Enter the name of the location in the **New Location** field. Click **Add Location**. The new location is available in the **Location** drop-down box on the **Add/Edit Attachment** box.

5. Enter the operating system in the **OS** field.
6. Enter the function in the **Function** field.
7. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Add/Edit Attachment** box open, or click **Cancel** to return to the **Attached Agents** screen.

To delete an attached agent:

1. Select the checkbox in the **Delete** column of the **Attached Agents** screen for the agent you want to delete.
2. Click **Delete Selection(s)**.

Power Fail Settings Screen

One of the most valuable aspects of Rack and Power Manager is the ability to work in concert with a UPS to gracefully shut down computer operating systems during a power failure. It is often desirable to prolong the runtime of critical computers (Web servers, domain controllers, databases, and so on) while still allowing protection of essential data by closing down services completely before power is removed. Because other equipment benefiting from the power regulation of a UPS might not serve critical needs, it can be beneficial to be able to shut down such equipment early during a power failure to prolong battery time for the more necessary systems. Power fail settings allow for the prioritization of shutdowns of UPS load segments (banks of power outlets) as well as of the servers receiving power from the UPS (attached agents, for example). Carefully consider the following items before configuring the power failure settings:

- The length of battery protection increases as the load on the UPS decreases.
- After a power outage recovery, another outage could occur before the UPS batteries fully charge. For a more robust system fault tolerance, set the time delay to a value small enough to allow battery reserve for at least two shutdowns.

Shutdown Settings Box

The **Shutdown Settings** box contains information about the shutdown for UPS load segments and attached servers. When a power failure occurs, the Management Server shuts down affected devices according to these settings. Each load segment and its attached servers are displayed.

To configure the shutdown timings for load segments:

1. Select the load segment you want to configure by clicking its name in the top left corner of the box.

NOTE: Selecting a load segment and clicking **Infinite** overrides the individual server settings for that load segment.

NOTE: If no load segment or server is selected, the information at the bottom of the box is not displayed.

Shutdown Settings

Click on the Agent or Load Segment in the graph below to view and change settings for that item.

minutes from power fail 0 40

T1000XR

Load Segment 1

Load Segment 2

Delay Time Shutdown Time Off

Load Segment 1

Time delayed before beginning Load Segment Shutdown: 1 minute(s)

Infinite

Submit Cancel

View Restart Settings...

2. Enter the number of minutes that should elapse from the time of the power failure to the beginning of the load segment shutdown.

IMPORTANT: You must configure the runtime. The default runtime setting is zero. If the runtime is not configured, the load segment will shut down immediately upon power failure.

NOTE: If the load segment has no attached agents, this option is not displayed.

3. Click **Infinite** to override all other settings.
4. Click **Submit** to save the changes, click **Cancel** to reject all changes and keep the box open, or click **View Restart Settings** to display the **Restart Settings** box.

To configure the shutdown timings for servers (attached agents):

1. Select the server you want to configure by clicking its name in the top left corner of the box.

NOTE: If no load segment or server is selected, the information at the bottom of the box is not displayed.

Shutdown Settings

Click on the Agent or Load Segment in the graph below to view and change settings for that item.

minutes from power fail 0 16

- T2200XR
- Load Segment 1
- Proliant DL 590
- Load Segment 2
- Proliant DL380
- Load Segment 3
- Proliant DL760

Legend: ■ Delay Time ■ Shutdown Time ■ Off

Proliant DL760 on Load Segment 3

Time delayed before beginning OS shutdown: minute(s)

Time required to shutdown OS: minute(s)

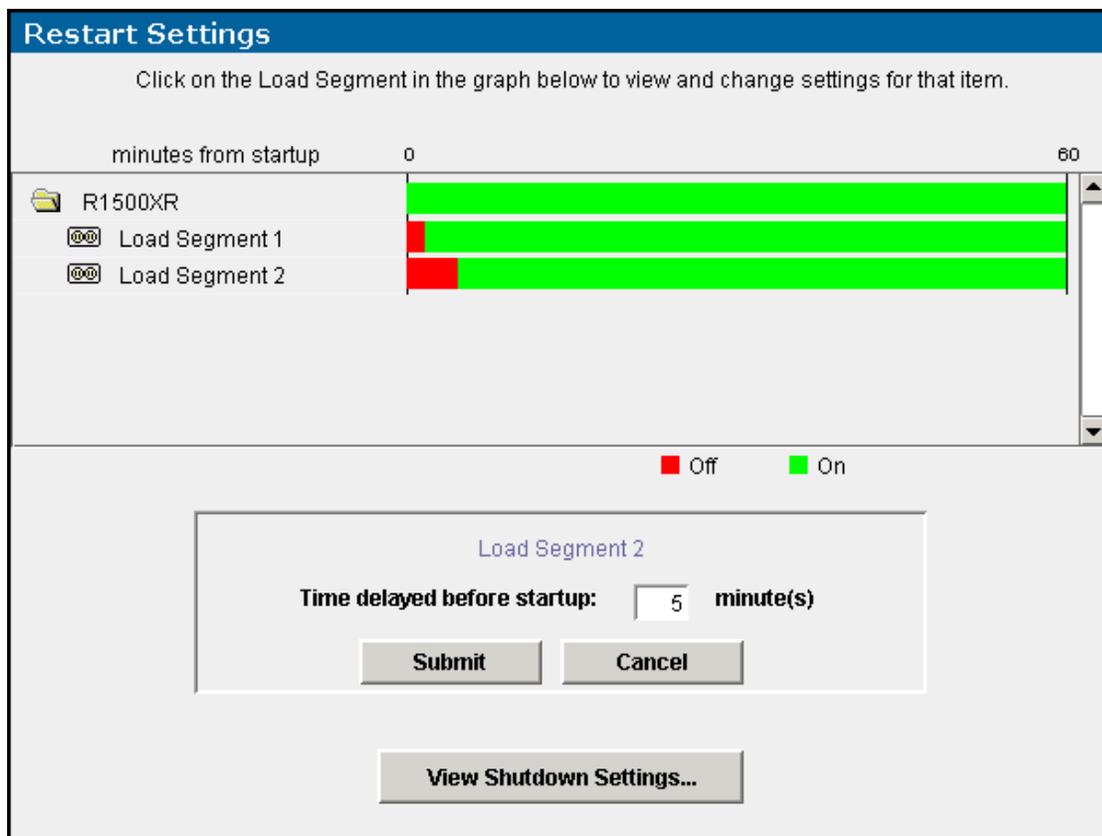
Submit **Cancel**

View Restart Settings...

2. Enter the number of minutes that should elapse from the time of the power failure to the beginning of the operating system shutdown.
3. Enter the number of minutes needed to completely shut down the operating system.
4. Click **Submit** to save the changes, click **Cancel** to reject all changes and keep the box open, or click **View Restart Settings** to display the **Restart Settings** box.

Restart Settings Box

The **Restart Settings** box contains information about the restart for UPS load segments. After shutdown occurs, the Management Server restarts affected devices according to these settings. Each load segment is displayed.



To configure the restart timings:

1. Select the load segment you want to configure by clicking its name in the top left corner of the box.

NOTE: If no load segment or server is selected, the information at the bottom of the box is not displayed.
2. Enter the number of minutes that should elapse from the time of the power restoration to the beginning of the load segment restart. The maximum delay that can be entered is 60 minutes.
3. Click **Submit** to save the changes, click **Cancel** to reject all changes and keep the box open, or click **View Shutdown Settings** to display the **Shutdown Settings** box.

Scheduled Shutdowns Screen

Information on the **Scheduled Shutdowns** screen summarizes the set times at which individual load segments or the entire UPS shuts down and restarts. Scheduled shutdowns can be configured for one time or at daily or weekly intervals.

Scheduled Shutdowns				
Event Affects	Frequency	Shutdown	Restart	Delete
Load Segment 1	Daily	05:30 PM	06:00 AM	<input type="checkbox"/>
Load Segment 2	Daily	06:35 PM	06:10 AM	<input type="checkbox"/>
Add New Scheduled Shutdown		Delete Selection(s)		

To add a shutdown event:

1. Click **Add New Scheduled Shutdown**. The **Add Shutdown Event** box is displayed.

One Time		Daily		Weekly	
Affects	Shutdown			Restart	
	Date	Time	Date	Time	
Entire UPS	<input type="text"/>	1 : 00 AM	<input type="text"/>	1 : 00 AM	
Apply		Undo Changes		Cancel	

2. Do one of the following:
 - Select the **One Time** tab to schedule a single shutdown event.
 - Select the **Daily** tab to schedule a daily shutdown event.
 - Select the **Weekly** tab to schedule a weekly shutdown event.
3. From the **Affects** drop-down box, select the components to shut down and restart.
4. Enter the shutdown date (one-time shutdown event) or select the shutdown day (weekly shutdown event) if necessary.
5. Select the shutdown time, using the drop-down boxes in the **Shutdown Time** column.
6. Enter the restart date (one-time shutdown event) or select the restart day (weekly shutdown event) if necessary.
7. Select the restart time, using the drop-down boxes in the **Restart Time** column.
8. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Add Shutdown Event** box open, or click **Cancel** to return to the **Scheduled Shutdowns** screen.

To edit a shutdown event:

1. Click the hyperlink in the **Event Affects** column for the shutdown event you want to edit. The **Edit Shutdown Event** box is displayed.

Edit Shutdown Event

Daily		
Affects	Shutdown Time	Restart Time
Entire UPS	6 : 00 PM	Next Day at 6 : 00 AM
Apply Undo Changes Cancel		

2. Edit the information on the **Edit Shutdown Event** box as needed.
3. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Edit Shutdown Event** box open, or click **Cancel** to return to the **Scheduled Shutdowns** screen.

To delete a shutdown event:

1. Select the checkbox in the **Delete** column of the **Scheduled Shutdowns** screen for the shutdown event you want to delete.
2. Click **Delete Selection(s)**.

Event Response Overview Screen

The **Event Response Overview** screen contains a **Supported Events** table that summarizes the manner in which alerts are issued for each alarm condition on the UPS.

Supported Events						
Copy Event Configuration from :					T1000XR	Copy
Description	Alert Notifications			Computer Command	Device Actions	
	Email	Broadcast	SNMP			
Battery Depleted	-	-	-	-	-	
Battery Failure	-	-	-	-	-	
Battery Failure Cleared	-	-	-	-	-	
Battery Level Normal	-	-	-	-	-	
Battery Low	✓	-	✓	-	✓	
Connection lost to device	✓	-	✓	-	-	
Device connected	-	-	-	-	-	
Device settings changed	-	-	-	-	-	
Diagnostic Test Failed	-	-	-	-	-	
Diagnostic Test Succeeded	-	-	-	-	-	
Failed to connect to device	-	-	-	-	-	
Input AC Normal	-	-	-	-	-	
Input AC Over Voltage	-	-	-	-	-	
Input AC Under Voltage	-	-	-	-	-	
Internal Failure	-	-	-	-	-	
Internal Failure Cleared	-	-	-	-	-	
On Battery	✓	✓	✓	✓	-	
On Boost	-	-	-	-	-	
On Buck	-	-	-	-	-	
On Bypass	-	-	-	-	-	
On Utility Power	-	-	-	-	-	
Output Overload	-	-	-	-	-	
Output Overload Cleared	-	-	-	-	-	
Temperature High	-	-	-	-	-	
Temperature Normal	-	-	-	-	-	

When a new UPS is installed, enter the event response information for the related alarm conditions.

- To copy the event response configuration of another UPS, select the UPS you want to copy in the **Copy Event Configuration from:** field and click **Copy**.
- To edit the response of individual events, click the hyperlink for the event response you want to edit in the **Description** column. The **Event Response** screen is displayed.

The **Event Response** screen enables you to configure event responses for supported events. For each event, Rack and Power Manager can be configured to send alert notifications (email and broadcast messages and SNMP traps), run a computer command, and initiate a device action (shut down a load segment or release a lockset controlled by the CMC in the same rack as this UPS).

To configure each supported event response:

1. Select the event you want to configure the event response for in the **Select Event** drop-down box.

The screenshot shows a blue header bar with the text 'Select Event'. Below it is a white dropdown menu with a blue border, containing the text 'On Battery' and a downward-pointing arrow.

2. Select the **Alert Notifications** tab, the **Commands** tab, or the **Device Actions** tab.

Alert Notifications Tab

Select the **Alert Notifications** tab to configure the alert notifications.

NOTE: Before an alert notification can be set up, you must first configure the notification recipients. For information about configuring notification recipients, refer to “Notification Recipients Screen” in Chapter 4.

Alert Notifications		Commands	Device Actions
Notification Type	Recipient List	Delay	Delete
Broadcast	Houston Administrators	1	<input type="checkbox"/>
Email/Paging	Houston Administrators	1	<input type="checkbox"/>
SNMP Traps	Houston Administrators	1	<input type="checkbox"/>
Add New Alert Notification		Delete Selection(s)	Return to Event Summary

To add an alert notification:

1. Click **Add New Alert Notification**. The **Add/Edit Notification** box is displayed.

The screenshot shows a dialog box titled 'Add / Edit Notification'. It has three columns: 'Notification Type', 'Recipient List', and 'Delay'. Under 'Notification Type', there is a dropdown menu with 'Email/Paging' selected. Under 'Recipient List', there is a dropdown menu with 'Houston Admins' selected. Under 'Delay', there is a text input field with '0' and two radio buttons labeled 'Sec' (selected) and 'Min'. At the bottom, there are three buttons: 'Apply', 'Undo Changes', and 'Cancel'.

2. Select the type of notification from the **Notification Type** drop-down box. Available options are email/paging, broadcast, and SNMP traps.
3. Select the group of recipients that should receive the alert notification from the **Recipient List** drop-down box. Recipient lists are configured on the **Notification Recipients** screen.
4. Enter the notification delay in the **Delay** column and select a radio button for either seconds or minutes. The delay is the amount of time that elapses between the occurrence of the event and the sending of the notification.
5. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Add/Edit Notification** box open, or click **Cancel** to return to the **Alert Notifications** tab.

To edit an alert notification:

1. Select the event you want to edit from the **Select Event** drop-down box.
2. Click the hyperlink for the notification you want to edit in the **Notification Type** column of the **Alert Notifications** tab. The **Add/Edit Notification** box is displayed.
3. Edit the notification type, the recipient list, and the notification delay.
4. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Add/Edit Notification** box open, or click **Cancel** to return to the **Alert Notifications** tab.

To delete an alert notification:

1. Select the checkbox in the **Delete** column of the **Alert Notifications** tab for the notification you want to delete.
2. Click **Delete Selection(s)**.

To return to the **Event Response Overview** screen, click **Return to Event Summary**.

Commands Tab

Select the **Commands** tab to configure the computer commands.

Alert Notifications		Command	Device Actions	
Command	Execute On	Delay	Delete	
C:\Shutdown.bat	Proliant DL380	0 sec	<input type="checkbox"/>	
Add New Command		Delete Selection(s)		Return to Event Summary

To add a command:

1. Click **Add New Command**. The **Add/Edit Command** box is displayed.

Add / Edit Command			
Command	Execute On	Delay	
<input type="text"/>	Proliant DL760	<input type="text" value="0"/>	<input checked="" type="radio"/> Sec <input type="radio"/> Min
Apply		Undo Changes	Cancel

2. Enter the command (for example, `C:\start.bat` or `/opt/snapshot.sh`), select the server that the command will run on, and set the notification delay.

NOTE: Rack and Power Manager cannot run a command on a server unless the server has a System Agent installed. The batch file or script that will be run must reside on the server on which the command will be executed.

3. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Add/Edit Command** box open, or click **Cancel** to return to the **Commands** tab.

IMPORTANT: Remote command execution can be a very powerful tool and should be tested thoroughly before being used for the first time in response to an event. Command execution behavior varies by operating system, and, in general, commands to be executed should be put into a batch file or shell script depending on the operating system that will be executing the commands. Using a batch file or shell script gives you more control over the circumstances in which commands are executed and allows the commands to run in a copy of the environment.

When selecting commands to be executed in the batch file or script file, choose programs and processes that do not require user input or interaction. Since the commands can be executed at any time, it is difficult to predict if a user will be available to interact with any programs that are launched. Verify that specified drive mappings, user specific directories, and programs that require special rights are accessible by the batch file or script file.

Most operating systems have a method for spawning new processes. In Windows operating systems, commands can be preceded with `START`, and in most Linux/Unix systems, `sh` can be used. When designing your batch file or script file, determine which commands require a separate process and which commands can be run one after another in the same process. Refer to the documentation that came with your operating system for more information on batch files or script files.

To edit a command:

1. Select the event you want to edit from the **Select Event** drop-down box.
2. Click the hyperlink for the command you want to edit in the **Command** column of the **Commands** tab. The **Add/Edit Command** box is displayed.
3. Enter the command, select the server that the command will run on, and set the command delay.
4. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Add/Edit Command** box open, or click **Cancel** to return to the **Commands** tab.

To delete a command:

1. Select the checkbox in the **Delete** column of the **Commands** tab for the command you want to delete.
2. Click **Delete Selection(s)**.

To return to the **Event Response Overview** screen, click **Return to Event Summary**.

Device Actions Tab

Device actions can be taken on the device you are configuring and on other managed devices. For example, if a CMC detects an over-temperature condition, a device action can be configured to shut down the UPS load segments to which servers affected by the condition are connected.

Select the **Device Actions** tab to configure the device actions.



CAUTION: For each device action that you set, you may need to configure the normal, opposite response. For example, if you configure the UPS to turn off a load segment when an output overload is detected, you may also want to configure the UPS to turn on the load segment when the output overload is resolved.

Alert Notifications		Commands		Device Actions	
Target Device	Action to Perform	Delay	Delete		
R3000XR	Turn Off Entire UPS	0	<input type="checkbox"/>		
Add New Device Action		Delete Selection(s)		Return to Event Summary	

To add a device action:

1. Click **Add New Device Action**. The **Add/Edit Device Action** box is displayed.

Add / Edit Device Action		
Target Device	Action to Perform	Delay
Proliant DL380 MS	Restart Entire UPS	0 <input checked="" type="radio"/> Sec <input type="radio"/> Min
<input type="button" value="Apply"/> <input type="button" value="Undo Changes"/> <input type="button" value="Cancel"/>		

2. Enter the target device, the action to perform, and the notification delay.
3. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Add/Edit Device Action** box open, or click **Cancel** to return to the **Device Actions** tab.

To edit a device action:

1. Select the event you want to edit from the **Select Event** drop-down box.
2. Click the hyperlink for the device action you want to edit in the **Target Device** column of the **Device Actions** tab. The **Add/Edit Device Action** box is displayed.
3. Edit the target device, the action to perform, and the action delay.
4. Click **Apply** to accept the information, click **Undo Changes** to reject all changes and keep the **Add/Edit Device Action** box open, or click **Cancel** to return to the **Device Actions** tab.

To delete a device action:

1. Select the checkbox in the **Delete** column of the **Device Actions** tab for the device action you want to delete.
2. Click **Delete Selection(s)**.

To return to the **Event Response Overview** screen, click **Return to Event Summary**.

Properties Screen

The **Properties** screen enables you to enter, edit, or view general information about the UPS.

UPS Properties Box

Information entered on the **UPS Properties** box is used by Rack and Power Manager to identify devices.

UPS Properties	
Parameters	Settings
Device Name	R3000XR
Device Location	Houston Office
UPS Model	COMPAQ UPS
Contact Information	L Wicker (281) 555-4444
Power Rating (in VA)	2880
<input type="button" value="Apply"/> <input type="button" value="Undo Changes"/>	

To configure the properties:

1. Enter the name of the UPS in the **Device Name** field to aid in identification when alert messages are sent.
2. Select the location of the UPS in the **Device Location** field to aid in identification when alert messages are sent.
3. View the UPS model in the **UPS Model** field. The UPS model aids in identification when alert messages are sent.

4. Enter the user name, email address, or pager number of a person who can provide direct physical access to the UPS in the **Contact Information** field. This person need not have responsibility for actually maintaining the UPS.
5. View the UPS power rating in the **Power Rating** field. The UPS power rating aids in identification when alert messages are sent.
6. Click **Apply** to accept the information or click **Undo Changes** to reject all changes and keep the box open.

Version Control Table

For informational purposes, the applicable firmware versions are displayed.

Version Control	
Description	Version
Communication	2.20
Inverter	2.20

NOTE: Not all UPSs will display the same list of firmware options.

Diagnostics Screen

The UPS **Diagnostics** screen enables you to perform diagnostic tests on the UPS.

NOTE: A pop-up message is displayed to notify you when you try to run tests on a UPS that does not support diagnostics.

To automatically run UPS diagnostics:

1. Enable automatic diagnostic testing by selecting **Enable Automatic Diagnostics** in the **Status** box.

Status
<input type="checkbox"/> Enable Automatic Diagnostics Last run: Next run:

- Schedule automatic diagnostics by selecting 30, 60, 90, or 120 days from the **Automatically Execute Diagnostics Every:** drop-down box on the **Schedule** box.

- Click **Apply** to accept the information or click **Undo Changes** to reject all changes and keep the screen open.

To immediately perform a manual, one-time UPS self-test, click **Execute Diagnostics Now**.

Manual Control Screen

The **Manual Control** screen enables you to manually shut down and restart individual load segments or the entire UPS.

To manually shut down a load segment or UPS:

- Select the radio button for the action you want to perform in the **Description** column of the **Immediate Shutdown** box.

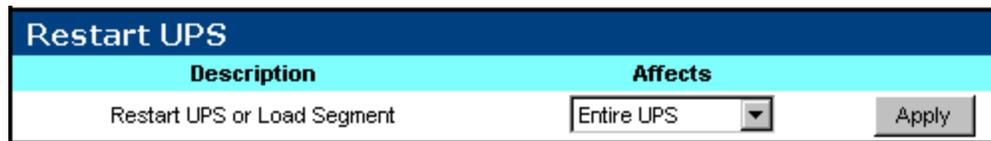
- Select **Restart Immediately after Shutdown** to restart the component as soon as the shutdown completes.
- Select **Remain Off after Shutdown** if you do not want to restart the component.
- Select **Restart after x minutes** to schedule a timed restart. Select the number of minutes that should pass before the restart initiates in the drop-down box. Options are 2, 5, or 10 minutes.

- From the **Affects** drop-down box, select the component you want to shut down that corresponds with the option you selected in the **Description** column.
- Click **Apply** to shut down the component.

IMPORTANT: For attached servers to be shut down gracefully, they must have an agent installed, be attached to a load segment, and have power fail settings configured.

To manually restart a load segment or UPS that remained off after a shutdown:

- From the **Affects** drop-down box, select the component you want to restart in the **Restart UPS** box.



Description	Affects
Restart UPS or Load Segment	Entire UPS <input type="button" value="Apply"/>

- Click **Apply** to restart the component.

IMPORTANT: If you use the **Remain Off** option to shut down a load segment to which the Management Server is attached or to which a server with a Serial Relay Agent installed is attached, you will not be able to restart the UPS with Rack and Power Manager. To recover, gracefully shut down the remaining servers on the active load segments of the UPS. Manually power down the UPS using the power button on the UPS, then reapply power to the UPS.

Queries Icon

Click the **Queries** icon in the top frame to view the **Queries** screen.

Queries Screen

The **Queries** screen enables you to produce a filtered list of devices in the left frame of the **Devices** menu. In setting up your query, you can limit the devices by querying by location, type, model, and status or combinations thereof.

IMPORTANT: Queries remain in effect until you perform a different query, remove the query, or log out of Rack and Power Manager.

Pre-Defined Queries

Pre-Defined Queries		
Standard Queries	Current Query	User-Defined Queries
<input checked="" type="radio"/> All Devices	All Devices	<input type="radio"/> -- Not Selected -----
<input type="button" value="Use Selected Query"/>		<input type="button" value="Delete Selected User-Defined Query"/>

To perform a standard query:

1. Select the radio button to the left of the **Standard Queries** drop-down box.
2. Select the query you want to use from the **Standard Queries** drop-down box.
3. Click **Use Selected Query**.

To perform a user-defined query:

1. Select the radio button to the left of the **User-Defined Queries** drop-down box.
2. Select the query you want to use from the **User-Defined Queries** drop-down box.
3. Click **Use Selected Query**.

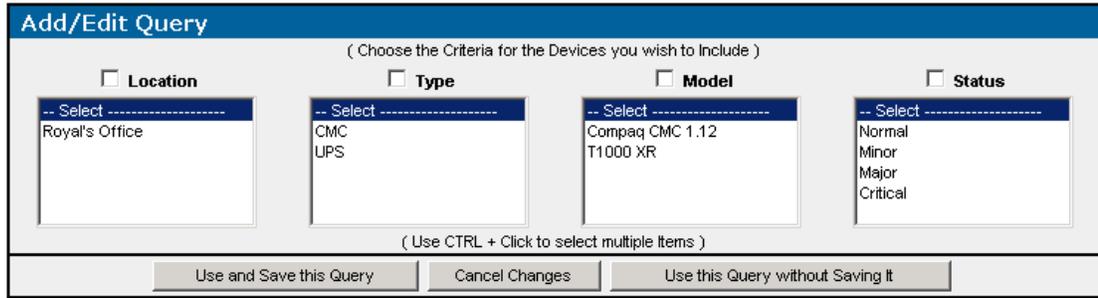
To delete a user-defined query:

1. Select the radio button to the left of the **User-Defined Queries** drop-down box.
2. Select the query you want to delete from the **User-Defined Queries** drop-down box.
3. Click **Delete Selected User-Defined Query**.

To define a new query:

1. Select the radio button to the left of the **User-Defined Queries** drop-down box.
2. Select **Custom Query** from the **User-Defined Queries** drop-down box.

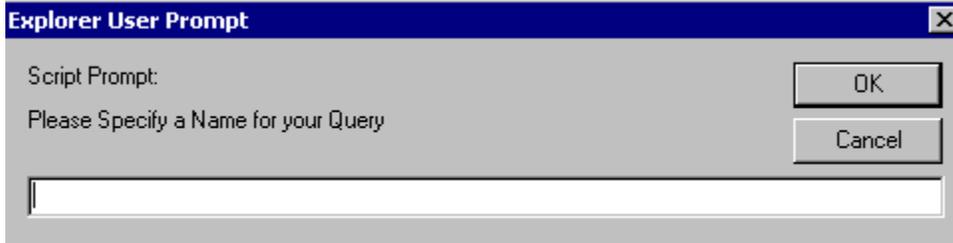
3. Select the criteria from the **Add/Edit Query** custom queries boxes.



As you make selections within the same box, hold down the **Ctrl** key. Custom queries must be selected from inside the respective boxes.

- **Location**—Managed devices that exist in a specific location. The values shown in this list are taken from the device **Properties** screens. These values are user-specified.
- **Type**—Specific types of managed devices. The values shown in this list are reported by the system and are not user-specified. Possible values include CMC or UPS.
- **Model**—Specific models of managed devices. The values shown in this list are taken from the device **Properties** screens. These values are not user-specified.
- **Status**—Managed devices that are reporting a specific alert status. The values shown in this list are reported by the system and are not user-specified. Possible values include normal, minor, major, and critical.

4. Do one of the following:
 - Click **Use and Save this Query**. Enter a name for the query at the prompt.



The query is implemented and also displayed in the **User-Defined Queries** drop-down box, available for later use.

- Click **Cancel Changes** to reject all changes.
- Click **Use this Query without Saving It** to perform the query without saving.

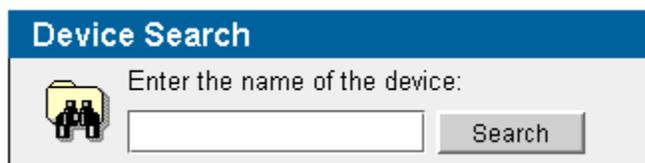
Home Icon

Click the **Home** icon in the top frame to view the **Home** screen.

Home Screen

Information on the **Home** screen refreshes every five seconds. On the **Home** screen:

- Quickly retrieve details about a device, using its name. The search field only allows the following characters to be entered: letters, numbers, tilde, dash, period, underscore, apostrophe, and space. Click **Search** to search for the indicated device.
 - If an exact match is found, only the device that matches the search criteria is displayed.
 - If an exact match is not found, Rack and Power Manager displays a list of devices in the database whose names contain the entered string.
 - If no devices in the database resemble the target device, Rack and Power Manager will only give the option to return to the **Home** screen.



- Set the **Home Page Settings** by selecting **Show this page when Rack & Power Manager starts** and clicking **Apply**. If this option is not selected, the **Devices Home** screen is the first screen displayed after you log in to Rack and Power Manager.



- Check the current status of all devices included in the query that are currently running in the **Current Status** table. Entries in the **Current Status** table can be sorted by severity, device name, device type, and description by clicking the appropriate column heading. For more information on running queries, refer to “Queries Screen” in this chapter.

Current Status				
Severity	Device Name	Device Type	Description	
	R1500XR RK21 RM906	UPS	Internal Failure	
	R6000 8FL RM821	UPS		
	Rack 19 8FL RM821	CMC	Connection lost to device	
	Rack 21 9FL RM906	CMC	Device Normal	

The icon in the **Severity** column allows you to determine the status of a device at a glance.

Table 5-5: Status Icons

Icon	Device Status
	All devices are running normally.
	A minor problem is detected.
	A major problem is detected.
	A critical problem is detected.

Troubleshooting

If utility power is lost, Rack and Power Manager begins an orderly shutdown of the system. Rack and Power Manager saves work in progress and logs all significant power and battery events.

For situations other than power outages, note the following:

- The power device must be attached to the server with the correct communications cables. Refer to the documentation that came with your power device.
- The communications cable from the power device to the server must be attached to the communications port as configured in Rack and Power Manager for that power device.

Table 6-1 lists troubleshooting items that can occur during Rack and Power Manager installation or operation.

Table 6-1: Troubleshooting

Symptom	Possible Cause	Suggested Action
During installation, the Serial Relay Agent fails to communicate with the UPS.	The UPS is powered down.	Power up the UPS.
	The UPS cable connections are faulty.	Verify that the UPS cable connections are secure. Reinstall the Serial Relay Agent.
	The incorrect COM port or baud rate was selected when the agent was installed.	Reinstall the Serial Relay Agent and select the proper settings.
Color palettes are managed improperly.	The system is configured to only display 256 colors.	Increase the monitor resolution to display more than 256 colors when browsing into Rack and Power Manager.

continued

Table 6-1: Troubleshooting *continued*

Symptom	Possible Cause	Suggested Action
Not all devices and agents are discovered.	The timeout and retries values are too low.	Increase these values on the Automatic Discovery screen and the Manual Discovery screen.
	The wrong IP address or IP address range is used.	Verify the IP addresses and IP address ranges on the Automatic Discovery screen and the Manual Discovery screen.
	An incorrect Community String is being used.	Verify that the discovery is configured to use the correct Community Strings.
CMC sensors are disabled in the Current Status window of the CMC Device Overview screen.	The sensor is not installed.	Install the sensor.
	The sensor is not enabled.	Enable the sensor on the Sensor Setup screen.
The CMC door-locking feature is not working properly.	The intrusion sensors are not properly assigned.	Assign at least one intrusion sensor to each lockset.
Device actions are not working properly.	The normal, opposite response to the initial event response is not configured.	Configure the normal, opposite response to each event on the Device Actions tab of the Event Response screen.
Connection to a device is lost.	Rack and Power Manager has lost communication with the UPS.	Verify the computer interface cable connection.
Rack and Power Manager does not communicate with a CMC.	The SNMP Read/Write Community string displayed on the CMC Properties screen does not match that on the CMC device.	Use a terminal emulation program to update the strings on the CMC device or change the strings on the CMC Properties screen to match those on the CMC device.
	The IP address and subnet mask are not set up correctly.	Verify that the IP address and subnet have been correctly set up on the CMC.
	The network cable is faulty.	Replace the cable.

continued

Table 6-1: Troubleshooting *continued*

Symptom	Possible Cause	Suggested Action
Rack and Power Manager does not communicate with a UPS.	The UPS is off.	Turn the UPS on.
	The password on the UPS Properties screen does not match the password on the UPS device.	Change the password on the UPS Properties screen to match that on the UPS device.
	The communications cable is not connected, secured, or properly installed.	Reinstall the communications cable.
Low battery	The battery is low on voltage.	Allow the battery to recharge for 24 hours. Rack and Power Manager sends a low battery warning approximately two to five minutes before UPS shutdown. This warning is approximate, and the actual time to shutdown can vary significantly.
		Replace the battery. Refer to the documentation that came with the UPS.
On battery	The UPS system is operating on battery power.	The UPS will continue to run on battery power until the battery is completely discharged (or until utility power is restored), unless the shutdown parameters specify to turn off both the system and the UPS.
On buck	The input voltage is too high for the UPS. The UPS bucks the voltage down to acceptable limits.	Refer to the UPS documentation for information on buck.
On boost	The input voltage is too low for the UPS. The UPS boosts the voltage up to acceptable limits.	Refer to the UPS documentation for information on boost.
Overload	The device load has exceeded the UPS power rating.	Verify all equipment is drawing within the rated requirements. If necessary, reduce the equipment connected to the UPS. The UPS might need to be reset.

continued

Table 6-1: Troubleshooting *continued*

Symptom	Possible Cause	Suggested Action
The UPS is in Bypass mode.	The load is being powered by utility power. However, utility power continues to be passively filtered by the UPS. Battery protection is not available while in Bypass mode.	Refer to the UPS front panel for alarm indications. If the UPS does not return to normal operation soon, refer to the UPS documentation for troubleshooting information.
The diagnostic test is complete.	The diagnostic test of the UPS has completed.	View the results of the diagnostic test on the Logs and Reports screen.
No power	A power failure occurred.	Verify that the UPS is connected to a working outlet and that the UPS is powered up.
Unable to contact devices	Rack and Power Manager is not running.	Start the Rack and Power Manager service on the Management Server.
Options are disabled.	Some operations require SNMP SET rights.	Verify the SNMP Control community string.
Alerts are not received.	The values entered on the Notification Recipients tabs are incorrect.	Enter the correct information. Refer to “Notification Recipients Screen” in Chapter 4 of this guide.
Not all devices are listed in the left frame of the Devices menu.	A query is in effect.	Turn off the query. Refer to “Queries Screen” in Chapter 5 of this guide.

Alert Messages

Rack and Power Manager enables you to execute a command, send an email, send a broadcast message, and send SNMP traps to specified recipients if a certain alert situation prevails.



CAUTION: For each device action that you set, you must configure the normal, opposite response. For example, if you configure the CMC to turn on a fan when the temperature exceeds normal, you must also configure the CMC to turn off the fan when the temperature returns to normal.

A list of all message texts is provided in Table A-1.

Table A-1: Alert Messages

Alert Type	Event Response	Normal, Opposite Response
CMC	Aux 1 alarm	Aux 1 cleared
CMC	Aux 2 alarm	Aux 2 cleared
CMC	Connection lost to device	Device connected
CMC	Device settings changed	N/A
CMC	Failed to connect to device	Device connected
CMC	Humidity above maximum	Humidity normal
CMC	Humidity below minimum	Humidity normal
CMC	Input 1 closed	Input 1 opened
CMC	Input 2 closed	Input 2 opened
CMC	Input 3 closed	Input 3 opened
CMC	Input 4 closed	Input 4 opened
CMC	Lockset 1 error	Lockset 1 normal
CMC	Lockset 1 failed to lock	Lockset 1 normal
CMC	Lockset 1 unlocked	Lockset 1 locked
CMC	Lockset 2 error	Lockset 2 normal
CMC	Lockset 2 failed to lock	Lockset 2 normal
CMC	Lockset 2 unlocked	Lockset 2 locked

continued

Table A-1: Alert Messages *continued*

Alert Type	Event Response	Normal, Opposite Response
CMC	Shock detected	Shock cleared
CMC	Smoke detected	Smoke cleared
CMC	Temp 1 above maximum	Temperature normal
CMC	Temp 1, high temp warning	Temperature normal
CMC	Temp 1 below minimum	Temperature normal
CMC	Temp 2 above maximum	Temperature normal
CMC	Temp 2, high temp warning	Temperature normal
CMC	Temp 2 below minimum	Temperature normal
CMC	Voltage above maximum	Voltage normal
CMC	Voltage below minimum	Voltage normal
UPS	Battery depleted	Battery level normal
UPS	Battery failure	Battery failure cleared
UPS	Battery low	Battery level normal
UPS	Connection lost to device	Device connected
UPS	Device settings changed	N/A
UPS	Diagnostic test failed	Diagnostic test succeeded
UPS	Failed to connect to device	Device connected
UPS	Input AC over voltage	Input AC normal
UPS	Input AC under voltage	Input AC normal
UPS	Internal failure	Internal failure cleared
UPS	On battery	On utility power
UPS	On boost	On utility power
UPS	On buck	On utility power
UPS	On bypass	On utility power
UPS	Output overload	Output overload cleared
UPS	Temperature high	Temperature normal
UPS	Utility fail	Utility cleared
UPS	Utility not present	Utility not present cleared

Using Rack and Power Manager with Insight Manager 7

Rack and Power Manager software can be configured to send alert traps to HP Insight Manager 7, as well as other SNMP management applications. To send event alert traps to Insight Manager 7:

- Configure Insight Manager 7 to receive a trap from Rack and Power Manager.
- Configure Rack and Power Manager to send the appropriate event alert traps.

Configuring Insight Manager 7

Verify that the Rack and Power Manager MIB (CPQRPM.MIB) is registered in Insight Manager 7:

1. Upload the Rack and Power Manager MIB. The Rack and Power Manager MIB (CPQRPM.MIB) can be found on the on the HP Management CD and in the install folder of the Rack and Power Manager Management Server.
2. Register the Rack and Power MIB.

NOTE: For additional information on uploading and registering a MIB in Insight Manager 7, refer to the *HP Insight Manager Technical Reference Guide* located on the HP Management CD.

Configuring Rack and Power Manager

To configure Rack and Power Manager to send traps to Insight Manager 7:

1. Add the Insight Manager 7 server as an SNMP Trap recipient. For information on configuring SNMP Trap recipients, refer to “Notification Recipients Screen” in Chapter 4 of this guide.
2. Configure Rack and Power Manager to send alert notifications to Insight Manager 7 as SNMP traps. For more information on configuring alert notifications, refer to “Event Response Overview Screen” in Chapter 5 of this guide.

Rack and Power Manager Security Considerations

Rack and Power Manager implements strict security for two important reasons:

- Rack and Power Manager has managed devices that have the potential to perform operations that are sensitive and destructive.
- The application has browser accessibility.

To better ensure the security of Rack and Power Manager and the devices it manages, the following topics should be considered in accordance with your organization's security policies and the environment in which Rack and Power Manager will operate.

Access to Rack and Power Manager requires an account in Rack and Power Manager. Logging in requires the use of a user name and password, which should be kept properly secured.

Each account in Rack and Power Manager can be given different access levels, providing different capabilities. Ensure that the appropriate access level is granted to users of Rack and Power Manager.

Browsing to Rack and Power Manager is done using Secure Socket Layer (SSL), which encrypts the data between the browser and Management Server. The level of encryption supported by Rack and Power Manager is 128-bit. SSL also provides authentication of the Management Server by means of its digital certificate. Securely importing this certificate must be done to ensure the identification of the Management Server.

Rack and Power Manager communicates with a CMC device, using the SNMP protocol. SNMP secures requests for data by means of a community string. The community string is configurable at the managed device and from within Rack and Power Manager, since both parties must know the community string. Default community strings such as `public` are easily guessed and should be avoided.

NOTE: CMC community strings must be changed both at the device using a HyperTerminal connection and from within Rack and Power Manager on the CMC **Properties** screen.

NOTE: Community string names are case-sensitive.

Rack and Power Manager uses a database as its primary storage facility. Access to the database is controlled using a user name and password, which should be configured and kept secure.

Rack and Power manager uses many ports to communicate:

- Port 3256, SSL—Used for communications between the Management Server and Shutdown agent.
- Port 3257, HTTP—Used for browsing into the Management Server.
- Port 161, SNMP—Used for communications between the Management Server and CMC device.
- Port 162, SNMP—Used by the Management Server for sending out traps.
- Port 7010, Net-XCP—Used for communications between the Management Server and UPS device.

Backing Up and Restoring Rack and Power Manager

It is always preferable to restore from a full system backup. In the event that a full system backup is not possible, all settings, configurations and devices for Rack and Power Manager are stored in the `DEVICEDB1.GDB`, `DB.INI` and `ISC4.GDB` files. At a minimum, it is best to ensure that these files are backed up on a regular basis. If the Rack and Power Manager Management Server must be recovered and a full system backup is not available, the Management Server can be recovered using the following steps:

1. Install a new copy of Rack and Power Manager.
2. Stop these services or processes in the following order:

Friendly Name	Windows Service Name	Linux Process Name
a. Compaq Rack and Power Manager	Compaq Rack and Power Manager	ServiceManager
b. Firebird Guardian Service	InterBaseGuardian	ibguard
c. Firebird Server (if not already stopped)	InterBaseServer	ibserver

3. Replace the `DEVICESDB1.GDB`, `DB.INI` and `ISC4.GDB` files in the directory that Rack and Power Manager installed them in.
4. Restart services or processes in the following order:
 - a. Firebird Guardian Service
 - b. Firebird Server (if not already started)
 - c. Compaq Rack and Power Manager
5. After the files have been replaced, log in using the original (backed up) user name and password.

NOTE: Serial Relay Agents and System Agents do not need to restore any files upon reinstallation.

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