COMPAQ

Remote Insight Lights-Out Edition

User Guide

Fifth Edition (July 2001)
Part Number 159206-005
Compaq Computer Corporation

Notice

Compaq Remote Insight Lights-Out Edition User Guide
Fifth Edition (July 2001)
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www.compaq.com

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About This Guide

This guide is designed to be used as step-by-step instructions for installation and as a reference for operation and troubleshooting.

Text Conventions

This document uses the following conventions to distinguish elements of text:

Keys	Keys appear in boldface. A plus sign (+) between two keys indicates that they should be pressed simultaneously.
USER INPUT	User input appears in a different typeface and in uppercase.
FILENAMES	File names appear in uppercase italics.
Menu Options, Command Names, Dialog Box Names	These elements appear in initial capital letters and bold.
COMMANDS, DIRECTORY NAMES, and DRIVE NAMES	These elements appear in uppercase.
Type	When you are instructed to *type* information, type the information **without** pressing the **Enter** key.
Enter	When you are instructed to *enter* information, type the information and then press the **Enter** key.

Symbols in Text

These symbols may be found in the text of this guide. They have the following meanings.

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

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

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

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

Symbols on Equipment

These icons may be located on equipment in areas where hazardous conditions may exist.

Any surface or area of the equipment marked with these symbols indicates the presence of electrical shock hazards. Enclosed area contains no operator-serviceable parts.

WARNING: To reduce the risk of injury from electrical shock hazards, do not open this enclosure.

Any RJ-45 receptacle marked with these symbols indicates a Network Interface Connection.

WARNING: To reduce the risk of electrical shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.

Any surface or area of the equipment marked with these symbols indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists.

WARNING: To reduce the risk of injury from a hot component, allow the surface to cool before touching it.

Power supplies or systems marked with these symbols indicate the equipment is supplied by multiple sources of power.

WARNING: To reduce the risk of injury from electrical shock, remove all power cords to completely disconnect power from the system.

Rack Stability

WARNING: To reduce the risk of personal injury or damage to the equipment, ensure that:

- The leveling jacks are extended to the floor.
- The full weight of the rack rests on the leveling jacks.
- The stabilizing feet are attached to the rack if it is a single rack installation.
- The racks are coupled together in multiple rack installations.
- Only one component is extended at a time. A rack may become unstable if more than one component is extended for any reason.

WARNING: To reduce the risk of personal injury or damage to the equipment, consult the safety information and user documentation provided with your computer before attempting this installation.

Many personal computers are capable of producing energy levels that are considered hazardous. These computers are intended to be serviced by qualified personnel trained to deal with these hazards. Do not remove enclosures or attempt to bypass any interlocks that may be provided for the purpose of removing these hazardous conditions.

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.

Compaq Technical Support

You are entitled to free hardware technical telephone support for your product for as long as you own the product. A technical support specialist will help you diagnose the problem or guide you to the next step in the warranty process.

In North America, call the Compaq Technical Phone Support Center at 1-800-OK-COMPAQ. This service is available 24 hours a day, 7 days a week.

Outside North America, call the nearest Compaq Technical Support Phone Center. Telephone numbers for worldwide technical support centers are listed on the Compaq website. Access the Compaq website by logging on to the Internet:

www.compaq.com

Be sure to have the following information available before you call Compaq:

- Technical support registration number (if applicable)
- Product serial numbers
- Product model names and numbers
- Applicable error messages
- Add-on boards or hardware
- Third-party hardware or software

- Operating system type and revision level
- Detailed, specific questions

Compaq Website

The Compaq website has information on this product including translated documentation, the latest drivers and Flash ROM images, and other System Management help. You can obtain more information on the Remote Insight Lights-Out Edition by accessing the Compaq website:

www.compaq.com/lights-out

Compaq Authorized Reseller

For the name of your nearest Compaq authorized reseller:

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

Chapter **1**

Features of the Remote Insight Lights-Out Edition

The Compaq Remote Insight Lights-Out Edition board is a PCI board installed in a Compaq *ProLiant*™ server to provide remote server manageability. It can be accessed from a network client using a standard Web browser. The Remote Insight Lights-Out Edition board provides keyboard, mouse, and video capability for a server, regardless of the state of the host operating system or host server.

A built-in processor, memory, Network Interface Card (NIC), ROM, and standard external power supply make the Remote Insight Lights-Out Edition board independent of the host server and its operating system. This design allows the Remote Insight Lights-Out Edition to provide remote access to any authorized network client, to send alerts, and to perform other management functions.

Using any standard Web browser, you can:

- Remotely access the console of the host server, including all text mode and graphics mode screens with full keyboard and mouse controls.
- Remotely power up, power down, or reboot the host server.
- Remotely boot a host server to a virtual floppy image to perform a ROM upgrade or to install an operating system.
- Access the *Compaq Insight Manager*™ *XE* agents on a host server through the Remote Insight Lights-Out Edition.
- Send alerts from the Remote Insight Lights-Out Edition board regardless of the state of the host server.

- Access advanced troubleshooting features provided by the Remote Insight Lights-Out Edition.
- Launch a Web browser, use Simple Network Management Protocol (SNMP) alerting, and diagnose the Remote Insight Lights-Out Edition board using Compaq Insight Manager XE.

Features

The Remote Insight Lights-Out Edition board offers the following features:

- Virtual Graphical Remote Console

  The Remote Insight Lights-Out Edition provides embedded hardware graphical remote console capabilities that turn any standard browser into a virtual desktop, giving the user full control over the host server's display, keyboard, and mouse. The operating system independent console supports text and graphic modes, displaying remote host server activities, such as shutdown and startup operations.

- Power Cycle (Reset)

  If the remote host server is not responding, this feature allows an administrator to initiate a cold reboot to bring the server back online. This feature is available on all ProLiant servers that the Remote Insight Lights-Out Edition board supports.

- Virtual Floppy Drive

  With the Virtual Floppy Drive, an administrator can easily direct a remote host server to boot and use a standard 1.44 MB diskette from anywhere on the network, thus saving time and increasing efficiency by eliminating the need to visit a remote server just to insert and use a diskette. This feature allows administrators to carry out any of the following functions remotely:

  - Running Compaq User Diagnostics on remote host servers
  - Applying *ROMPaq*™ upgrades to remote servers
  - Deploying an operating system on remote servers from network drives
  - Performing disaster recovery of failed operating systems

- Virtual Power Button

  Using any standard browser interface, the Remote Insight Lights-Out Edition board can be used to remotely operate a host server's power button. For example, if the host server is off, you can turn it on from a remote console. This feature requires a cable between the Remote Insight Lights-Out Edition board and the server power button. The Virtual Power Button feature works on the ProLiant CL, DL, ML, 1850R, 8000, 8500, and all *TaskSmart*™ servers.

- Remote Firmware Update

  This feature ensures that the Remote Insight Lights-Out Edition board is always up-to-date with the latest firmware available from Compaq. Updates to the ROM code on the Remote Insight Lights-Out Edition board is accomplished through the browser interface.

- Integration with Compaq Insight Manager and Compaq Insight Manager XE 2.0 and newer

  The Remote Insight Lights-Out Edition board provides full integration with Compaq Insight Manager and Compaq Insight Manager XE 2.0 and newer under key operating environments. This integration provides:

  - Support for SNMP trap delivery to a Compaq Insight Manager XE console
  - Support for SNMP management

    This allows Compaq Insight Manager XE to access the Insight Management Agent information through the Remote Insight Lights-Out Edition board.

  - Remote Insight Lights-Out Edition Board hyperlinks

    Compaq Insight Manager XE 2.0 and newer provides a Remote Insight hyperlink on the server device page to launch and connect to the Remote Insight Lights-Out Edition boards easily.

  - Compaq Web-based agents

    The Remote Insight Lights-Out Edition board also integrates with Compaq Web-Based Management agents, providing remote access to system management information through the Web browser interface of the Remote Insight Lights-Out Edition board.

- Management processor

  Compaq Insight Manager XE 2.0 and newer adds support for a new device type, the management processor. All Remote Insight Lights-Out Edition boards installed on the network are discovered in Compaq Insight Manager XE as management processors.

- Grouping of Remote Insight Lights-Out Edition boards

  All Remote Insight Lights-Out Edition boards can be grouped together logically and displayed on one page. This capability provides access to multiple Remote Insight Lights-Out Edition boards from one point in Compaq Insight Manager XE 2.0 and newer.

- Application launch task

  In Compaq Insight Manager XE 2.0 and newer, an application launch task can be set up to start the Group Administration Utility on all the Remote Insight Lights-Out Edition boards listed on the device query page. The application launch can be executed on demand or scheduled to run automatically at a certain date and time.

■ Dedicated LAN network connectivity

  A 10/100MB Intel Ethernet chip on the Remote Insight Lights-Out Edition board provides administrators with a dedicated network connection to the Remote Insight Lights-Out Edition board. The board provides in-band SNMP notification of server problems on a real-time basis without separate telephone connections or modem sharing devices. The NIC can autoselect speeds between 10 MB and 100 MB.

■ Dial-up support

  The Remote Insight Lights-Out Edition supports dial-up access when using a modem router or external Remote Access Service (RAS) connection to log on to the network.

■ Browser accessibility

  The Remote Insight Lights-Out Edition board is fully accessible by means of Microsoft Internet Explorer 4.01 or later, Netscape Communicator 4.08 or later, or any other Java 1.1 or later compliant browser software. This capability allows easy access to the features of the Remote Insight Lights-Out Edition board, giving administrators full control of the remote host server's display, keyboard, and mouse, regardless of the state of the host server or operating system. Using a familiar Web browser interface, administrators can easily perform all remote management tasks.

- Reset and failure sequence replay

  Video text sequences stored on the Remote Insight Lights-Out Edition board allow an administrator to replay server startup and shutdown sequences. You can view the last two server resets and the last server failure. These sequences include all system and operating system error messages and fatal error screens such as Novell NetWare Abnormal End (Abend) screens and Microsoft Windows NT blue screens.

- SNMP alerts from the Remote Insight Lights-Out Edition to a management console

  Using a management console you can access certain server alerts, such as SNMP alerts and unauthorized access alerts, through the Remote Insight Lights-Out Edition board.

- User administration and security

  The Remote Insight Lights-Out Edition supports up to 12 users with customizable access rights, login names, client IP address restrictions and advanced password encryption. A user can have supervisor status with the ability to create, modify, or delete other users. Users with status other than supervisor can be denied access to the Remote Insight Lights-Out Edition login, to the server's Remote Console, and to the remote reboot features of the Remote Insight Lights-Out Edition board.

  The Remote Insight Lights-Out Edition board provides secure password encryption, tracking all login attempts and maintaining a record of all login failures. When login attempts fail, the board also generates alerts and sends them to a remote management console. The Remote Insight Lights-Out Edition also provides the following security features:

  - Optional lockout capability for remote console port
  - User actions logged in Remote Insight Event Log
  - Progressive delays for failed login attempts
  - Login legal warning
  - 128-bit encryption

    The Remote Insight Lights-Out Edition board provides strong security for remote management in distributed IT environments by using industry-standard Secure Sockets Layer (SSL) encryption of HTTP data transmitted across the network. SSL encryption (up to 128-bits) ensures that the HTTP information is secure as it travels across the network.

SSL is a network protocol layer, located directly under the application layer, with responsibility for the management of a secure (encrypted) communication channel between the client and server.

NOTE: The Remote Insight Lights-Out Edition board is shipped with 40-bit encryption. The 128-bit encryption can be downloaded from the Compaq website at

www.compaq.com/lights-out

- External power

  An external power connector provides continuous power to the Remote Insight Lights-Out Edition board, allowing continuous access to the remote host server, even when there is a remote server power failure or the server has been turned off.

- Auto configuration of IP address by means of DNS/DHCP

  The Remote Insight Lights-Out Edition board provides automatic network configuration and can be used straight out of the box. The board comes with a default name and Dynamic Host Configuration Protocol (DHCP) client that leases an IP address from the DHCP server on the network. For systems that do not use Domain Name Service (DNS)/DHCP, the Remote Insight Lights-Out Edition board allows static IP configuration.

  The default user name, password, and DNS name are:

  - User name: Administrator
  - Password: The last four digits of the serial number
  - DNS name: RIBXXXXXXXXXXXX where the 12 Xs are the Medium Access Control (MAC) address of the Remote Insight Lights-Out Edition board

IMPORTANT: User names and passwords are case sensitive.

- Compaq *SmartStart*™

  The Remote Insight Lights-Out Edition board is fully configurable through the Compaq SmartStart interview process.

- Survey

  Using Survey Utility, you can access the Compaq survey configuration file, which provides the latest server configuration information to assist in the diagnostic process. Survey is supported on Windows NT, Windows 2000, and NetWare.

- Integrated Management Log

  The Remote Insight Lights-Out Edition maintains a copy of the server's Integrated Management log that can be accessed using a standard browser, even when the server is not operational. This capability can be helpful when troubleshooting remote host server problems.

- ROM-Based Configuration Utility F8

  This versatile, system-independent ROM-Based Configuration Utility enables fast and easy setup of the Remote Insight Lights-Out Edition board.

- Single mouse cursor mode

  The Remote Insight Lights-Out Edition can be set to use single cursor mode in remote console. It (requires Java 1.3.0_01 VM).

- Enabled Pocket PC Access

  Firmware version 2.31 and newer provides a preview of Remote Insight Lights-Out Edition board support for wireless and dial-up access from the Compaq *iPAQ*™ H3600 Series Pocket PC handheld devices. The Remote Insight Lights-Out Edition board provides a special user interface when connecting from the Compaq iPAQ Pocket PC.

  NOTE: The Pocket PC access is a technology preview enhancement only. Compaq Technical Phone Support Center can only verify whether the devise is configured correctly.

- Group Administration

  Compaq Remote Insight Configuration Language can be used for writing group administration procedural scripts for the Compaq Remote Insight Lights-Out Edition. Remote Insight Configuration Language uses Extensible Markup Language (XML). Detailed instructions and a sample file on how to write a user configuration script are available in this user guide. Group administration for the Remote Insight Lights-Out Edition board can be done independently of Compaq Insight Manager XE by using batch processing.

Supported Hardware and Software

You can use the Remote Insight Lights-Out Edition board in the following Compaq PCI-based servers:

- Compaq ProLiant servers
- Compaq *Prosignia*™ servers

You can use the Remote Insight Lights-Out Edition board with the following network operating systems:

- Microsoft
  - Windows NT 4.0 Server
  - Windows NT 4.0, Enterprise Edition
  - Windows 2000 Server
  - Windows 2000 Advanced Server
  - Windows 2000 Datacenter (certified versions only)
- Novell
  - NetWare 5.1
  - NetWare 4.20
  - Novell intraNetWare for Small Business
- OS/2 Warp Server 4.0
- SCO
  - OpenServer 5.0.4
  - OpenServer 5.0.5
  - UnixWare 7.0.1
  - UnixWare 7.1.0
- Linux
  - Red Hat 6.2
  - Red Hat 7.0

Remote Insight Lights-Out Edition Kit Contents

The Remote Insight Lights-Out Edition kit contains the items shown in Figure 1-1.

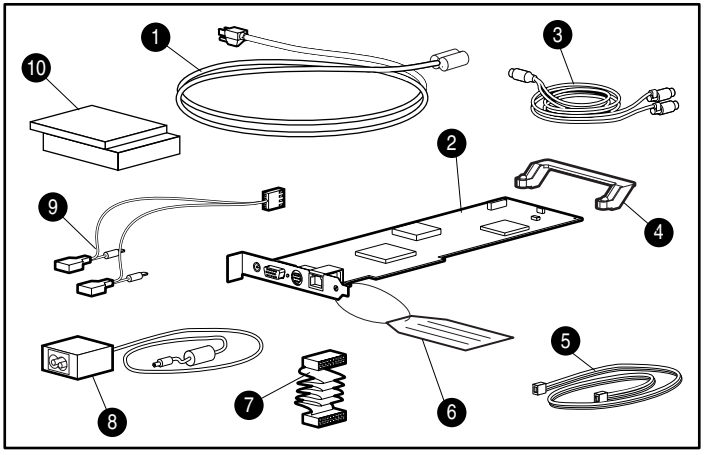

Figure 1-1. Contents of the Remote Insight Lights-Out Edition kit

Table 1-1
Contents of the Remote Insight Lights-Out Edition Kit

Item Number	Item	Item Number	Item
❶	Power cord	❻	Network settings tag
❷	Remote Insight Lights-Out Edition board	❼	Internal virtual power button, keyboard, mouse, and power cable (16 pin)
❸	Keyboard/mouse adapter cable	❽	AC power adapter
❹	PCI extender bracket	❾	Virtual power button cable (for ProLiant 1850R and ProLiant 8000 servers)
❺	Virtual power button cable (4 pin)	❿	System documentation and support software CDs

Operation Overview

During normal operation, the Remote Insight Lights-Out Edition board passes the keyboard and mouse signals to the server and functions as the server's primary video controller. This configuration allows the following operations to occur:

- Transparently substitute a remote keyboard and mouse for the server's keyboard and mouse
- Save video captures in the Remote Insight Lights-Out Edition board memory for later replay
- Simultaneously send video to the server's monitor and to a Remote Console monitor

Figure 1-2 shows how the Remote Insight Lights-Out Edition board connects to the server, peripheral devices, the power source, and the local area network (LAN) for servers that use the keyboard/mouse adapter cable.

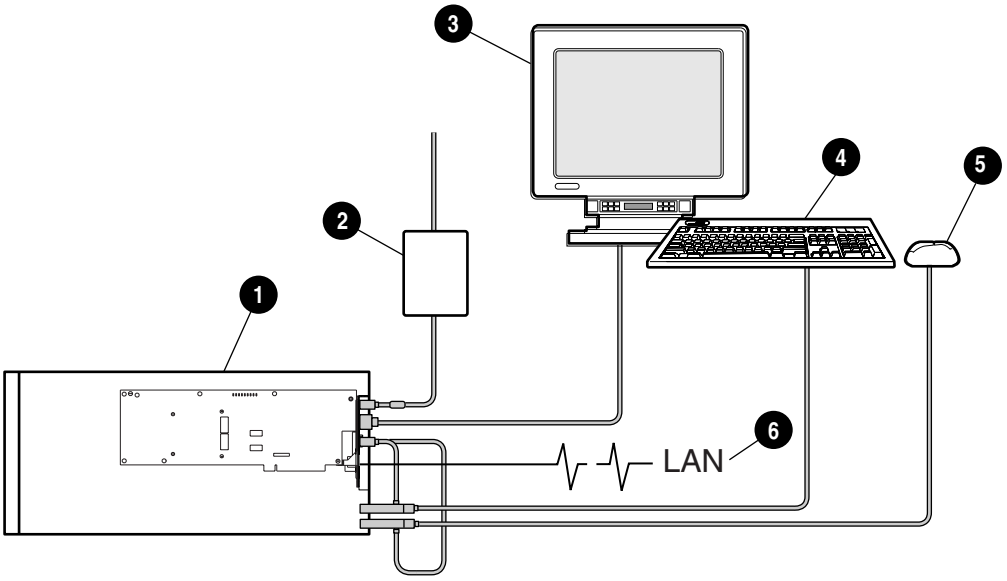

Figure 1-2. Remote Insight Lights-Out Edition system using the keyboard/mouse adapter cable

Table 1-2
Remote Insight Lights-Out Edition System Using the Keyboard/Mouse Cable

Item Number	Item
❶	Remote Insight Lights-Out Edition board installed in a server
❷	AC adapter connected to the Remote Insight Lights-Out Edition board
❸	Monitor connected to the Remote Insight Lights-Out Edition board
❹	Keyboard connected to the Remote Insight Lights-Out Edition board
❺	Mouse connected to the Remote Insight Lights-Out Edition board
❻	LAN connected to the Remote Insight Lights-Out Edition board

Figure 1-3 shows how the Remote Insight Lights-Out Edition board connects to the server, peripheral devices, the power source, and the LAN for servers that use the 16-pin internal Virtual Power Button.

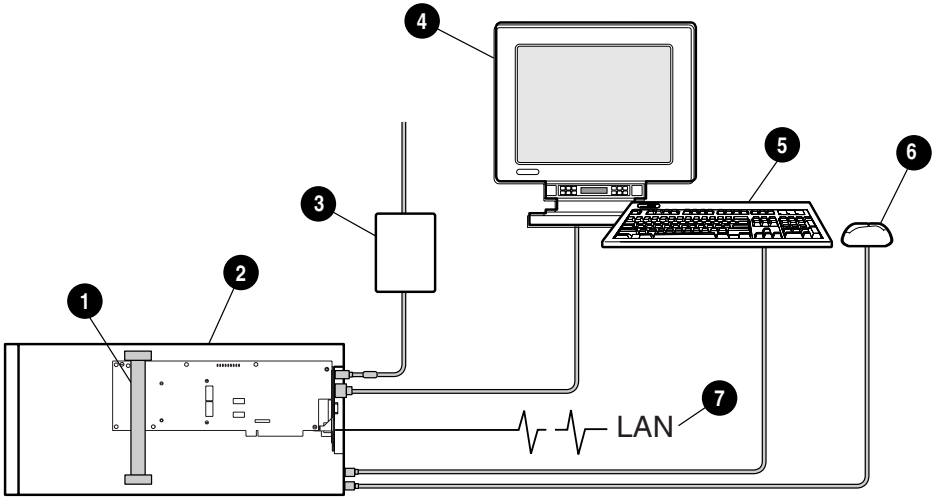

Figure 1-3. Remote Insight Lights-Out Edition system using the 16 pin internal Virtual Power Button, keyboard/mouse, and power cable

Table 1-3
Remote Insight Lights-Out Edition System Using the 16 Pin Internal Virtual Power Button Cable

Item Number	Item
❶	Internal Virtual Power Button, keyboard, mouse, and power cable (16 pin)
❷	Remote Insight Lights-Out Edition board installed in a server
❸	AC adapter connected to the Remote Insight Lights-Out Edition board
❹	Monitor connected to the Remote Insight Lights-Out Edition board
❺	Keyboard connected to the Remote Insight Lights-Out Edition board
❻	Mouse connected to the Remote Insight Lights-Out Edition board
❼	LAN connected to the Remote Insight Lights-Out Edition board

Chapter **2**

Installing the Remote Insight Lights-Out Edition

The following sections guide you through the process of installing a Remote Insight Lights-Out Edition board in your server:

- Preparing the Remote Insight Lights-Out Edition board
- Disassembling the Server
- Determining an Available Slot
- Installing the Remote Insight Lights-Out Edition Board in the Server
- Installing the Virtual Power Button Cable
- Reassembling the Server
- Connecting External Cables to the Remote Insight Lights-Out Edition Board

WARNING: Some Compaq ProLiant servers are capable of producing energy levels that are considered hazardous. Do not remove enclosures or bypass the interlocks provided to protect against these hazardous conditions. Installation of accessories and options in areas other than front hot-plug bays should be performed by individuals who are both qualified in the servicing of computer equipment and trained in the hazards associated with products capable of producing hazardous energy levels. Refer to the documentation provided with the server for additional information on installing options in the server.

Preparing the Remote Insight Lights-Out Edition Board

Before installing the Remote Insight Lights-Out Edition board, ensure that you have the documentation provided with your server, the correct parts needed to install the board, and the correct cables for your server.

IMPORTANT: Before you install the Remote Insight Lights-Out Edition board, remove the Network settings tag from the board and set it aside. You will use the information on this tag during configuration of the board.

Installing the PCI Extender Bracket

If you are installing the Remote Insight Lights-Out Edition board in a shared EISA/PCI slot, attach the PCI extender bracket to the board before installing the board in the server. This bracket is not needed when installing the board in PCI-only slots.

CAUTION: The screws shown in Figure 2-1 are self-tapping and some amount of force is required for installation. Caution is required to prevent damage to the Remote Insight Lights-Out Edition board.

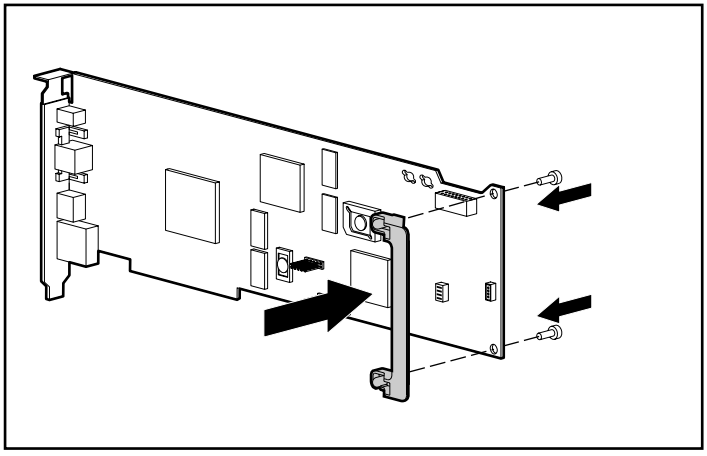

Figure 2-1. Installing the PCI board extender bracket

To install the PCI board extender bracket:

1. Hold the board so the side connector bracket is to your left and the board edge connector is down, as shown in Figure 2-1.

2. Align the extender so that the screw holes line up with the holes at the right edge of the board. The extender should extend out past the right edge of the board. Insert the screws from the bottom side of the board and tighten.

Disassembling the Server

Follow the directions in your server documentation for disassembling the server to install an option board.

Determining an Available Slot

Before installing the Remote Insight Lights-Out Edition board, refer to Table 2-1 to select an unused PCI slot, the cables used, and the video switch settings for your server. If your server is not listed in Table 2-1, an updated version of this table is available on the Compaq website:

www.compaq.com/lights-out

Your server should have the latest system ROM revision that is available for your server. For instructions on updating the system ROM of your server, refer to your server's documentation and to the instructions on using the Virtual Floppy Drive of the Remote Insight Lights-Out Edition in Chapter 4. To download the latest ROMPaq upgrade for your server, go to the Compaq website:

www.compaq.com/support/files

Table 2-1
Server PCI Slot and Cable Matrix

Servers	PCI Slot	Virtual Power Button Cable	AC Adapter	Keyboard Mouse Adapter Cable	Disable Onboard Video Using the Dip Switch
Prosignia 200	any PCI		Y	Y	
Prosignia 300	any PCI		Y	Y	
Prosignia 500	any PCI		Y	Y	
Prosignia 720	any PCI		Y	Y	Y

continued

Table 2-1
Server PCI Slot and Cable Matrix *continued*

Servers	PCI Slot	Virtual Power Button Cable	AC Adapter	Keyboard Mouse Adapter Cable	Disable Onboard Video Using the Dip Switch
Prosignia 740	any PCI		Y	Y	
ProLiant CL380	1	A	Y	Y	
ProLiant CL1850	any PCI	E	Y	Y	
ProLiant DL320	2	B	N	N	
ProLiant DL360	1	C	N	N	
ProLiant DL380	1	A	Y	Y	
ProLiant DL380 G2	1	F	N	N	
ProLiant DL580	6	A	Y	Y	
ProLiant DL760	9	D	Y	N	
ProLiant ML330	4	B	Y	N	Y
ProLiant ML350	4	A	Y	Y	Y
ProLiant ML350, 1GHz	4	A	N	Y	Y
ProLiant ML370	1, 2	A	Y	Y	
ProLiant ML370 G2	6	B	N	N	
ProLiant ML530	1	A	Y	Y	
ProLiant ML570	6	A	Y	Y	
ProLiant ML750	1, 2, 3, 4	E	Y	Y	
ProLiant 400	any PCI		Y	Y	Y
ProLiant 800	any PCI		Y	Y	
ProLiant 800 350e, 400, 450	1, 2		Y	Y	
ProLiant 800 6/350e, 6/400	1, 2		Y	Y	
ProLiant 850R	any PCI		Y	Y	
ProLiant 1200	4, 5, 6		Y	Y	

continued

Table 2-1
Server PCI Slot and Cable Matrix *continued*

Servers	PCI Slot	Virtual Power Button Cable	AC Adapter	Keyboard Mouse Adapter Cable	Disable Onboard Video Using the Dip Switch
ProLiant 1500	any PCI		Y	Y	
ProLiant 1500R	any PCI		Y	Y	
ProLiant 1600	4, 5, 6		Y	Y	
ProLiant 1850R	any PCI	E	Y	Y	
ProLiant 2500	4, 5, 6		Y	Y	
ProLiant 3000	1, 2, 3, 4		Y	Y	
ProLiant 5000	5, 6, 7, 8		Y	Y	
ProLiant 5500 Pentium Pro	1, 2, 3, 4		Y	Y	
ProLiant 5500 Xeon	6, 7		Y	Y	
ProLiant 6000 Pentium Pro	3, 4, 5, 6		Y	Y	
ProLiant 6000 Xeon (with Cirrus Logic video chip)	3, 4		Y	Y	
ProLiant 6000 Xeon (with ATI Rage IIc video chip)	3, 4		Y	Y	
ProLiant 6400R	5, 6		Y	Y	
ProLiant 6500 Pentium Pro	1, 2 (non-hot -plug)		Y	Y	
ProLiant 6500 Xeon	5, 6		Y	Y	
ProLiant 7000 Pentium Pro	3, 4, 5, 6 (non-hot -plug)		Y	Y	
ProLiant 7000 Xeon (with Cirrus Logic video chip)	3, 4		Y	Y	

continued

Table 2-1
Server PCI Slot and Cable Matrix *continued*

Servers	PCI Slot	Virtual Power Button Cable	AC Adapter	Keyboard Mouse Adapter Cable	Disable Onboard Video Using the Dip Switch
ProLiant 7000 Xeon (with ATI Rage IIc video chip)	1, 2		Y	Y	
ProLiant 8000 Xeon	1, 2, 3, 4	E	Y	Y	
ProLiant 8500 Xeon (servers shipped with 550 MHz processors with configuration codes CL61, CL64, BX71, or BX72)	7, 8, 9	D	Y	Y	
ProLiant 8500 Xeon (server shipped with 700 MHz and higher processors)	7, 8, 9	A	Y	Y	

Note: Virtual power button cables description and part numbers

A = P/N 160011-001 (4-pin cable) ships with RILOE kit.

B = P/N 177634-001 (16-pin cable) ships with the RILOE kit.

C = P/N 177634-002 (16-pin cable) ships with ProLiant DL 360 servers.

D = P/N 195254-B21 (4-pin cable) available as a spare kit P/N 195724-001.

E = P/N 162816-001 (split 4-pin cable) ships with the RILOE kit.

F = P/N 233763-001 (split 16 to 30-pin cable) ships with the DL380 G2 server.

Installing the Remote Insight Lights-Out Edition Board in the Server

CAUTION: Electrostatic discharge (ESD) can damage electronic components. Be sure you are properly grounded before beginning this procedure. See Appendix B for ESD information.

Follow these steps to install the Remote Insight Lights-Out Edition board in the server:

1. Refer to Table 2-1 and select an available supported slot.
2. Loosen the retaining screw and remove the slot cover. If the Remote Insight Lights-Out Edition board is being installed into a hot-plug slot, release the slot lever and then remove the slot cover.
3. Press the Remote Insight Lights-Out Edition board firmly into the slot.
4. Secure the board in place with the retaining screw, or close the hot-plug slot lever, as appropriate.
5. Some Compaq servers, such as the Prosignia 200 and the ProLiant 800, contain PCI-based VGA controllers. These controllers must be removed to configure the VGA controller on the Remote Insight Lights-Out Edition board.

   Some servers may require the onboard video to be disabled. See Table 2-1 for details on your server.

IMPORTANT: The ProLiant ML330 server requires the special 16-pin internal Virtual Power Button cable, and power adapter included in the Remote Insight Lights-Out Edition kit. This cable connects the Remote Insight Lights-Out Edition board to the ML330 system board by means of a 16-pin connector located on the rear of the Remote Insight Lights-Out Edition next to the PCI extender bracket. Refer to the documentation provided with your server for more information.

Installing the Virtual Power Button Cable

The Virtual Power Button feature is available for the Compaq ProLiant CL, DL, ML, 1850R, 8000, 8500 servers, and future Compaq ProLiant servers. To use the Virtual Power Button feature, a Virtual Power Button cable must be installed.

Installing Virtual Power Button Cable P/N 162816-001

For the Compaq ProLiant servers that do not have a four-pin connector on the system board, use a retrofit cable, Compaq part number 162816-001. The retrofit cable has a four-pin connector on one end, two wires connecting the two ends, and four connectors (two male and two female) on the other end.

NOTE: For a list of servers that use this cable see Table 2-1.

To install the Virtual Power Button cable:

1. Power down your server and disconnect all power cords to remove the power from the server.
2. Connect the four-pin connector on the Virtual Power Button cable to the Virtual Power Button cable connector on the Remote Insight Lights-Out Edition board. This four-pin connector is located on the rear of the Remote Insight Lights-Out Edition board next to the PCI extender bracket.
3. Disconnect the two cables that plug into the momentary power pushbutton switch on the server.
4. Connect two connectors from the Virtual Power Button cable to the momentary power pushbutton switch on the server.

   NOTE: The orientation of the two power connectors does not matter.

5. Connect the server momentary power pushbutton switch cables to the two remaining connectors on the virtual power switch cable.

   NOTE: For detailed instructions on the location of the momentary power pushbutton switch on the server, refer to the documentation provided with your server.

Installing Virtual Power Button Cable P/N 160011-001

For Compaq servers that use a four-pin connector on the server system board use the cable (Compaq part number 160011-001) to enable the Virtual Power Button feature of the Remote Lights-Out Edition board. This cable has a keyed four-pin connector on both ends.

NOTE: For a list of servers that use this cable see Table 2-1.

To install the Virtual Power Button cable:

1. Power down your server and disconnect all power cords to remove the power from the server.
2. Connect the four-pin connector on the cable to the Virtual Power Button cable connector on the Remote Insight Lights-Out Edition board. This is a four-pin connector located on the rear of the Remote Insight Lights-Out Edition board next to the PCI extender bracket.

3. Connect the four-pin connector on the other end of the cable into the four-pin connector on the server system board.

NOTE: For detailed instructions on the location of the four-pin connector on the server system board, refer to the documentation provided with your server.

Installing Virtual Power Button Cable P/N 177634-001

For Compaq servers that use a 16-pin cable on the server system board, use the cable (Compaq part number 177634-001) enable the Virtual Power Button feature of the Remote Lights-Out Edition board.

NOTE: For a list of servers that use this cable see Table 2-1.

To install the Virtual Power Button cable:

1. Power down your server and disconnect all power cords to remove the power from the server.
2. Connect the 16-pin connector on the cable to the 16-pin Virtual Power Button cable connector on the Remote Insight Lights-out Edition board. This is located on the edge of the board.
3. Connect the 16-pin connector on the other end of the cable to the 16-pin header on the server system board.

NOTE: For detailed instructions on the location of the 16-pin connector on the server system board, refer to the documentation provided with your server.

Reassembling the Server

Follow the directions in your server documentation to reassemble the server.

Connecting External Cables to the Remote Insight Lights-Out Edition Board

After you have installed the Compaq Remote Insight Lights-Out Edition board in your server, you must make external cable connections. The connectors on the Remote Insight Lights-Out Edition board are shown in Figure 2-2.

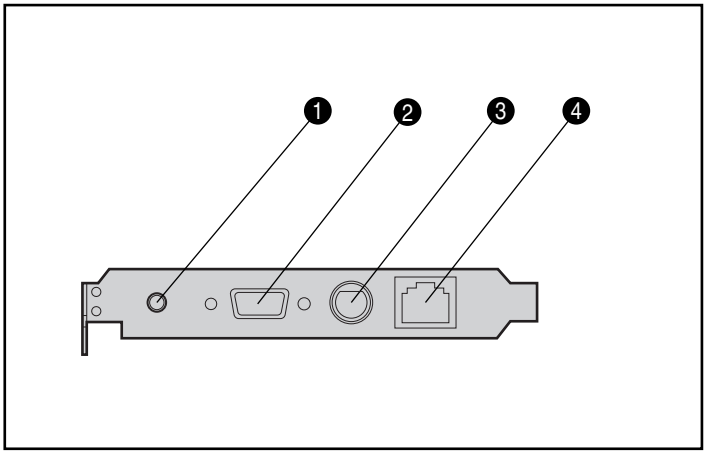

Figure 2-2. Remote Insight Lights-Out Edition connectors

Table 2-2
Remote Insight Lights-Out Edition Connectors

Item	Connector
❶	AC adapter connector
❷	Video connector
❸	Keyboard/mouse connector
❹	LAN connector

Keyboard/Mouse Adapter Cable Connection

To provide remote keyboard and mouse control, the keyboard and mouse signals must pass through the Remote Insight Lights-Out Edition board. This allows the Remote Insight Lights-Out Edition board to send keystrokes from the remote user to the server through the keyboard cable.

NOTE: Some servers use an internal cable for keyboard and mouse and do not require you to use the keyboard/mouse adapter cable. Refer to Table 2-1 to see if your server requires the keyboard/mouse cable.

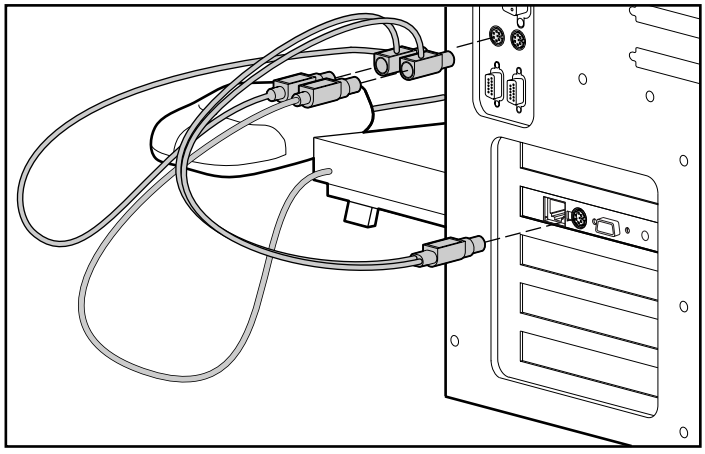

Figure 2-3. Connecting the keyboard/mouse adapter cable

Follow these steps to connect the keyboard/mouse adapter cable for servers that require this cable:

NOTE: For headless server deployment, you do not have to connect the keyboard and mouse cables to the server. However, to have remote keyboard and mouse capabilities, you must connect the keyboard/mouse adapter cable provided with the Remote Insight Lights-Out Edition board to the host server.

1. Disconnect the keyboard and mouse from the server.
2. Use the keyboard/mouse adapter cable provided in the Remote Insight Lights-Out Edition option kit to connect the keyboard and mouse, as shown in Figure 2-3.

Monitor Cable Connection

The Remote Insight Lights-Out Edition board contains its own VGA controller to ensure that a compatible controller is available for remote console operation. To use a monitor in a server that has the Remote Insight Lights-Out Edition board installed, connect the monitor to the Remote Insight Lights-Out Edition video connector.

IMPORTANT: Some servers require the onboard video to be disabled for the Remote Insight Lights-Out Edition board to work properly. Refer to Table 2-1 for a list of servers that require the Onboard video to be disabled. For instructions on disabling the onboard video, refer to the documentation provided with the server.

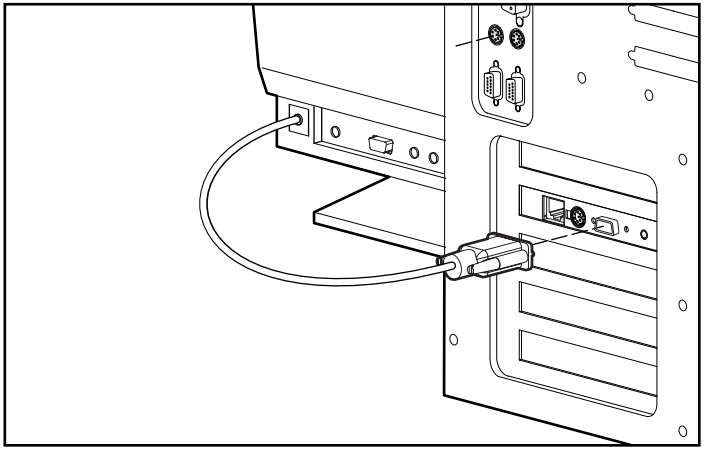

Figure 2-4. Connecting the monitor cable

Follow these steps to connect the monitor signal cable:

NOTE: For headless server deployment, you do not have to connect a monitor to the server or to the Remote Insight Lights-Out Edition video connector.

1. Disconnect the monitor signal cable from the server monitor connector.
2. Connect the monitor signal cable to the video connector on the Remote Insight Lights-Out Edition board.

LAN Cable Connection

To access the Remote Insight Lights-Out Edition board using TCP/IP across a 10-MB or 100-MB Ethernet network, connect the LAN cable from the LAN connector on the Remote Insight Lights-Out Edition board to the LAN jack of a network hub or network switch.

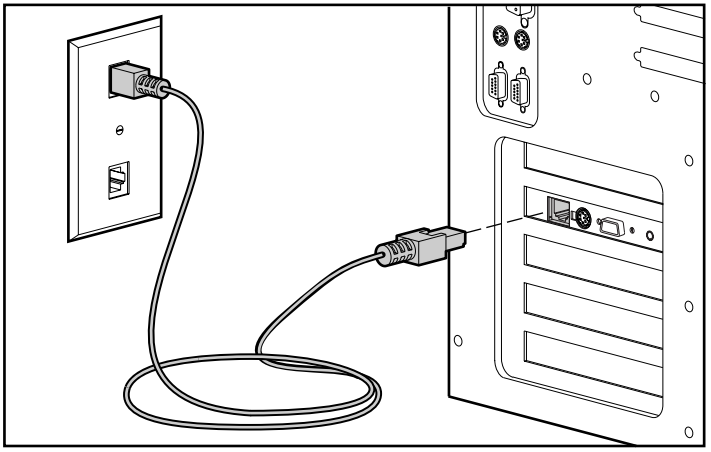

Figure 2-5. Connecting the LAN cable

The two LED indicators located adjacent to the RJ-45 connector on the Remote Insight Lights-Out Edition board indicate network connectivity while the server is on.

The green LED indicator is lit when a link is present from the Ethernet hub, and the LED indicator blinks to indicate network traffic.

The amber LED indicator is lit to indicate a 100-MB network connection. If the LED is not lit, the board is connected at 10-MB.

AC Power Adapter Connection

The Remote Insight Lights-Out Edition board is equipped with an external power supply to allow for independent operation from the server. With the AC power adapter connected you can access alerts from the server indicating server power supply problems, the power state of the server, and temperature alerts that may have turned the server off. To increase server manageability, Compaq recommends connecting the AC power adapter to a separate power circuit than the server. Connect the AC power adapter cable as shown in Figure 2-6.

IMPORTANT: The AC power adapter cable is not necessary if you are installing the Remote Insight Lights-Out Edition board in a Compaq ProLiant CL, DL, and ML server that uses the 16-pin Virtual Power Button cable. This cable connects the Remote Insight Lights-Out Edition board to the server system board, enabling auxiliary power, remote keyboard and mouse control, and the Virtual Power Button feature of the Remote Insight Lights-Out Edition board. For additional information on installing the Remote Insight Lights-Out Edition board in a Compaq ProLiant CL, DL, and ML server, refer to the documentation provided with your server.

IMPORTANT: The Compaq ProLiant ML330 server requires the installation of the power adapter, included in the Remote Insight Lights-Out Edition kit. For detailed information refer to the documentation provided with your server.

NOTE: The Remote Insight Lights-Out Edition board will work without the AC power adapter connected when the server is on. The AC power adapter is a feature intended to provide power to the Remote Insight Lights-Out Edition board if the server loses power. If you do not use the AC power adapter and the server loses power, then you will not be able to access the Remote Insight Lights-Out Edition board from a remote console.

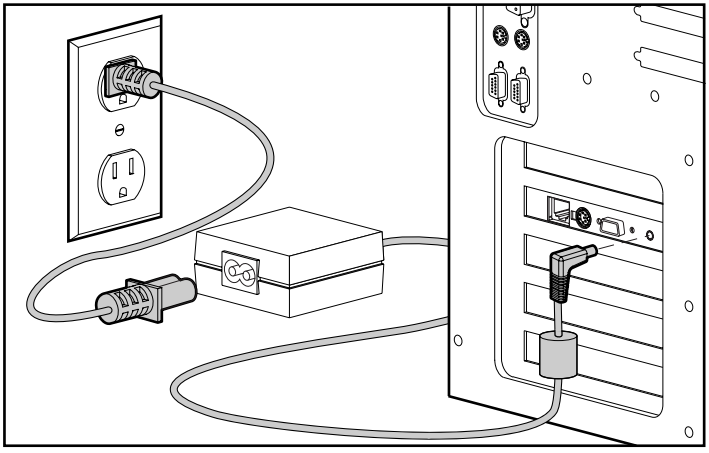

Figure 2-6. Connecting the AC power adapter cable

Server Power Cable Connection

After you have connected the cables you will use with the Remote Insight Lights-Out Edition board, connect the power cord to the server and power up the server by following these steps:

1. Plug the AC main power cord into the server, then into a grounded AC outlet.

WARNING: To reduce the risk of electric shock or damage to the equipment:

- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
- Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
- Disconnect power from the server by unplugging the power cord from either the electrical outlet or the server's AC input.

2. Turn on any peripheral devices attached to the server.
3. Turn on the server.

Chapter **3**

Remote Insight Lights-Out Edition Configuration Parameters

This chapter describes the Remote Insight Lights-Out Edition configuration parameters. Each of the parameters discussed in this chapter is listed in Table 3-1. You can record your settings in the "Your Value" column of the table.

Table 3-1
Remote Insight Configuration Parameters

Parameters	Default Value or Setting	Your Value
Server Identification		
PCI Resources	IRQ5 (set by the BIOS)	
Server Name		
Server ID		
Serial Number	xxxxxx-xxx	NA
Firmware Version	xx.xx	NA
Firmware Date	mm/dd/yyyy	NA

continued

Table 3-1
Remote Insight Configuration Parameters *continued*

Parameters	Default Value or Setting	Your Value
Network Interface		
Status	Enabled	
Transceiver Speed Autoselect	Enabled	
Speed	Autoselect	
Duplex	Autoselect	
IP Address	0.0.0.0	
HTTP Port	80	
Remote Console Port	23	
Default Gateway	0.0.0.0	
Subnet Mask	255.255.255.0	
MAC Address	Assigned at factory	NA
DNS Name	RIBXXXXXXXXXXX, where the 12 Xs are the MAC address (assigned at the factory)	
DNS/DHCP	Enabled	
DHCP Supplied Gateway	Enabled	
DHCP Supplied DNS Servers	Enabled	
DHCP Supplied WINS Servers	Enabled	
DHCP Supplied Static Routes	Enabled	
Register with WINS Server	Enabled	
Board Name		
Domain Name		
DHCP Server	Assigned	
Primary, Secondary, and Tertiary DNS Servers	0.0.0.0	
Primary, Secondary, and Tertiary WINS Servers	0.0.0.0	
Static Routes #1, #2, #3	0.0.0.0, 0.0.0.0	
IP Address for Web Agents		

continued

Table 3-1
Remote Insight Configuration Parameters *continued*

Parameters	Default Value or Setting	Your Value
Configure Users		
User 1		
User Name		
Login Name	Administrator	
Password	Last 4 digits of the serial number	
Enforced Client IP Address	None	
SNMP IP Address		
Receive Host OS Generated SNMP Traps	No	
Receive Remote Insight Board Alerts	No	
Supervisor Access	No	
Login Access	Yes	
Remote Console Access	Yes	
Remote Server Reset and Power Button Access	Yes	
Other Parameters		
Keyboard	Selectable depending on country	
Language	Selectable depending on country	

Server Identification

The following parameters provide information about the host server.

PCI Resources

This field shows the interrupt reserved for PCI resources. The default value is IRQ 5 and is set by the BIOS.

Server Name

Enter a name for the host server. This name can be anything meaningful to you for identification purposes. The name can consist of any combination of numbers or letters up to 48 characters.

If the Insight Management agents are being used with the host server operating system, they will provide the Remote Insight Lights-Out Edition board with the server name.

Server ID

Enter an ID number for the host server. This number can be anything meaningful to you for identification purposes. The number can consist of up to eight digits as long as there are no blank spaces.

Serial Number

This is the serial number of the Compaq Remote Insight Lights-Out Edition board. The number is displayed for your information. You cannot alter this number.

Firmware Version

This is the version number of the Remote Insight Lights-Out Edition firmware resident on the board. It is for your information only and cannot be altered.

Firmware Date

This is the date of the firmware version resident on the Remote Insight Lights-Out Edition board. It is displayed for your information only and cannot be altered. The date format is:

mm/dd/yyyy

where

mm is the month

dd is the day

yyyy is the year

Network Interface

The following parameters provide information about the Remote Insight Lights-Out Edition LAN settings.

Status

Status reflects the state of the Remote Insight Lights-Out Edition NIC. The default setting for the NIC is enabled. If DHCP is turned off, you will need to assign a static IP address to the Remote Insight Lights-Out Edition NIC. Assign the IP address using the IP Address parameter described in this section.

Transceiver Speed Autoselect

Autoselect detects the interface speed and sets the interface to operate at 10 MB or 100 MB and at half or full duplex. If necessary, this parameter can be set to manual to allow manual adjustment of speed and duplex settings.

Speed

Use this setting to assign 10-MB or 100-MB connect speeds if the Transceiver Speed Autoselect is not enabled.

Duplex

Use this setting to assign half or full duplex to the NIC if the Transceiver Speed Autoselect is not enabled.

IP Address

When you use the Remote Insight Lights-Out Edition NIC, use this parameter to assign a static IP address on your network to the Remote Insight NIC. The default value is 0.0.0.0. This procedure is only necessary if DHCP is not being used.

HTTP Port

The Remote Insight Lights-Out Edition HTTP port will use the standard port 80 setting. This setting can be changed by means of the Web interface as required by your environment.

Remote Console Port

The Remote Insight Lights-Out Edition Remote Console port uses the default setting of 23. This setting can be changed by means of the Web interface as required by your environment.

Default Gateway

Use the default gateway parameter to assign the IP address of the network router that connects the Remote Insight subnet to another subnet where the management PC resides. The default value is 0.0.0.0. This field may be filled in if DHCP is enabled.

Subnet Mask

Use the subnet mask parameter to assign the subnet mask for the default gateway. The default value is 255.255.255.0. This field may be filled in if DHCP is enabled.

MAC Address

This is the factory-assigned medium access control MAC address. It is the hardware address assigned to the Remote Insight Ethernet NIC. You cannot change this value.

DNS Name

The Remote Insight Lights-Out Edition board comes preset with a DNS name. The DNS name is RIB plus the MAC address of the Remote Insight Lights-Out Edition board. To find the MAC address, look for a sticker on the Remote Insight Lights-Out Edition board. This name also is displayed on the tag attached to the bracket of the Remote Insight Lights-Out Edition board.

DNS/DHCP

The Remote Insight Lights-Out Edition board comes preset from Compaq with DNS/DHCP enabled. To disable DHCP, you must use the ROM-based Setup Utility. Refer to Chapter 4 for setup instructions.

NOTE: If you disable DHCP, you will have to manually set up the IP address and the subnet mask using the ROM-based Setup Utility.

If DHCP is enabled, the settings Use DHCP Supplied Gateway, Use DHCP Supplied DNS Servers, Use DHCP Supplied WINS Servers, and Use DHCP Supplied Static Routes are also enabled. If DHCP has been disabled, these settings may have to be assigned.

Register with WINS Server

The Remote Insight Lights-Out Edition will automatically register with a WINS server. The default setting is enabled.

Board Name

Enter a name for the Remote Insight Lights-Out Edition board. This setting can be anything meaningful to you for identification purposes. The name can consist of any combination of numbers or letters.

Domain Name

Enter the name of the domain that the Remote Insight Lights-Out Edition board will participate in.

DHCP Server

This setting is automatically detected if DHCP is enabled. You will not be able to change this setting.

Primary, Secondary, and Tertiary DNS Servers

Use this parameter to assign a unique DNS server IP address on your network. The default value is 0.0.0.0.

Primary, Secondary, and Tertiary WINS Servers

Use this parameter to assign a unique WINS server IP address on your network. The default value is 0.0.0.0.

Static Routes #1, #2, #3

Use this parameter to assign a unique Static Route destination and gateway IP address on your network. The default IP values are 0.0.0.0 and 0.0.0.0. The first IP address corresponds to the destination IP, and the second IP address corresponds to the gateway IP.

IP Address for Web Agents

Use this setting to specify the IP address for the Web agents that the Remote Insight Lights-Out Edition board will be configured to use.

Configure Users

The Configure Users section allows you to define the users currently configured for access to the Remote Insight Lights-Out Edition. Up to 12 users can be specified. User configurations can be added, deleted, or modified by using the Web interface.

User Name

This parameter is the user's real name as it is to display in the user list and event log. It is not the name used to log in. The maximum length of the user name is 48 characters.

Login Name

This is a case-sensitive name that the user must provide to log in to the Remote Insight Lights-Out Edition board.

Password

This is a case-sensitive password that the user must provide to log in to the Remote Insight Lights-Out Edition board. The password must be at least 8 characters long and up to a maximum of 48 characters. You must enter the password twice for verification.

Enforced Client IP Address

The default setting is none. You can change this setting by assigning a specific IP address, an IP address range, or a DNS name. Client logon attempts that do not meet the specified requirements will be rejected.

SNMP IP Address

Enter the IP address of the remote management PC that will receive SNMP trap alerts from the Remote Insight Lights-Out Edition board.

Receive Host OS Generated SNMP Traps

These alerts are generated by the Insight Management agents provided for each supported network operating system. The agents must be installed on the host server to receive these alerts. These alerts are sent to Compaq Insight Manager XE clients on the network and are forwarded asynchronously by Remote Insight to users that have been configured to receive them. The default for this field is No.

Receive Remote Insight Board Alerts

These alert conditions are detected by Remote Insight and are independent of the host server operating system. These alerts can be Compaq Insight Manager XE SNMP traps or pager alerts. These alerts include major events such as remote server power outages or server resets. They also include Remote Insight Lights-Out Edition events, such as a disconnected keyboard cable or a failed login attempt. The alerts are forwarded by the Remote Insight Lights-Out Edition board to a Compaq Insight Manager XE console. The default for this field is No.

Select the access rights for each configured user. The allowed choices are described in the following sections.

Supervisor Access

If you set a user to supervisor mode, the login access, remote console access, and remote server reset access rights are automatically set to On. If you turn off any access right, the supervisor status is automatically turned off.

A user with supervisor status can remotely add, delete, and modify the configurations of other Remote Insight users.

Login Access

If you have login access turned off, you may still receive alerts on a Compaq Insight Manager XE console if you enable the alerts features. Login access can be used to create a user who is a service provider and who will receive alerts from the board but does not have login access to the Remote Insight Lights-Out Edition board. If a user is in supervisor mode, you cannot turn off the user's login access.

Remote Console Access

Users may have login access, but no access to the remote host server console. If the user is in supervisor mode, you cannot turn off the user's Remote Console access.

Remote Server Reset Access and Power Button Access

Users may have login access, but no access to remote server reset. If the user is in supervisor mode, you cannot turn off the user's remote server reset access.

Other Parameters

Keyboard

This parameter indicates which country-specific keyboard is attached to the remote host server. The default is US.

Language

This parameter indicates which country-specific code page needs to be used for the keyboard and console on the remote host server. The default is English.

Chapter **4**

Configuring the Remote Insight Lights-Out Edition

After you have installed the Remote Insight Lights-Out Edition board in your server, as instructed in Chapter 2, and have made all necessary peripheral connections, you must configure the Remote Insight Lights-Out Edition board.

Installing and Configuring Software

The Remote Insight Lights-Out Edition board offers several versatile configuration options:

- Remote Setup

  Use this method on a server with the operating system already installed and the server NIC configured. Installation and setup are done at a remote console.

- SmartStart Setup

  Use this method to set up a new server that contains a Remote Insight Lights-Out Edition board. Installation and setup are done at the host server using SmartStart. Servers running Microsoft Windows NT also require the Remote Insight drivers and Service Pack 3 or later.

- ROM-Based Setup Utility using the **F8** key

  ROM-Based Setup Utility (**F8)** is the recommended method to initially set up the Remote Insight Lights-Out Edition board. The ROM-Based Setup Utility is useful for setting up servers that do not use DNS/DHCP. The ROM-Based Setup Utility is available every time the server is booted and may be run remotely using the Remote Insight Lights-Out Edition Remote Console.

- System Configuration Utility Setup using the **F10** key

  Use this method for servers that use the System Configuration Utility (**F10)** to configure the server. After using the System Configuration Utility at the host server, install the Remote Insight drivers and agents for your operating system.

- ROM-Based Setup Utility using the **F9** key

  Newer Compaq servers use the ROM-Based Setup Utility (**F9)** to configure the server. Servers that use the ROM-Based Setup Utility (**F9)** do not use the System Configuration Utility. The ROM-Based Setup Utility (**F9)** does not provide configuration for the Remote Insight Lights-Out Edition board. Servers that use the ROM-Based Setup Utility (**F9)** to configure the server need to use the ROM-Based Setup Utility (**F8)** to configure the Remote Insight Lights-Out Edition board.

- Preinstalled Operating System Configuration Setup

  Use this method if you have purchased a new server equipped with a Remote Insight Lights-Out Edition board and an operating system that was preinstalled by Compaq.

To install the appropriate device drivers for your server's operating system, refer to the following sections:

- Windows NT Driver Support
- Windows 2000 Driver Support
- NetWare Driver Support
- OS/2 Driver Support
- SCO Driver Support
- Red Hat Linux Support

NOTE: Some Compaq servers contain DIP switches on the system board to control certain security settings. Before beginning configuration, if the server is equipped with a Configuration Lock Switch, set this switch to off (unlocked). See the documentation or hood labels that shipped with the server for more information about the Configuration Lock Switch. When configuration is complete, return the switch to the on (locked) position.

Regardless of the configuration method used, be aware of the configuration parameters that are involved. Use chapter 3 to determine what parameters you need set up the board. Leave parameters set to their default values unless you know that they should be changed for your environment. Before starting SmartStart, ROM-Based Setup Utility (**F8),** or the System Configuration Utility (**F10**), record the values for your installation on the Table 3-1 in Chapter 3.

Remote Setup

Use this method on a server with the operating system already installed and the server NIC configured. Installation and setup are done at a remote console.

1. Using a standard Web browser, access the Remote Insight Lights-Out Edition board from a remote network client, providing the default DNS name, user name, and password on the Network settings tag supplied with the board.
2. When you successfully log on to the Remote Insight Lights-Out Edition board, you will be able to change the default values of the network, user, and SNMP alerting settings through the Web browser interface of the Remote Insight Lights-Out Edition. You will also be able to install operating system drivers and Compaq Insight Manager XE agents on the remote host server using the graphical Remote Console.

SmartStart Setup

Use the following SmartStart setup method to set up a new server that contains a Remote Insight Lights-Out Edition board:

1. Insert the SmartStart and Support Software CD into the server CD-ROM drive and power up the server.
2. Navigate through the language, country, keyboard, and time and date screens to get to the **SmartStart Roadmap** screen (three-path screen).
3. Click **Assisted Integration Path** and click **Begin**.
4. Follow the instructions on the screen to configure the server.
5. Use the parameters from Table 3-1 to complete the configuration screens when you get to the Remote Insight Lights-Out Edition screen. Press the **F1** key to receive context-sensitive help for the current screen.
6. When the **Configuration Complete** dialog box displays, select **Summary** to review your configuration parameters for Automatic Server Recovery (ASR) and the Remote Insight Lights-Out Edition board. Click **Back** to return to any screen that needs to be changed.
7. Click **Finish** when you are satisfied that ASR and Remote Insight are set up correctly for your configuration (see Table 3-1).

IMPORTANT: During a Windows NT installation of the Remote Insight Lights-Out Edition board using SmartStart, do not select to install **Compaq Remote Insight WAN Driver** (RIBWAN.SYS). The Remote Insight Lights-Out Edition board does not use or support RIBWAN.SYS. Installing RIBWAN.SYS may cause server performance problems.

Your server and Remote Insight Lights-Out Edition will be operational after the SmartStart process completes. For information about using the features of the Remote Insight Lights-Out Edition board, refer to Chapter 5 or the online help for the Remote Insight Lights-Out Edition board on the Compaq Management CD.

ROM-Based Setup Utility Using the F8 Key

ROM-Based Setup Utility (**F8**) is the recommended method to set up your Remote Insight Lights-Out Edition board. The ROM-Based Setup Utility is a feature of the Remote Insight Lights-Out Edition bOard.

1. Restart or power up the server.
2. Press the **F8** key to enter the ROM-Based Setup Utility when the cursor flashes and the Remote Insight Lights-Out Edition prompt displays on the screen.
3. Make and save any necessary changes to the Remote Insight Lights-Out Edition board.
4. Exit the ROM-Based Setup Utility when finished.

Disabling DNS/DHCP

Compaq recommends using DNS/DHCP with the Remote Insight Lights-Out Edition board to simplify installation. In the event that DNS/DHCP cannot be used, use the following procedure to disable DNS/DHCP and to configure the IP address and the subnet mask:

1. Restart or power up the server.
2. Press the **F8** key to enter the ROM-Based Setup Utility when the cursor flashes and the Remote Insight Lights-Out Edition prompt displays on the screen.

   NOTE: Use the arrow keys to highlight selections.

3. Select **Network**, **DNS/DHCP**, and press the **Enter** key. The **Network Autoconfiguration** screen will open.
4. Select **DHCP Enable** and press the spacebar to turn off DHCP. Ensure that DHCP Enable is set to **off** and press the **Enter** key to save the changes.

   NOTE: It will take a few minutes for the board to save the network changes and to reset.

5. Select **Network, NIC and TCP/IP,** and press the **Enter** key. The **Network Configuration** screen opens.
6. Select the **IP Address** field, delete the address in the field, and type the IP address.
7. Select the **Subnet Mask** field, delete the address in the field, and type the subnet mask.

8. Press the **Enter** key to save the changes.

   NOTE: It will take a few seconds for the board to save the network changes and to reset.

9. To exit the ROM-Based Setup Utility, select **File, Exit,** and press the **Enter** key.

System Configuration Utility Setup Using the F10 Key

For existing servers that have been configured previously and that use the System Configuration Utility, use the following setup method to install a Remote Insight Lights-Out Edition board:

1. Restart or power up the server.
2. Press the **F10** key to enter the System Configuration Utility when the cursor flashes at the top right corner of the screen.
3. Select **System Configuration**, **Configure Hardware, Review or Modify Hardware Settings,** and **View or Edit Details.** Locate the Compaq Remote Insight Lights-Out Edition section in the list of boards.
4. Make any necessary changes and press the **F10** key until you reach the **Steps in Configuring Your Computer** menu.
5. Highlight the **Save and Exit** option and press the **Enter** key.
6. Answer **YES** to reset the board. This process may take a few minutes.

After adding the Remote Insight Lights-Out Edition board to your server using the System Configuration Utility, you must install the Remote Insight drivers for your operating system. See the following section for instructions on installing the drivers for your operating system.

ROM-Based Setup Utility Using the F9 Key

Servers that use the ROM-Based Setup Utility (**F9)** to configure the server need to use ROM-Based Setup Utility (**F8)** to configure the Remote Insight Lights-Out Edition board. Refer to the section, “ROM-Based Setup Utility Using the F8 Key” earlier in this chapter.

Preinstalled Operating System Configuration Setup

Use one of the following preinstalled operating system configuration setup methods if you have purchased a new server equipped with a Remote Insight Lights-Out Edition board and an operating system preinstalled from Compaq.

Windows NT

1. Open Windows Explorer from the **Start** menu.
2. Look in the root directory for directory \CPQRIB and double-click the directory.
3. After the directory opens, click ***RIBINST.EXE*** to install the Remote Insight Lights-Out Edition software.
4. Install *CPQRIB.SYS* and the Setup Utility.

IMPORTANT: If RIBWAN.SYS is shown as an option, do not select **RIBWAN.SYS** to be installed. The Remote Insight Lights-Out Edition board does not use or support RIBWAN.SYS. Installing RIBWAN.SYS may cause server performance problems.

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5. To access the setup utility after the software has been installed, click the **Remote Insight Setup** applet in the Control Panel.

Windows 2000

The server will reboot three times during the operating system installation process. After the last reboot, the Found New Hardware Wizard displays. At this time, proceed through the following steps to install the driver for the Compaq Remote Insight Board.

1. On the first screen of the Found New Hardware wizard, click **Next.**
2. Select Search for a suitable driver for my device, then click **Next.**
3. Select **Specify a Location,** and deselect the Floppy Drive and CD-ROM check boxes, then click **Next.**
4. Type the following path in the text box, then click **OK.**

   C:\CPQDRVRS

5. On the **Driver Files Search Results** screen, click **Next.**
6. To complete the Found New Hardware wizard, click **Finish.**

Novell NetWare 4.2

1. During the post-installation process, the NetWare installation incorrectly attempts to load the MEGA4_XX.HAM driver.
2. Remove the MEGA4_XX.HAM driver from the disk and CD-ROM drivers list during the Choose the Server Drivers interview.
3. If you missed the opportunity to remove the driver, ignore the error statement when the install program tries to install the driver and edit the *STARTUP.NCF* file and remove MEGA4_XX.HAM driver when the installation is complete.
4. After the installation of NetWare completes, add the following lines to the *AUTOEXEC.NCF* file:

   ```
   LOAD CPQHLTH.NLM

   LOAD CPQRI.NLM
   ```

   NOTE: The cpqhlth.nlm driver should come before cpqri.nlm in the load order. This will ensure that the appropriate server error log will be copied to the Remote Insight Lights-Out Edition board during initialization.

5. At the end of the installation, refer to the instructions in the "System Configuration Utility Setup Using the F10 Key" section in this chapter to configure the Remote Insight Lights-Out Edition board.

Novell NetWare 5

1. During the post-installation process, the NetWare installation incorrectly attempts to load the MEGA4_XX.HAM or I20PCI.HAM driver.
2. Select **F10=Continue-no selection** to continue the installation without loading either driver.
3. If you missed the opportunity to remove the driver, edit the *STARTUP.NCF* file and remove MEGA4_XX.HAM driver when the installation is complete.
4. During the post-installation interview, install the Compaq Management Agent for Servers on the **Additional Products and Services** screen.
5. Select **Compaq Remote Insight Management Agents** on the **NSSD Options** screen.
6. At the end of the installation, refer to the instructions in the "System Configuration Utility Setup using the F10 key" section in this chapter to configure the Remote Insight Lights-Out Edition board.

Red Hat Linux 6.2 and 7.0

The step sequence for both installations is the same.

1. Install the UCD source, health driver, and agents using the following commands:

   rpm -ivh ucd-snmp-4.1.1-2-src.rpm for Red Hat Linux 6.2 or
   rpm -ivh ucd-snmp-4.1.1-8-src.rpm for Red Hat Linux 7.0

   rpm -ivh cpqhealth-1.2.0-1.i386.rpm

   rpm -ivh cmafdtn-4.90-1.i386.rpm

   rpm -ivh cmasvr-4.90-1.i386.rpm

   rpm -ivh cmastor-4.90-1.i386.rpm

   rpm -ivh cmanic-4.90-1.i386.rpm

   rpm -ivh cpqrid-1.0.0-7.i386.rpm

2. Configure the SNMP using the following commands:

   cp /opt/compaq/foundation/etc/snmpd.conf.cma /usr/share/snmp/snmpd.conf

   cd /usr/share/snmp

   vi /usr/share/snmp/snmpd.conf

   NOTE: The vi /usr/share/snmp/snmpd.conf command is used so that the 'trapsink' line has the IP address of the Compaq Insight Manager XE console at which you want to receive traps. The following is an example:

   Rwcommunity rwcomm 127.0.0.1
   Rwcommunity public
   Trapsink ×××.×××.×××.××× public

   cd /usr/src/redhat/SOURCES

   tar -xzvf ./ucd-snmp-4.1.1.tar.gz for Red Hat Linux 6.2 or
   tar -xzvf ./ucd-snmp-4.1.2.tar.gz for Red Hat Linux 7.0

   cd /usr/src/redhat/SOURCES/ucd-snmp-4.1.1
   for Red Hat Linux 6.2 or

   cd /usr/src/redhat/SOURCES/ucd-snmp-4.1.2
   for Red Hat Linux 7.0

   /opt/Compaq/foundation/etc/snmpdbld

3. Start SNMP and agent processes using the following commands:

   /etc/rc.d/init.d/snmpd start

   /etc/rc.d/init.d/cmafdtn start

   /etc/rc.d/init.d/cmasvr start

   /etc/rc.d/init.d/cmastor start

   /etc/rc.d/init.d/cmanic start

Installing Remote Insight Lights-Out Edition Device Drivers

A Remote Insight device driver allows system software and SNMP Insight Agents to communicate with the Remote Insight Lights-Out Edition board. The following sections provide instructions for installing the Remote Insight drivers for Novell NetWare, Microsoft Windows NT, Windows 2000, IBM OS/2, SCO OpenServer Release 5, UnixWare, and Red Hat Linux. The SmartStart and Support Software CD contains the latest versions of these drivers.

The latest drivers can also be found in the Remote Insight Lights-Out Edition area of the Compaq website:

www.compaq.com/lights-out

Windows NT Driver Support

The device drivers required to support the Compaq Remote Insight Lights-Out Edition board and ASR features are located on the SmartStart and Support Software CD. Before you begin to install the Windows NT drivers, gather your Windows NT documentation and the latest Windows NT Service Pack.

From the Compaq website, you can download a SoftPaq that contains the Remote Insight Lights-Out Edition Installation Wizard. This wizard simplifies installation of the additional drivers needed for Windows NT servers. The Compaq website address is

www.compaq.com/lights-out

If you do not have access to the Internet, use the steps in the following sections to install the necessary drivers without using the installation wizard.

Relevant Files

The following file supports the Remote Insight Lights-Out Edition board:

CPQRIB.SYS

You can install or update the Compaq Remote Insight Lights-Out Edition driver by following the instructions in the next section.

Installing or Updating the Compaq Remote Insight Lights-Out Edition Drivers

The setup program in the \CPQSUPSW\NTSSD subdirectory of the SmartStart and Support Software CD installs, updates, or removes Windows NT device drivers. When installing or updating drivers, the setup program copies the appropriate driver to the system and configures the system to use that driver. The setup program also provides current driver status and version information.

If you are updating the Remote Insight drivers, ensure that the Remote Insight Lights-Out Edition board is running the latest version of the Remote Insight Lights-Out Edition firmware. The latest firmware can be obtained through ROMPaq from the Compaq website:

www.compaq.com/lights-out

Follow the **Setup** menu through the following levels: **Support**, **Compaq SoftPaqs,** and **Servers,** then select your operating system.

Follow these steps to install or update the drivers needed for the Remote Insight Lights-Out Edition board:

1. Start Windows NT and log in to an account with administrative privileges.
2. Insert the SmartStart and Support Software CD into the CD-ROM drive.
3. Select **Run** and enter the following command:

   [CD Drive]:\CPQSUPSW\NTSSD\SETUP

4. Select the **Express** option. The Setup program presents a list of drivers that can be installed, such as:

   - Compaq Remote Insight Lights-Out Edition Driver
   - Compaq Systems Management Driver
   - ATI Video Controller

5. Select **Systems Management Driver** to install or update the driver. Ensure that the **Remote Insight** driver is selected.

IMPORTANT: During a Windows NT installation of the Remote Insight Lights-Out Edition board using SmartStart, do not select **Compaq Remote Insight WAN Driver** (*RIBWAN.SYS*) for installation. The Remote Insight Lights-Out Edition board does not use or support *RIBWAN.SYS*. Installation of *RIBWAN.SYS* may cause server performance problems.

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6. If a Remote Insight Lights-Out Edition board is present in the system, Remote Insight Lights-Out Edition drivers will be installed when you click **OK.**
7. Exit the setup program and restart the system to load the drivers you installed.

NOTE: You must also install the ATI video controller driver for correct video operation through the Remote Insight Lights-Out Edition board. This driver is on the SmartStart and Support Software CD.

Windows 2000 Driver Support

The device drivers for Windows 2000 can be obtained from the SmartStart and Support Software CD, 4.70 or later. You also can download the Compaq Support Paq for Windows 2000 from the Compaq website:

www.compaq.com/support/files

To install the Support Paq, run the *SETUP.EXE* file included in the download and follow the installation instructions. For additional information about the Support Paq installation, read the text file included in the Support Paq download.

NetWare Driver Support

The Remote Insight Lights-Out Edition driver for NetWare is *CPQRI.NLM*. This driver enables you to access the Remote Insight copy of the Integrated Management Log or Critical Error Log remotely, even when the server is down. *CPQRI.NLM* is notified if any subsequent events occur and then updates this copy of the log.

NOTE: If you load the Server Health driver, *CPQHLTH.NLM*, before the Remote Insight driver, CPQRI will copy the contents of the Integrated Management Log or the Critical Error Log (based on the support provided by the server) to the Remote Insight Lights-Out Edition board during initialization.

To install *CPQRI.NLM* :

1. Insert the Compaq Management CD into the CD-ROM drive of the server. NetWare 5 will automatically mount the CD as a volume. For NetWare 4.x servers, use the following command at the server console:

   LOAD CDROM.NLM

   CD MOUNT *volume name*

2. Load *NWCONFIG.NLM* for NetWare 5 or *INSTALL.NLM* for NetWare 4.x.

3. Select **Product Options**. Install a Product Not Listed and enter the following path to the driver:

   VOL NAME: CPQSUPSW\NSSD

4. The Compaq Software Support Utility will load and the Remote Insight Lights-Out Edition driver can be installed from the menu.

The following is an alternate installation method:

5. Insert the SmartStart and Support Software CD into the CD-ROM drive of the workstation.

6. Execute a MAP command, similar to the following example, to ensure that you have a path to the server.

   MAP G:=SYS:SYSTEM

7. Copy the NetWare Remote Insight driver to the server, using the following path.

   COPY D:\CPQSUPSW\NSSD\SRV_MGMT\CPQRI.NLM G:

8. Return to the server console to complete the installation of the Remote Insight driver support for NetWare.

9. Use the NetWare INSTALL program or NWCONFIG for NetWare 5 to modify the *AUTOEXEC.NCF* file. Add the following LOAD commands so the driver is loaded each time the NetWare server is restarted. It is not necessary to load the Server Health driver if it is not supported on your server.

   LOAD CPQHLTH

   LOAD CPQRI

For a description of CPQRI initialization errors and remedies, refer to the online help for the Remote Insight Lights-Out Edition board on the Compaq Management CD.

OS/2 Driver Support

The device drivers for IBM OS/2 can be obtained from the SmartStart and Support Software CD by using the Diskette Builder utility.

The Remote Insight Lights-Out Edition driver for OS/2 is *CPQRIB.SYS*. If the Compaq Wellness driver for OS/2, *CPQHLTH.SYS,* is loaded, then *CPQRIB.SYS* is notified of any critical events, and the driver updates its copy of the critical error log. *CPQRIB.SYS* also updates its critical error log every time the board is reset.

If the Compaq BIOS32 support driver for OS/2, *CPQB32.SYS,* is loaded, then *CPQRIB.SYS* is notified of any updates to the Integrated Management Log (IML), and the driver updates its copy of the IML. *CPQRIB.SYS* also updates its copy of the IML every time the board is reset.

> **NOTE:** The Remote Insight Lights-Out Edition driver for OS/2, *CPQRIB.SYS*, 2.0 and later, supports the Integrated Management Log and requires the use of the Compaq BIOS32 support driver, *CPQB32.SYS*.

To install *CPQRIB.SYS*:

1. Insert the diskette labeled "System and Storage Drivers" in the diskette drive of the server.
2. From the command prompt, type DDINSTAL and press the **Enter** key. Alternatively, on the OS/2 Desktop, open the folders **OS/2 System, System Setup**, and **Install/Remove**. Double-click **Device Driver Install.** Change the Source Path to \CPQRIB.
3. Select the **Compaq Remote Insight Lights-Out Edition** entry and click **Install.**
4. In the **Install/Remove** folder, double-click **Device Driver Install** and change the **Source Path** to \CPQB32.
5. Select the **Compaq 32-Bit Helper Driver** entry and click **Install.**
6. Perform an orderly shutdown and reboot the server for the driver installation to take effect.

SCO Driver Support

The Remote Insight Lights-Out Edition drivers for both SCO OpenServer Release 5 and SCO UnixWare 7 are named CRID. These drivers are located on the SmartStart and Support Software CD. Use the Diskette Builder utility to create the necessary Extended Feature Supplement (EFS) diskettes for SCO OpenServer Release 5, SCO UnixWare 7. To install the CRID drivers, follow the instructions provided on the documentation diskette of the EFS.

IMPORTANT: When using a SCO system, you must install the ATI video controller driver for correct video operation through the Remote Insight Lights-Out Edition board. This driver is on the SmartStart and Support Software CD.

Red Hat Linux Driver Support

You can download the SoftPAQ containing the Remote Insight Driver, the health driver, and agents included in the version 2.31 upgrade for a Linux system at

ftp.compaq.com/pub/softpaq/sp14001-14500/sp14467.tgz

IMPORTANT: The downloaded file is presented as a compressed file. The file needs to be expanded using the uncompress utility. The uncompressed file will be identified as sp14467.tgz. Unpack the file using the following command:

tar xzvf sp14467.tgz

The following section lists the installation process for Red Hat Linux 6.2 and 7.0. These steps assume a new installation. On servers with previously installed agents and drivers, the agents and drivers must be uninstalled using the following commands:

rpm -e cpqrid

rpm -e cmanic

rpm -e cmastor

rpm -e cmasvr

rpm -e cmafdtn

rpm -e cpqhealth

rm -fr /opt/compaq

rm -fr /usr/src/redhat/SOURCES/ucd-snmp-4.1.1 for Red Hat Linux 6.2 or
rm -fr /usr/src/redhat/SOURCES/ucd-snmp-4.1.2 for Red Hat Linux 7.0

The step sequence for both installations is the same.

1. Install the UCD source, health driver, and agents using the following commands:

   rpm -ivh ucd-snmp-4.1.1-2-src.rpm for Red Hat Linux 6.2 or
   rpm -ivh ucd-snmp-4.1.1-8-src.rpm for Red Hat Linux 7.0

   rpm -ivh cpqhealth-1.2.0-1.i386.rpm

   rpm -ivh cmafdtn-4.90-1.i386.rpm

   rpm -ivh cmasvr-4.90-1.i386.rpm

   rpm -ivh cmastor-4.90-1.i386.rpm

   rpm -ivh cmanic-4.90-1.i386.rpm

   rpm -ivh cpqrid-1.0.0-7.i386.rpm

2. Configure the SNMP using the following commands:

   cp /opt/compaq/foundation/etc/snmpd.conf.cma /usr/share/snmp/snmpd.conf

   cd /usr/share/snmp

   vi /usr/share/snmp/snmpd.conf

   NOTE: The vi /usr/share/snmp/snmpd.conf command is used so that the 'trapsink' line has the IP address of the Compaq Insight Manager XE console at which you want to receive traps. The following is an example:

   Rwcommunity rwcomm 127.0.0.1
   Rwcommunity public
   Trapsink ×××.×××.×××.××× public

   cd /usr/src/redhat/SOURCES

   tar -xzvf ./ucd-snmp-4.1.1.tar.gz for Red Hat Linux 6.2 or
   tar -xzvf ./ucd-snmp-4.1.2.tar.gz for Red Hat Linux 7.0

   cd /usr/src/redhat/SOURCES/ucd-snmp-4.1.1
   for Red Hat Linux 6.2 or
   cd /usr/src/redhat/SOURCES/ucd-snmp-4.1.2
   for Red Hat Linux 7.0

   /opt/Compaq/foundation/etc/snmpdbld

3. Start SNMP and agent processes using the following commands:

   /etc/rc.d/init.d/snmpd start

   /etc/rc.d/init.d/cmafdtn start

   /etc/rc.d/init.d/cmasvr start

   /etc/rc.d/init.d/cmastor start

   /etc/rc.d/init.d/cmanic start

Optimized Performance for Remote Console

Starting with firmware version 2.31, the remote console application has been optimized for greater performance.

The remote console will operate with greater or lesser success depending on the settings of the remote server. Ideally, the remote server operating system resolution should be the same resolution, or smaller, than the browser computer. The higher the resolution of the remote server, the slower the overall performance. For best results, use the following settings.

Browser Settings

Use the following browser settings to optimize performance:

- Display Properties Setting
  - Select an option greater than 256 video colors.
  - Select a greater screen resolution than the remote server's screen resolution.
- Remote Console
  - Select **Remote Console (Full)** to maximize the viewable area.
  - In **Settings**, select the operating system to match the server's operating system and the character set to match the remote server's character set. For Red Hat Linux 6.2 and 7.0, SCO UnixWare 7.x, and SCO OpenServer 5.x, you would select the Unix operating system.

- Mouse Properties Setting
  - Set the **Mouse Pointer** speed to the middle setting.
  - Set **Mouse Pointer Acceleration** to **low** or disable the pointer acceleration.
- The speed of the remote console depends on the processing power of the client machine. Use a 400 MHz or faster client with 64 MB or more of memory.
- Use a single processor client. Remote Console's Java applet tends to execute more slowly on multiprocessor workstations.

The following browsers are supported:

- Microsoft Internet Explorer
  - Minimum: Microsoft Internet Explorer 4.01 (version 4.72.2106.8 or newer) for Windows 95, Windows 98, Windows NT 4.0 and Windows 2000.
  - Recommended: Microsoft Internet Explorer 5.0 or later

IMPORTANT: Internet Explorer 4.01 requires service pack 3 on Windows NT 4.0.

- Netscape
  - Minimum: Netscape Communicator 4.08
  - Recommended: Netscape Communicator 4.76 or later

NOTE: Netscape Communicator 6 is not supported.

Additional browsers, or the browsers mentioned, used with different operating systems, may or may not work correctly, depending upon their specific implementations of the required browser technologies.

Recommended Server Settings

The following is a list of recommended server settings based on the operating system used.

Windows NT 4.0 and Windows 2000

Use the following settings to optimize performance on a server using the Windows NT 4.0 or Windows 2000 operating system:

- Server Display Properties Setting
  - 800 x 600 pixels or lower screen resolution
  - 256 video colors
  - Plain Background (no wallpaper pattern)
- Server Mouse Properties Setting
  - Select **none** for Mouse Pointer Scheme.
  - Disable **Pointer Shadow** in Windows 2000.
  - Select **Motion** or **Pointer Options** and set the **Pointer speed** slider to the middle position.
  - Disable pointer acceleration.
- Remote Console (2-cursor) is recommended when using **F8, F10,** full text console, or the system partition utilities.
- Using the Compaq SmartStart CD or CSP file, install the Windows drivers 4.90.

NetWare

Use the following settings to optimize performance on a server using the Netware operating system:

- Server Display Properties Setting
  - 800 x 600 pixels or lower screen resolution
  - 256 video colors
- Remote Console (2-cursor) is recommended.
- Ensure that the **Num Lock** key on the server's keyboard is not enabled.

Red Hat Linux 6.2 and 7.0

Use the following settings to optimize performance on a server using the Red Hat Linux 6.2 or 7.0 operating system:

- Server Display Properties Setting
  - 16-bit color, 800 x 600 pixels screen resolution
- Remote Console (2-cursor) is recommended when using full text console.

OS/2 Warp Server 4.0

Use the following settings to optimize performance on a server using the OS/2 Warp Server 4.0 operating system:

- Server Display Properties Setting
  - 800 x 600 pixels or lower screen resolution
  - 256 video colors
- Remote Console (2-cursor) is recommended.

SCO UnixWare 7.x

Use the following to optimize performance on a server using the SCO UnixWare 7.x operating system:

- Server Display Properties Setting
  - 64K colors, select 800 x 600 pixels
- Remote Console (2-cursor) is recommended.

SCO OpenServer 5.x

Use the following settings to optimize performance on a server using the SCO OpenServer 5.x operating system:

- Server Display Properties Setting
  - 800 x 600 pixels or lower screen resolution
  - 256 video colors
- Full text mode remote console is supported.
- Remote Console (2-cursor) is recommended.

Single and 2-Cursor Modes for Remote Console

2-Cursor Mode

The **Remote Console 2 cursor** option uses two mouse cursors in the remote console window to represent the remote server's mouse cursor and the local client's mouse cursor. The local client cursor is seen as a crosshair in the remote console window. The 2-cursor option is supported with Java 1.1 VM and later. If the two cursors drift apart, they can be synchronized and brought back together. Synchronize remote and local cursor using any of the following procedures:

1. Click **Sync Mouse** above the remote console frame.
2. Right-click, drag, and move the local crosshair cursor to align with the remote server's mouse cursor.
3. Holding the **Ctrl** key, move the local crosshair cursor to align with the remote server's mouse cursor.

Single Cursor Mode

The **Remote Console (Frame)** and **Remote Console (Full)** options present a single mouse cursor during remote console. Synchronization of two cursors is eliminated, making navigation easier in the remote console window.

Single Cursor Mode requires Java 1.3.0_01 VM or greater. This download is available on the Compaq website at

www.compaq.com/manage/jvm.html

Chapter **5**

Using the Remote Insight Lights-Out Edition

This chapter addresses common questions about how to use the features of the Remote Insight Lights-Out Edition (RILOE) board.

Accessing the Remote Insight Lights-Out Edition Board for the First Time

The RILOE board is configured with a default user name, password, and DNS name. A Network settings tag with the preconfigured values is attached to the board. Use these values to access the board remotely from a network client using a standard Web browser.

IMPORTANT: For security reasons, Compaq recommends that you change these default settings after accessing the Remote Insight Lights-Out Edition for the first time.

The default values are:

- User name: Administrator
- Password: The last four digits of the serial number
- DNS name: RIBXXXXXXXXXXX, where the 12 Xs are the MAC address of the RILOE board

IMPORTANT: User names and passwords are case sensitive.

Steps to access the RILOE board for the first time:

1. Enter the RILOE board IP address or DNS name in the address bar of the Web browser.
2. When connecting to the Compaq RILOE board in a browser for the first time, you will receive a security alert.
   - If **Yes** is selected, the browser continues to the login screen of the RILOE board. The message displays each time the user accesses the board in a browser.
   - If **No** is selected, the user is returned to the **Welcome** screen of the RILOE board.
   - If **View Certificate** is selected, a popup window displays showing the certificate information. Installing the certificate to your browser prevents the security alert message from displaying in the future.

   To install the certificate, proceed to step 3. If you choose not to install the certificate, proceed to step 4.

   NOTE: If the certificate is removed from your browser, or if you have upgraded the firmware, or if the board is rebooted, the security alert messages display again.

NOTE: The group administration function and access to the RILOE board's Web interface are encrypted using SSL security. However, the keystrokes used during access to the Remote Console are obscured and not SSL encrypted.

1. To install the certificate to your browser:
   a. Click **Install Certificate.** The Certificate Manager Import Wizard starts.
   b. Click **Next.**
   c. Click **Next** to allow the browser to automatically select the certificate store when the **Certificate Store** window displays.
   d. Click **Finish** when the **Completing the Certificate Manager Import Manager Wizard** displays.
   e. Click **Yes** to confirm the installation of the certificate when the confirmation window displays.
2. When the RILOE board has been detected, the screen will prompt you for a user name and password. Use the default user name and password from the Network settings tag and click **OK.**

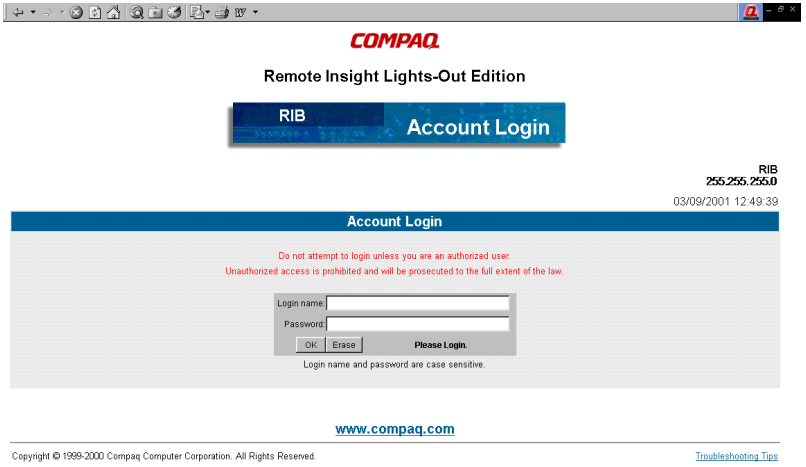

Figure 5-1. Account Login screen

3. After the default user name and password have been verified, the **Remote Insight** navigation frame and summary home page open.

The Remote Insight summary home page provides general information about the RILOE board such as the user currently logged on, server name and status, Remote Insight IP address and name, and latest log entry data. The summary home page also shows whether the RILOE board has been configured to use Compaq Web-Based Management and Insight Management Web agents.

Accessing the Features of the Remote Insight Lights-Out Edition

All of the capabilities of the RILOE board are listed on the **Remote Insight** navigation frame. The following browsers are supported:

- Microsoft Internet Explorer
  - Minimum: Microsoft Internet Explorer 4.01 (version 4.72.2106.8 or newer) for Windows 95, Windows 98, Windows NT 4.0, and Windows 2000
  - Recommended: Microsoft Internet Explorer 5.0 or newer

IMPORTANT: Internet Explorer 4.01 requires Service Pack 3 on Windows NT 4.0.

- Netscape browser
  - Minimum: Netscape Communicator 4.08
  - Recommended: Netscape Communicator 4.76 or newer

NOTE: Netscape Communicator 6 is not supported at this time.

The **Remote Insight** navigation frame displays the following sections:

- Remote Console

  This section gives you access to different views of the Remote Console and allows you to define keystroke sequences that will be transmitted to the remote host server at the press of a hot key.

- Server Information

  The Server Information section provides general server status information and video replays of prior server reset sequences. Data from the Compaq Survey utility is also available in this section.

- Logs

  The Logs section displays and manages the Remote Insight Event Log and the Integrated Management Log. Both of these logs are useful for server troubleshooting and proactive system management.

- Power

  This section provides remote Virtual Power Button and power cycle "remote reset" capabilities by means of a hardware-level cold boot.

- Virtual Floppy Drive

  Options pertaining to the use of the Virtual Floppy Drive feature are found in this section.

- Administration

  The Administration section allows you to manage individualized settings for users, SNMP alerts, the network environment, and global security. This section also includes an option that enables easy upgrades of the RILOE board firmware.

- Help

  Help for the Remote Insight Lights-Out Edition along with tips and tricks for optimum usage are included in this last section.

Using the Graphical Remote Console to Manage the Remote Host Server

The Remote Console feature of the RILOE board redirects the host server console to the network client browser, providing full text and graphical mode video, keyboard, and mouse access to the remote host server.

With the Remote Console, you have complete control over a remote host server as if you were in front of it. You can access the remote file system and the network drives. The Remote Console allows you to change hardware and software settings of the remote host server, install applications and drivers, change remote server screen resolution, and gracefully shut down the remote system.

With the Remote Console, you can observe POST boot messages as the remote host server restarts and initiate ROM-based setup routines to configure the remote host server's hardware. When installing operating systems remotely, the graphical Remote Console lets you view and control the host server screen seamlessly throughout the installation process.

NOTE: Whenever the Remote Insight Lights-Out Edition resets the Remote Console settings will change back to the default settings.

NOTE: While using 2 cursor mode, when you move the network client's mouse pointer over the remote host server screen displayed in the Remote Console, the local mouse pointer will turn into a crosshair and the remote host server's mouse pointer will remain unchanged.

NOTE: If the colors displayed on the Remote Console screen do not appear to be correct, you can adjust the color palette by clicking **Settings** and selecting the correct operating system.

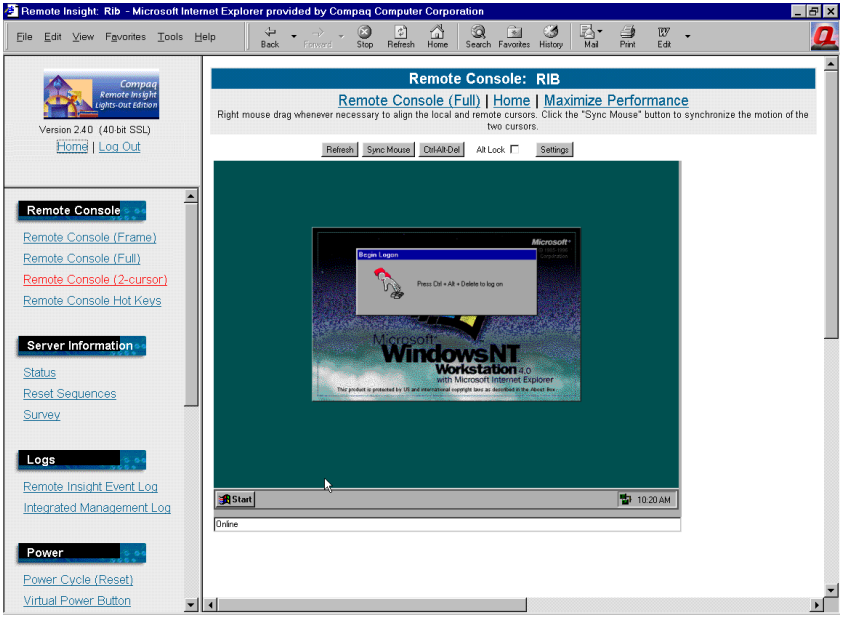

Figure 5-2. Remote Console session in 2 cursor mode

Enhanced Features of the Remote Console

The four buttons at the top of the Remote Console provide the RILOE board with enhanced features. Each button has the following functions.

Refresh

There may be instances when the Remote Console screen is not displaying the latest data. Click Refresh to force the RILOE board to repaint the screen.

Sync Mouse

While using 2-cursor mode, Sync Mouse attempts to synchronize the cursor movement of the local mouse with the cursor movement of the remote mouse. To synchronize the movement of both cursors, click Sync Mouse and wait until the local mouse pointer stops moving.

IMPORTANT: Mouse speed synchronization will fail if you move the mouse while syncing is in progress.

NOTE: Compaq recommends that you routinely synchronize the remote and local cursor.

When the local and remote mouse cursors move at the same speed, the cursors can be automatically aligned by moving the local arrow cursor outside the **Remote Console** frame, pausing for a moment, then moving the local mouse cursor back into the **Remote Console** frame.

Compaq recommends that you try different mouse speed settings on the remote host server to achieve the best mouse cursor synchronization. For example, in Microsoft Windows NT Server 3.51 or 4.0, the slowest mouse setting is the easiest to control. In Microsoft Windows 2000, the average mouse speed setting is the easiest to control. Also, cursor shadowing must be disabled.

Ctrl-Alt-Del

Use this button to enter the key sequence **Ctrl+Alt+Del** into the Remote Console. You would use this key sequence to log on to Windows NT.

Settings

Use this button to change the default character set used by the Remote Console and the type of operating system the Remote Console is connecting to. Modifying the Remote Console settings ensures proper operation of the Remote Console and correct display of colors and characters.

Single Mouse Pointer in Remote Console

In the firmware releases prior to version 2.32, the mouse position in Remote Console was indicated by a crosshair for the local mouse and an arrow (typically) for the remote one. There has always been the need to synchronize the two using methods such as clicking **Sync Mouse** above the remote console screen or lining up the cursors using the **CTRL** key. For some operating systems, it is recommended to use the 2-cursor mode for remote console. See the "Optimized Performance for Remote Console" section in Chapter 4 for specific operating system recommendations.

In version 2.32 and later, synchronization of cursors has been simplified with a single-cursor mode for some operating systems, which means the local cursor does not display when the mouse is over the remote console screen. This feature removes the need to synchronize multiple cursors.

To enable the single mouse cursor mode in the remote console window, you must download the Java 1.3.0_01 VM or later and install it on the client machine. The remote server does not require any software to obtain a single mouse pointer. You can download Java 1.3.0_01 VM from

www.compaq.com/manage/jvm.html

After the firmware is upgraded on the RILOE board and the Java 1.3.0_01 VM is installed on the client machine, a single mouse cursor will be visible in the remote console window. When the cursor is moved away from the remote server screen, focus is transferred back to the client screen and the server's mouse cursor will display again.

The Java 1.3.0_01 VM must be plugged into the browser for the single-cursor mode to work. If you do not want to download the updated JVM, there is an option to use the browser's 1.1 JVM and have two mouse cursors, as in previous firmware releases.

The two mouse cursors option is available by selecting **the Remote Console (2-cursor) option** in the **Remote Console** section of the **Remote Insight** navigation frame.

You implicitly select single-cursor mode when selecting **Remote Console (Frame)** or **Remote Console (Full).** If the 1.3.0_01 JVM is not loaded, you will be prompted to download the latest JVM. If the latest JVM can not be loaded, a blank remote console screen is shown. You are still able to use the 2-cursor mode option, which supports 1.1 JVM.

Remote Console Views

The Remote Console provides two options for viewing the host server's screen: **Frame View** and **Full Screen View**.

Both views offer full control of the host server, but only the **Frame View** feature allows the **Remote Insight** navigation frame to be displayed alongside the Remote Console, which offers maximum control (see Figure 5-2). The **Full Screen View** allows for optimum local display of higher screen resolutions on the remote host server without having to scroll the local image in the Remote Console. Hyperlinks at the top of the **Remote Console** screen let you switch between viewing modes.

NOTE: High host server screen resolutions decrease the screen refresh rate of the Remote Console. To improve the screen refresh rate of the Remote Console, Compaq recommends lowering the remote host server screen resolution.

Remote Console Hot Keys

The Remote Console hot keys feature allows you to define up to six multiple key combinations to be assigned to each hot key. When a hot key is pressed in the Remote Console, the defined key combination (all keys pressed at the same time) will be transmitted in place of the hot key to the remote host server.

To define a Remote Console hot key:

1. Click **Remote Console Hot Keys,** located in **the Remote Console section** of the **Remote Insight** navigation frame. A screen similar to Figure 5-3 displays.

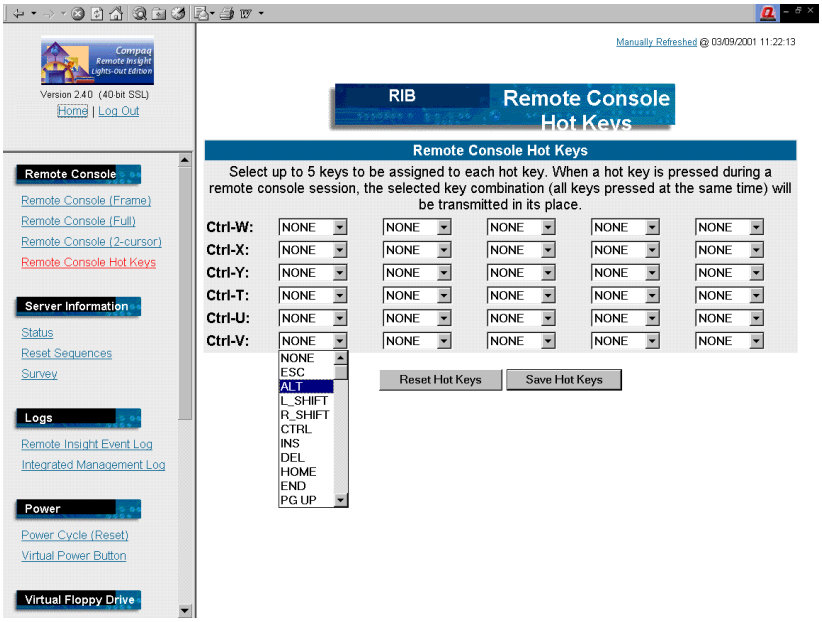

Figure 5-3. Remote Console Hot Keys definitions

2. Select the hot key you want to define and use the drop boxes to select the key sequence to be transmitted to the host server at the press of the hot key.

3. Click **Save Hot Keys** when you have finished defining the key sequences.

NOTE: For additional tips about using the Remote Console, refer to the **Tips and Tricks** screen.

Troubleshooting the Remote Host Server

The RILOE board provides features for proactive system management and efficient troubleshooting of server problems.

In addition to the Remote Console, you have access to overall server status information, video replay of prior server resets, and other information gathered by the Compaq Survey utility.

The Remote Insight Lights-Out Edition maintains a complete set of logs for troubleshooting server problems. These logs are the Remote Insight Event Log and the Integrated Management Log.

Full integration with Compaq Insight Manager XE provides warning of potential problems by means of SNMP trap alerts displayed on a Compaq Insight Manager XE console. This integration is achieved by installing and configuring Compaq Insight agents on the remote server. See the "Enabling SNMP Alerts" section in this chapter for more information.

Obtaining Additional Information Concerning the State of the Remote Host Server

The Status option in the Server Information section of the **Remote Insight** navigation frame provides comprehensive status information about the following items:

- Server information
- Remote Insight information
- POST diagnostic results
- Abend environment messages generated by the operating system

Video Replays of Prior Server Reset Sequences

The Reset Sequences option in the Server Information section of the **Remote Insight** navigation frame provides video replay of server reset sequences. This option allows you to observe ROM-based POST messages and operating system load messages of prior remote host server resets, including any error messages displayed by the operating system before a server hang.

IMPORTANT: Reset Sequences require the use of the Remote Console. You will not be able to access the Remote Console while replaying the reset sequences.

To access video replays of the remote host server reset sequences:

1. Click **Reset Sequences,** located in the **Server Information** section of the **Remote Insight** navigation frame.
2. Select the desired sequence replay from the following options:
   - **Previous Reset Sequence Replay**— This option lets you replay the video sequence prior to the most recent host server reset. The video replay displays ROM-based messages and operating system load messages that occurred while starting the remote host server.
   - **Current Reset Sequence Replay**— This option lets you replay the video sequence of the most recent host server reset. The video replay displays ROM-based messages and operating system load messages that occurred while starting the remote host server.
   - **Failure Sequence—** This option lets you replay the video sequence leading up to the most recent host server reset resulting from a system problem. This video replay includes any error information generated by the operating system prior to the remote host server problem and subsequent reset.

Survey Information

The Survey Information option allows you to view the troubleshooting information collected by the Compaq Survey utility. The Survey utility can be installed on the remote host server to gather hardware and software configuration information.

NOTE: Linux does not support the Survey feature.

The Survey utility is included on the Compaq Management CD. You can also obtain the Survey utility in a SoftPaq from the Compaq website:

www.compaq.com/support

To view Survey information gathered by the utility on the host server, click **Survey** and then **Download Survey Information.** The browser will download the *SURVEY.IDI* file to your local machine.

To read the *SURVEY.IDI* file using the Web-enabled Survey Utility:

1. Place the *SURVEY.IDI* file in the COMPAQ\SURVEY\IDIFILES folder of the local machine.

   IMPORTANT: You must have installed the Survey utility on the local machine in order to use this feature. The folder named IDIFILES is created manually.

2. Point the browser to the files on the local machine. To do this, enter the URL for the local host, http://127.0.0.1:2301 or http://*machine*:2301, where *machine* is the IP address or DNS name of the local host.
3. Select the Survey Utility and click the **Options** link. Click **Select Current Report Session or Primary/Compare Session Selection Tables. The Configuration History Files** screen displays the available files.
4. Click the *IDI* file you downloaded from the Remote Insight board.
5. Select the **Primary** and **Compare** sessions to be included in the report.

   NOTE: Each Survey Utility Report can compare two sessions. You can specify the Primary and Compare sessions to be included in the report. The Compare session is compared to the Primary session. If you select View Primary Session Only, no Compare session will be included in the report.

6. Select the **Report Type.** Use the list box to select the type of report you want to view. The types of reports offered are:

   - **Show Only Major Differences**—Generates a comparison output, only showing information that caused a checkpoint. A checkpoint is determined programmatically as an item that was "significantly different" from the previous session.
   - **Show All Differences**—Generates a comparison output, only showing information that was different between sessions. In most cases, information exists in the sessions that is transient in nature, for example, number and type of processes running. This level of report generation displays these differences in addition to those reported by the checkpoint level.
   - **Show Standard Detail and Differences**—Generates a comparison output, showing summary level information. Summary information is most appropriate for configuration management because it shows the system configuration in abbreviated form.

- **Show More Detail and Differences**—Generates a comparison output, showing advanced level information (default). Advanced information is considered expert level and is most appropriate for problem resolution, because it is considerably more detailed than summary information.
- **Show All Detail and Differences**—Generates a comparison output, showing expert level information. The expert level is the most extensive user level of information available. In typical situations, it is not necessary to provide this level of information. In some cases, however, the information contained in this level may not have been interpreted for a lower report level.

7. Click **New Report** to generate and display a Survey Utility Report based on the selected sessions and report type.

For more information on using the Survey Utility, refer to the *Survey Utility Online Help User Guide* available at

www.compaq.com/support

Information Logs

The **Remote Insight** navigation frame gives you access to two types of information logs that are useful when troubleshooting host server problems:

- Integrated Management Log

  The Integrated Management Log allows you to view logged remote server events. Logged events include all server-specific events recorded by the Compaq system health driver, including operating system information and ROM-based POST codes.

- Remote Insight Event Log

  The Remote Insight Event Log is an operating system-independent log that maintains a record of events by date and time. Logged events include major server events, such as a server power outage or a server reset, and Remote Insight events, such as a loose cable or an unauthorized login attempt. For a complete list of logged events, see table 7-3 in Chapter 7.

Progressive Delays for Failed Browser Login Attempts

Another security feature of firmware version 2.32 and later is the progressive delays for failed browser login attempts. After a series of three failed login attempts by a user, the RILOE board imposes delays to subsequent logins. This scenario continues until a valid login is completed.

This feature assists in defending against possible dictionary attacks against the browser login port.

Restarting the Remote Host Server

Troubleshooting a remote host server may require restarting the remote system. You can easily restart the remote host server by using the options listed in the Power section of the **Remote Insight** navigation frame.

The first option, **Reset Server,**, performs a hardware-level cold boot reset and is available regardless of the condition of the host server or the operating system. The **Reset Server** feature allows the host server to be restarted whenever the server is locked up or is in need of a reboot.

IMPORTANT: This type of reboot does not gracefully shut down the host server's operating system. For a graceful shutdown of a server, use Compaq Insight Manager XE or the Remote Console.

To restart a host server:

1. Click **Reset Server** in the **Power** section of the **Remote Insight** navigation frame. You will see a confirmation screen followed by a warning.
2. To begin rebooting the host server, click **Confirm.**
3. After the remote host server reboots, a Remote Console session begins, allowing you to observe ROM-based POST messages and operating system load messages.

The second option is the **Virtual Power Button**, which will only work if the host server was configured to use this device when the RILOE board was installed. If the **Virtual Power Button** option has not been installed in the host server, using this option has no effect. See Chapter 2 for details about enabling the Virtual Power Button feature in the host server.

Clicking **Virtual Power Button** in the **Power** section of the **Remote Insight** navigation frame is analogous to pressing the physical power button of the host server. The Virtual Power Button turns the host server's power on or off, depending on the power state of the host server.

IMPORTANT: Using the **Virtual Power Button option** does not gracefully shut down the host server's operating system. For a graceful shutdown of a server's operating system, use Compaq Insight Manager XE or the Remote Console before using the **Virtual Power Button** option.

Using the Virtual Floppy Drive

With the Virtual Floppy Drive, an administrator can easily direct a host server to boot and use a standard 1.44-MB diskette from anywhere on the network by means of a standard Web browser. The Virtual Floppy Drive eliminates the need to visit a remote host server to insert and use a diskette, enabling remote operating system installation from a network drive and remote host server ROM updates.

Use the Virtual Floppy Drive options to carry out any of the following functions:

- Running Compaq User Diagnostics by booting remote host servers from a diagnostic diskette

  NOTE: Compaq recommends that you first delete the *SYSMON2.TM* file before using Compaq User Diagnostics with the Virtual Floppy Drive.

- Applying ROMPaq upgrades to remote host servers
- Deploying an operating system on remote host servers from network drives
- Performing disaster recovery of failed operating systems

IMPORTANT: If the Virtual Floppy Drive feature is not present, flash the Remote Insight Lights-Out Edition option ROM. RILOE boards with a firmware 2.11 or earlier will require a ROM update for this feature. The ROM update can be obtained from the following website:

www.compaq.com/lights-out

NOTE: The Virtual Floppy Drive feature does not support Remote Insight Lights-Out Edition firmware upgrade. To upgrade the firmware, use the firmware upgrade feature in the Remote Insight Lights-Out Edition.

Uploading a Diskette Image to the Remote Server

The Insert Virtual Floppy option allows you to send a diskette image file to the RILOE board in the remote host server. The RILOE board treats the diskette image file as a standard diskette.

IMPORTANT: The Virtual Floppy Drive has been designed and tested with Microsoft DOS, Windows 95, and Windows 98 bootable diskettes. The Virtual Floppy Drive will only work correctly with an operating system that accesses diskette drives by means of standard BIOS Interrupt 13 calls. The Virtual Floppy Drive is not compatible with protected-paging mode applications such as EMM386.

NOTE: Image files of diskettes are created and stored locally on your hard drive or on a network drive with the Compaq Diskette Image Utility. This utility is available for download from the Compaq website at

www.compaq.com/lights-out

For additional information about this utility, see the section "Using the Compaq Diskette Image Utility" later in this chapter.

To upload a diskette image to the RILOE board in the remote host server:

1. Click **Insert Virtual Floppy,** located in the Virtual Floppy Drive section of the **Remote Insight** navigation frame.

2. Type in the location and name of the diskette image file, or click **Browse** and choose the diskette image file you want to transfer to the RILOE board.

Figure 5-4. Location and name of the diskette image file

3. When the full path and diskette image file name are in the text entry field, click **Insert Virtual Floppy** to upload the image file to the RILOE board in the host server.

4. When the upload is complete, the screen changes to the **Virtual Floppy Status** screen. If needed, use the **Virtual Floppy Status** screen to modify options for the Virtual Floppy Drive.

IMPORTANT: The external power of the internal 16-pin cable (on supported servers) must be installed when booting to a virtual floppy, otherwise the image will be lost when the server is reset.

NOTE: The Virtual Floppy Drive can hold only one diskette image file at a time. The uploaded diskette image file will remain in the Virtual Floppy Drive until it is either replaced with another diskette image file or erased from the Virtual Floppy Drive by clicking the **Eject Virtual Floppy** button on the **Virtual Floppy Status** screen. The diskette image file will also be erased if power to the RILOE board is lost. Logging out of the RILOE board will not erase the diskette image file from the Virtual Floppy Drive.

Changing Virtual Floppy Drive Settings

The **Virtual Floppy Status** screen allows you to view and change current settings for the Virtual Floppy Drive. Changes you make to the virtual diskette drive boot and write-protect options take effect when you click **Submit Changes.**

IMPORTANT: A remote host server can use files uploaded to a Virtual Floppy Drive only if the Virtual Floppy Drive is active. The Virtual Floppy Drive will be active when the RILOE board has restarted the host server using a diskette image file uploaded to the Virtual Floppy Drive. The Virtual Floppy Drive will remain active until the remote host server is restarted with its own operating system.

NOTE: Although the Virtual Floppy Drive is active, the remote host server's physical diskette drive will be temporarily disabled. The host server's diskette drive will be re-enabled when the host server is restarted with its own operating system and the Virtual Floppy Drive is not active.

The **Virtual Floppy Boot** option has three settings:

- **Boot Always—** This setting instructs the RILOE board to always boot the host server from the diskette image file in the Virtual Floppy Drive. If this setting is checked, **Virtual Floppy Status** shows the virtual drive as active after the server has restarted.
- **Boot Once**—This setting instructs the RILOE board to boot the host server one time from the diskette image file in the Virtual Floppy Drive. If this setting is checked, **Virtual Floppy Status** shows the virtual drive as active after the server has restarted.
- **No Boot**— This is the default setting for the Virtual Floppy Drive. It instructs the RILOE board not to boot the host server from the diskette image file in the Virtual Floppy Drive. This setting has no effect on the Virtual Floppy Drive status.

Copying Files on the Remote Server to the Virtual Floppy Drive

The **Write Protect Virtual Floppy** option in the **Virtual Floppy Status** screen specifies whether data on the host server can be copied to the Virtual Floppy Drive. If this option is checked, the Virtual Floppy Drive is write-protected and no data from the host server can be copied to it.

Ensure that the **Write Protect Virtual Floppy** option is unchecked to copy remote files to the Virtual Floppy Drive using standard operating system commands typed in at the Remote Console. The **Virtual Floppy** option cannot be used to upgrade the Remote Insight Light-Out Edition firmware.

Making a Local Copy of the Diskette Image in the Virtual Floppy Drive

The **Copy Virtual Floppy** option in the Virtual Floppy Drive section of the **Remote Insight** navigation frame allows you to make a local copy of the diskette image file present in the Virtual Floppy Drive of the host server.

NOTE: Diskette image files that have been copied from remote servers can be used to recreate hardcopy diskettes by means of the Compaq Diskette Image Utility. For additional information about this utility, see the section "Using the Compaq Diskette Image Utility" later in this chapter.

To copy a remote diskette image file in the Virtual Floppy Drive:

1. In the **Virtual Floppy Drive** section of the **Remote Insight** navigation frame, Click the**Copy Virtual Floppy** menu option.
2. Click **Copy Virtual Floppy.** An operating system screen will display and prompt you to save the file locally.
3. Navigate to the location on the hard drive or network drive where you want to save the diskette image file and click **OK.**
4. After a few seconds, a local copy of the remote diskette image file will be created in the location you specified.
5. If necessary, use the Compaq Diskette Image Utility to create a duplicate of the Virtual Floppy image on a diskette.

Using the Compaq Diskette Image Utility

The Compaq Diskette Image Utility has three functions:

- Creating an image file from a standard 1.44-MB diskette suitable for use with the Virtual Floppy Drive
- Creating a standard 1.44-MB diskette from an image file copied from the Virtual Floppy Drive
- Comparing a diskette image file with a standard 1.44-MB diskette

Creating an Image File from a Diskette

To create an image file from a standard 1.44 MB diskette:

1. Launch the Compaq Diskette Image Utility and click the **Create Image File** tab.
2. Insert the diskette you want to make an image of into your diskette drive.
3. Provide the source drive, a path where you want to save the image along with the file name the image will have, and an image file description. Your screen should be similar to Figure 5-5.

   NOTE: The path can be a local or a network path. If you do not provide a path, the image file will be saved on the Desktop.

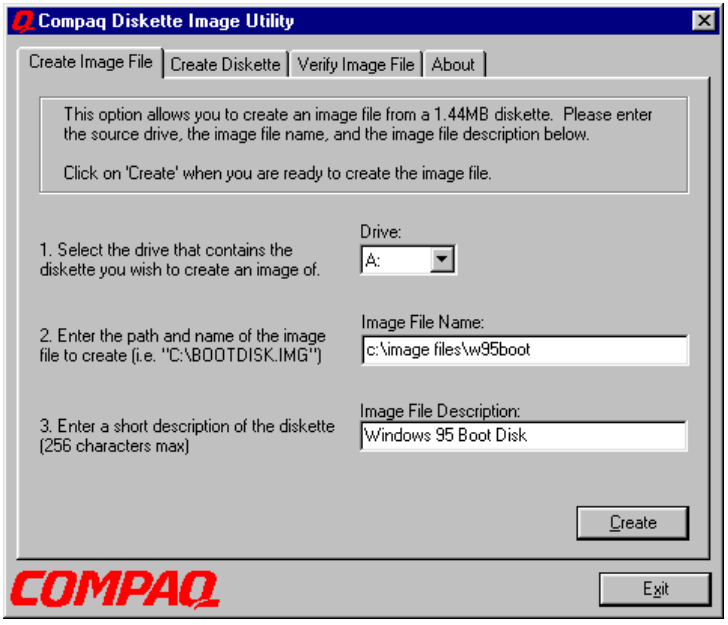

Figure 5-5. Create Image File screen

4. Click **Create** to generate the image file in the location you specified.

Creating a Diskette from an Image File

To create a standard 1.44-MB diskette from an image file:

1. Launch the Compaq Diskette Image Utility and click the **Create Diskette** tab.

2. Insert a blank diskette into your diskette drive.

CAUTION: If the diskette is not blank, all data on the diskette will be erased.

3. Provide the location and name of the image file and the target diskette drive. You can navigate to the location of the image file by clicking **Browse.**
4. Click **Create** to generate the diskette from the image file.

Comparing an Image File with a Diskette

To compare an existing image file with a diskette:

1. Launch the Compaq Diskette Image Utility and click the **Verify Image File** tab.
2. Insert the diskette that needs to be compared with an image file into your diskette drive.
3. Provide the location and name of the image file and the target diskette drive. You can navigate to the location of the image file by clicking **Browse.** Your screen should be similar to Figure 5-6.

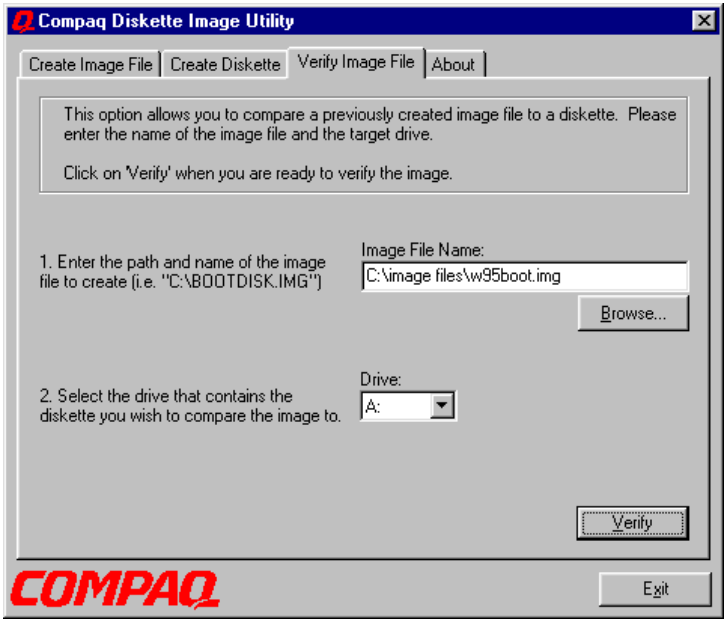

Figure 5-6. Verify Image File screen

4. Click **Verify** to start comparing the image file with the diskette. When the verification completes, a popup screen displays the results.

Managing the User and Configuration Settings of the Remote Insight Lights-Out Edition Board

The options available in the Administration section of the navigation frame let you manage user settings, SNMP alerting through integration with Compaq Insight Manager XE, security settings, and network environment settings. This section also provides a firmware upgrade option that lets you keep the Remote Insight Lights-Out Edition current.

Adding Authorized Users

The Administration section of the **Remote Insight** navigation frame lets you manage users of the RILOE board.

NOTE: Only users with supervisor access can manage other users on the RILOE board.

You can assign a different access level to each user. A user can have supervisor status with the ability to create, modify, or delete other users. Conversely, a user can be denied supervisor status and access to other features of the RILOE board.

The RILOE board supports up to 12 users. Login attempts are tracked and login failures are logged. You have the option of generating alerts on a remote management PC running Compaq Insight Manager XE when login attempts fail. The Remote Insight Lights-Out Edition will support all LAN-oriented security features and dynamic password encryption.

To add a new user to the RILOE board:

1. Log on to the RILOE board using an account that has supervisor status.
2. Click **Manage Users** in the Administration section of the **Remote Insight** navigation frame.

3. Click **Add New User** and complete the fields with the necessary information for the user being added.

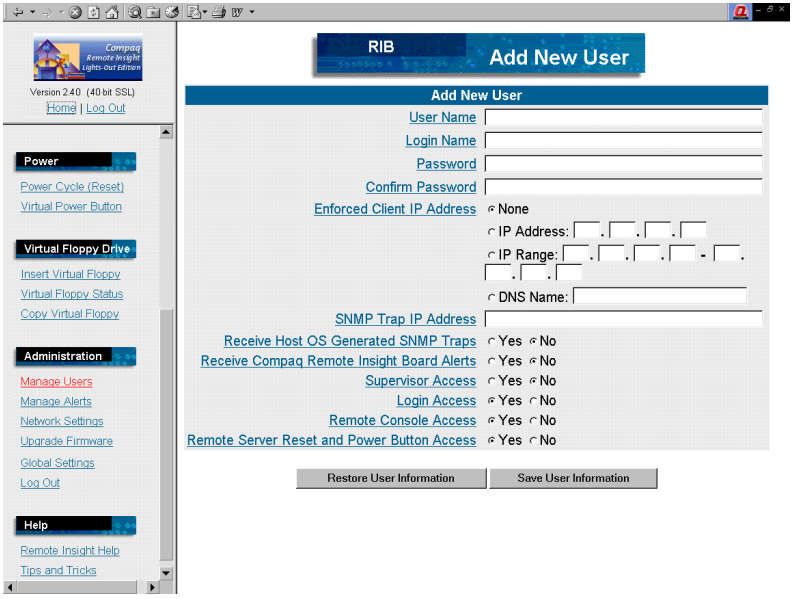

Figure 5-7. Add New User profile screen

NOTE: For detailed information about what is required for each field, click the hyperlink attached to each field name.

4. When the user profile is complete, click **Save User Information** to return to the **Manage Users** screen.

NOTE: To clear the user profile form while entering a new user, click **Restore User Information.**

Change an Existing User's Profile

Changing an existing user's information is also accomplished with the **Manage Users** option in the Administration section of the **Remote Insight** navigation frame.

IMPORTANT: Only users with supervisor access can manage other users on the RILOE board.

To change an existing user's information:

1. Log on to the RILOE board using an account that has supervisor status.
2. Click **Manage Users** and select from the list the name of the user whose information you want to change.
3. Click **Modify User.**
4. Change the user information in the fields that require modification. Click **Save User Information** to return to the **Manage Users** screen.

IMPORTANT: To recover the user's original information, click **Restore User Information.** All changes made to the profile will be lost.

NOTE: For detailed information about what can be entered in each field, click the hyperlink attached to each field name.

Lockout Capability for Remote Console Port

With version 2.32 and later, you are able to configure how visible the remote console port is on the network. The optional remote console port lockout capability allows you to control the remote console access port, allowing tighter security from unauthorized access. This option can only be configured by a user with supervisor access.

The Remote Console session port can be configured to be always enabled, always disabled, or auto-enabled when a Remote Console session is initiated by an authorized user. The configuration settings are controlled in the **Global Settings** window, as shown in Figure 5-8.

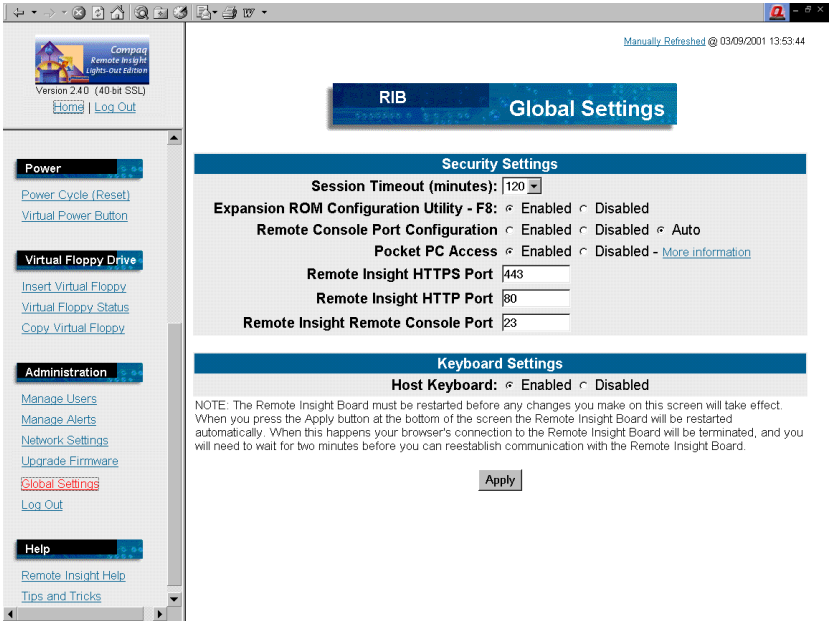

Figure 5-8. Global Settings window

With supervisor access, you can configure the Remote Console port availability using the options available in the **Remote Console Port Configuration** section. The **Remote Console Port Configuration** options are:

- **Enabled**—The Remote Console port is always available. This is the default setting. When the Remote Console port is available, with the correct login name and password, you can establish a text-based Remote Console session with the server.
- **Disabled**—The Remote Console port is always disabled. When the Remote Console port is unavailable, the socket is closed so that the port does not show up when ports are scanned.
- **Auto**—The Remote Console port becomes available only after a user with Remote Console privileges logs in to the RILOE board and initiates a Remote Console session. The Remote Console port becomes unavailable after the Remote Console session has ended.

Using a text-based terminal emulator program, such as HyperTerminal, a text-based remote console can be initiated through the remote console port using an authorized login name and password. To avoid unauthorized access in this manner, set the **Remote Console Port Configuration** to Auto.

If you choose to set the **Remote Console Port Configuration** to Auto, Compaq Insight Manager XE users will be unable to initiate a Remote Console session by right-clicking the server in the Compaq Insight Manager XE device list.

NOTE: This is only affected when managing the server through the Remote Insight Lights-Out Edition NIC.

For Compaq Insight Manager XE users set the **Remote Console Port Configuration** to Auto and initiate Remote Console session through the browser interface.

To configure remote console availability:

1. Log on to the RILOE board using an account that has supervisor status.

   NOTE: If you do not have supervisor status, you will be able to view only the Global Settings window.

2. Click **Global Settings** in the Administration section of the **Remote Insight** navigation frame.
3. Configure the remote console availability as needed by clicking the appropriate option in the **Remote Console Port Configuration** section.
4. Click **Apply** to complete the changes.

When you click **Apply**, the RILOE board restarts. When this happens, your browser's connection to the board will be terminated. After the RILOE board has restarted, it will initiate an auto-connect, allowing you to log in to the RILOE board.

Enabling SNMP Alerts

The Manage Alerts option in the Administration section of the **Remote Insight** navigation frame allows you to specify which type of alert messages will be forwarded from the host server and RILOE board to a Compaq Insight Manager XE console. The Manage Alerts option also allows you to send test alerts and to clear pending alerts. In both instances, the alerts will be displayed on a Compaq Insight Manager XE console.

NOTE: Users with supervisor status can configure alerts for all users, but this status is not a requirement for alert configuration. Any user with login access to the RILOE board can configure how alerts will be received by modifying the logged-on user profile.

There are two types of alerts that can be received:

- **Host OS Generated SNMP Traps**—The Insight Management agents provided for each supported network operating system generate these alerts. These agents must be installed on the host server to receive these alerts. Alerts are sent to Compaq Insight Manager XE clients on the network and forwarded asynchronously by the RILOE board to users that have been configured to receive them.
- **Compaq Remote Insight Board Alerts**—These alert the RILOE board detects conditions, and they are independent of the host server operating system. These alerts can be Compaq Insight Manager XE SNMP traps or pager alerts. Alerts include major events, such as host server power outage or host server reset and RILOE board events, such as a disconnected keyboard cable or an unauthorized login attempt.

To configure alerts:

1. Log on to the RILOE board using an account that has supervisor status.

NOTE: Users with supervisor status can configure alerts for all users. While logged on, users without supervisor status can configure alerts only for their user account.

2. Click **Manage Alerts** in the **Administration** section of the **Remote Insight** navigation frame. A screen similar to Figure 5-9 displays.

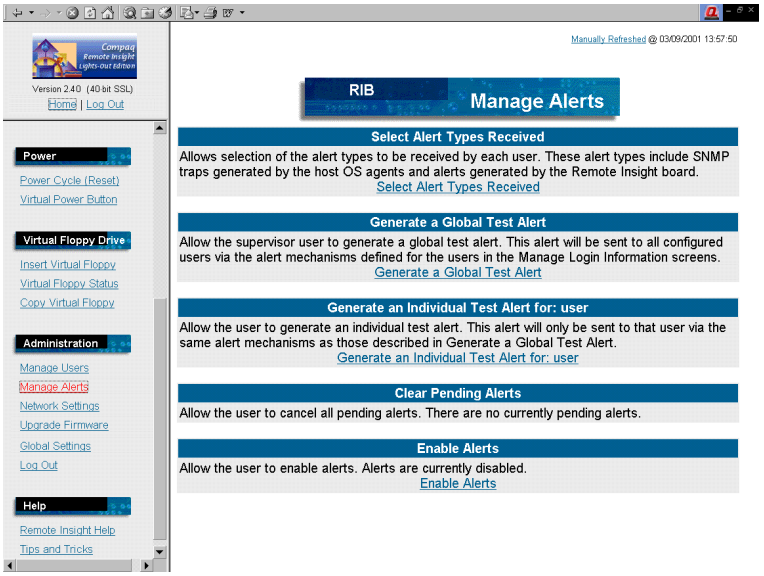

Figure 5-9. Manage Alerts screen

3. Click **Select Alert Types Received** and select the user for whom you want to configure alerts.

   NOTE: If you logged on using an account without supervisor status, you will see only the information for the account that is currently logged on.

4. Click **View Alerts** and select the type of alerts the user is to receive.

   IMPORTANT: Alerting requires an SNMP IP address. Ensure that you provide the IP address of the remote management system in the SNMP Trap IP Address field for the user configured to receive the alerts. If the user will be receiving SNMP trap alerts from the RILOE board at a Compaq Insight Manager XE console, the IP address of that console must be provided.

5. When done, click **Save Alert Information** to return to the **Manage Alerts** screen.

IMPORTANT: To recover the user's original alert information, click **Restore Alert Information.** All changes made to the configuration will be lost.

NOTE: For detailed information about what can be entered in each field, click the hyperlink attached to each field name.

Generating Test Alerts

Test alerts are generated by means of the Manage Alerts option in the Administration section of the **Remote Insight** navigation frame. These alerts include a Compaq Insight Manager XE SNMP trap and are used to verify the network connectivity of the RILOE board in Compaq Insight Manager XE. Test alerts can either be Global Test Alerts that are sent to all configured users of the RILOE board or Individual Test Alerts that are sent only to the user currently logged on.

NOTE: Only users with supervisor status can send Global Test Alerts.

To send out a test alert:

1. Click **Manage Alerts** in the **Administration** section of the **Remote Insight** navigation frame.
2. If you have supervisor status and want to send a Global Test Alert to all configured users, click **Generate a Global Test Alert.** If you do not have supervisor status, you can only send an alert to yourself by clicking on **Generate an Individual Test Alert for: User Name.**
3. After generating the alert, the message 'Global test trap alerts sent' displays.
4. Click **Manage Alerts** to return to the previous screen.
5. If the alert system is working correctly, an **Alarm** screen advising you that an alert has been received. For more information, see the "Receiving SNMP Alerts in Compaq Insight Manager XE" section in this chapter.

Disabling Alerts

The **Enable Alerts/Disable Alerts** feature on the **Manage Alerts** screen allows every user to enable or disable alerts globally.

To enable alerts or disable alerts, click **Enable Alerts** or **Disable Alerts.**

If alerts are enabled, then the **Disable Alerts** option displays. If alerts are disabled, then the **Enable Alerts** option displays.

Modifying Network Settings for the Remote Insight Lights-Out Edition Board

The Network Settings option in the Administration menu allows you to view and modify the NIC IP address, subnet mask, and other TCP/IP-related settings. From this screen you can enable or disable DHCP and, for servers not using DHCP, you can configure a static IP address. The Network Settings option is also the location where you specify the IP address or DNS name for Compaq Web-based Management agents.

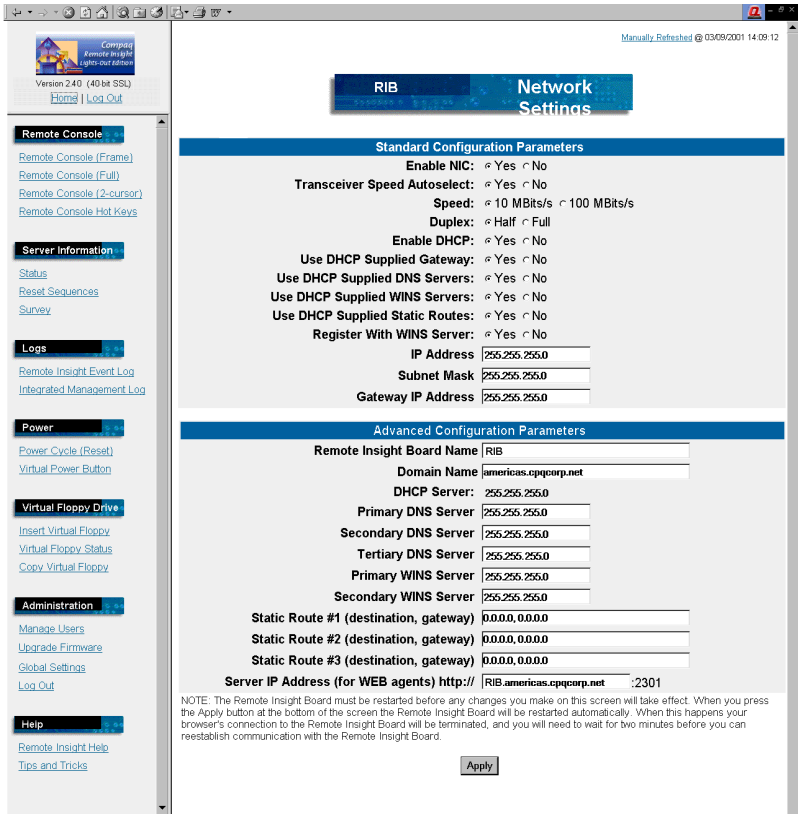

Figure 5-10. Network Settings screen

To change network settings for the RILOE board:

1. Log on to the Remote Insight Lights-Out Edition using an account that has supervisor status.

   NOTE: Users that do not have supervisor status will be able to view only assigned network settings.

2. Click **Network Settings** in the **Administration** section of the **Remote Insight** navigation frame.
3. Change the network settings as needed by typing in the fields. After the parameter changes have been made, click **Apply** to complete the changes.
4. When you click **Apply,** the RILOE board restarts. When this happens, your browser's connection to the board is terminated. To reestablish a connection, wait 60 seconds before launching another Web browser session and logging in to the RILOE board.

Security Settings

The **Global Settings** option in the Administration section allows you to view and modify security and keyboard settings for the RILOE board. The **Security Settings** option allows the Remote Console session on the network client to end automatically after the set amount of time selected. The **Keyboard Settings** option allows you to enable or disable the remote server's keyboard.

NOTE: Global Settings can be changed only by users with supervisor status. All other users can only view the settings.

Keeping the Remote Insight Lights-Out Edition Board Firmware Current

Firmware upgrades enhance the functionality of the RILOE board. The firmware upgrade can be done from any network client using a standard Web browser. However, only users with supervisor status can upgrade the firmware on the RILOE board.

To upgrade the board's firmware, you need a diskette containing the firmware version to which you want to upgrade the RILOE board. The most recent firmware for the Remote Insight Lights-Out Edition is available on the Compaq website at

www.compaq.com/lights-out

To upgrade the RILOE board firmware using a standard Web browser:

1. Log on to the Remote Insight Lights-Out Edition using an account that has supervisor status.
2. Click **Upgrade Firmware** in the **Administration** section of the **Remote Insight** navigation frame.
3. Follow the instructions on the firmware upgrade screen. If you need additional assistance, click **Firmware Upgrade Help.**
4. When the firmware update is complete, restart the Compaq Insight Management agents if they are older than those included on the Compaq Management CD 4.70.

Resetting the Remote Insight Lights-Out Edition to the Factory Default Settings

The RILOE board can be reset to the factory default settings by using the ROM-Based Setup Utility (**F8).** To reset the board to the factory settings:

1. Restart or power up the server.
2. Press the **F8** key to enter the ROM-Based Setup Utility when the cursor flashes and the Remote Insight Lights-Out Edition prompt displays on the screen.
3. Select **File,** then select **Set Defaults.**
4. Select **Enter,** when the screen displays **Set to Factory Defaults.**
5. Select **File,** then select **Exit.**

Getting Additional Help

Additional assistance for all Remote Insight Lights-Out Edition options is available by means of the Remote Insight Help and Tips and Tricks hyperlinks on the **Remote Insight** navigation frame. These links provide summary information about the features of the board and helpful information for optimizing the operation of the RILOE board.

You can also click the hyperlinks attached to field names throughout most of the configuration screens. These hyperlinks will provide specific information about the topic to which they are linked.

Integrating the Remote Insight Lights-Out Edition Board with Compaq Insight Manager XE

The Remote Insight Lights-Out Edition fully integrates with Compaq Insight Manager XE in key operating environments, providing access to Insight Management agents and support for full SNMP management. The RILOE board supports SNMP trap delivery to an Insight Manager XE Console, which can be configured to forward SNMP traps to a pager or email.

Full integration with Compaq Insight Manager XE also provides a single management console for launching a standard Web browser to access the RILOE board and for providing diagnostic information about the operation of the board. While the operating system is running, you can establish a connection to the Remote Insight Lights-Out Edition using Compaq Insight Manager XE.

Receiving SNMP Alerts in Compaq Insight Manager XE

Compaq Insight Manager XE provides support for full SNMP management, and the RILOE board supports SNMP trap delivery to a Compaq Insight Manager XE console. You can view the event log, select the event, and view the additional information about the alert, as shown in Figure 5-11.

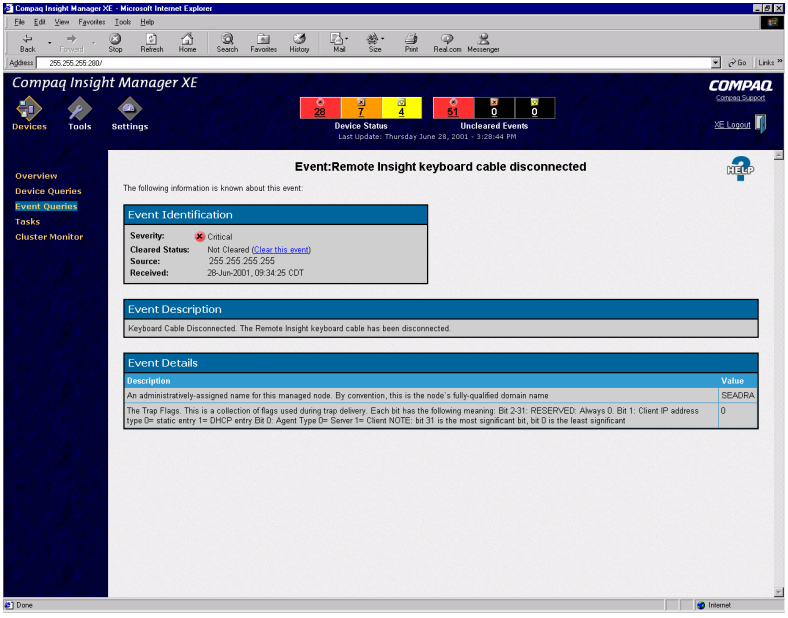

Figure 5-11. SNMP event screen

Configuring receipt of SNMP alerts in Compaq Insight Manager XE is a two-step process. The process requires configuring the RILOE board to enable SNMP alerts and configuring Compaq Insight Manager XE to receive SNMP alerts from a managed RILOE board.

To configure receipt of SNMP alerts in Compaq Insight Manager XE:

1. Use the **Manage Users** option in the **Administration** section of the **Remote Insight** navigation frame to enable SNMP alerting and to provide an SNMP trap IP address to the RILOE board. See the "Enabling SNMP Alerts" section earlier in this chapter for details.

2. Configure the RILOE board as a managed device for Compaq Insight Manager XE. Adding the board to Compaq Insight Manager XE allows the NIC interface on the Remote Insight Lights-Out Edition to function as a dedicated management port, isolating management traffic from the remote host server NIC interface.

   To configure the Remote Insight Lights-Out Edition as a managed device in Compaq Insight Manager XE:

1. Start Compaq Insight Manager XE. Click **Settings.** By default, the Automatic Discovery screen displays, as shown in Figure 5-12. Use this screen to add any management processor IP addresses that will be managed by Compaq Insight Manager XE. If the IP address does not already appear in the **IP Address Ranges** section, enter the IP address.

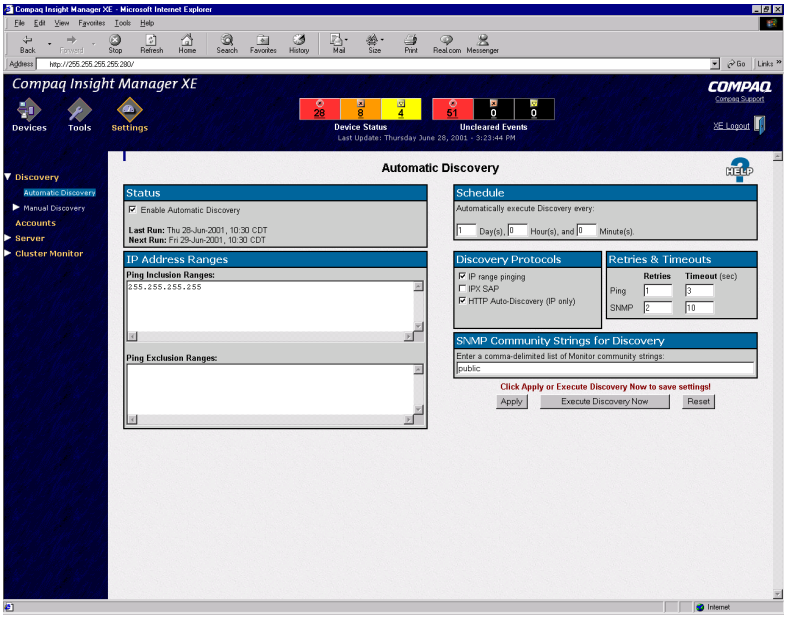

Figure 5-12. Automatic discovery screen

2. To add the RILOE board to Compaq Insight Manager XE, click **Execute Discovery Now.** The **Status** section will show the system being updated.

3. After the discovery is complete, subsequent queries will display the device as a management processor.

NOTE: Compaq Insight agents for the RILOE board must be installed on the remote host server to enable management of the RILOE board by Compaq Insight Manager XE. Refer to the Compaq Insight Manager XE documentation for additional details about installing and configuring agents.

Web Browser Launching

Compaq Insight Manager XE provides a single management console platform for launching a Web browser to access the Remote Insight Lights-Out Edition.

To launch a Web browser from the Compaq Insight Manager XE:

1. Access a query that contains the managed RILOE board. For example, the query for all devices.
2. Double-click the entry in the **Device Name** field that is the desired management processor.

3. At the device information page, click the **Web Server: Remote Insight** option in the **Device Links** section. This connects you to the Remote Insight Lights-Out Edition home page.

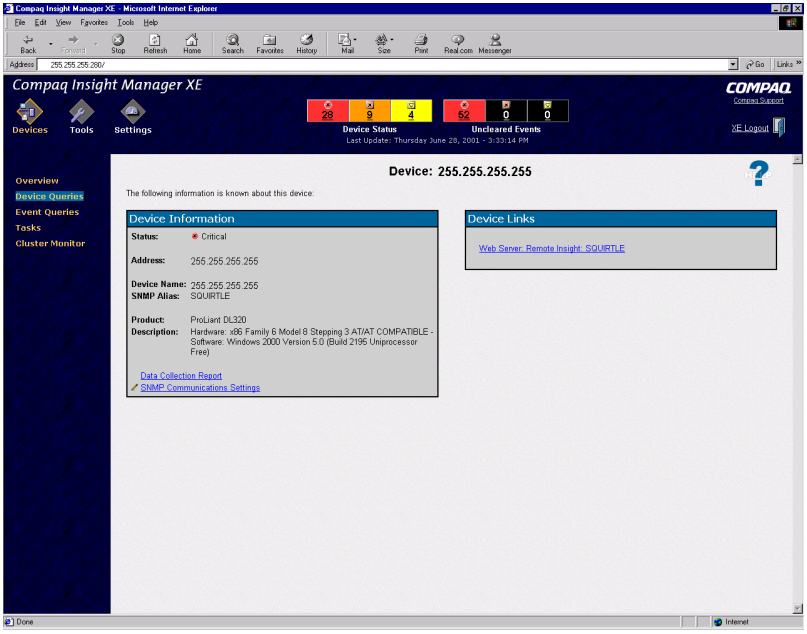

Figure 5-13. Device screen

Remote Insight Lights-Out Edition Board Health Statistics

The Compaq Management Agents provide options to manage the recovery of remote servers. The recovery options also provide access to the RILOE board and key RILOE statistics.

Follow these steps to access the RILOE board statistics:

1. Access a query that contains the managed RILOE board. For example, the query for all devices.
2. Double-click the entry in the **Device Name** field that is the desired management processor.
3. At the device information page, click the **Compaq Subsystem Status Information** option in the **Device Links** section. This connects you to the Compaq Management Agents page.

4. In the **Recovery** section of the Compaq Management Agents navigation frame, click **Remote Insight.**

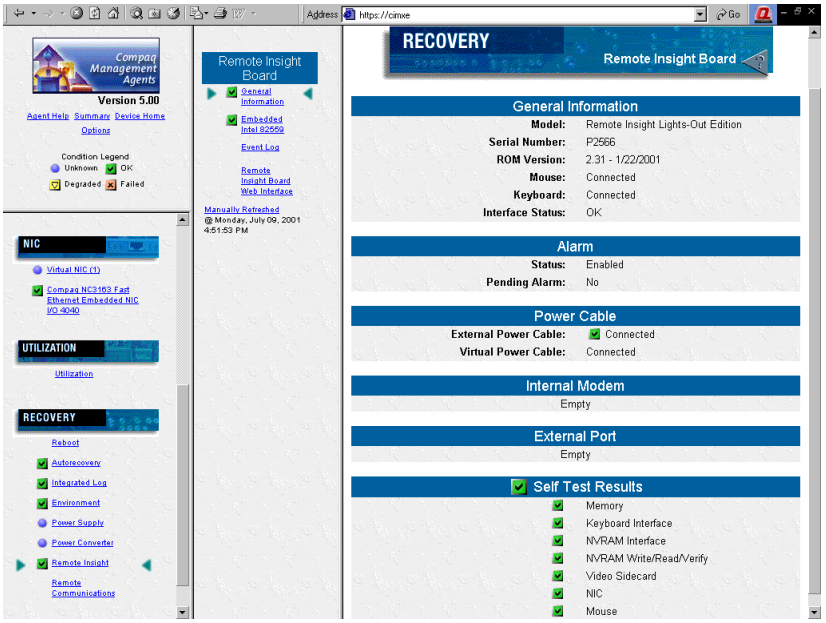

Figure 5-14. Recovery screen for a Remote Insight board

The Remote Insight option allows you to view general information about the board, alarm and cable status, and self-test results. You can also view NIC information, the Event Log, and connect to the RILOE board.

Using Compaq Insight Manager XE

For detailed instructions about using Compaq Insight Manager XE with the RILOE board, refer to the documentation provided with Compaq Insight Manager XE.

Pocket PC Access

Firmware version 2.32 and later provides a preview of RILOE board support for wireless and dial-up access from the Compaq iPAQ H3600 Series Pocket PC handheld devices. The RILOE board provides a special user-interface when connecting from the Compaq iPAQ Pocket PC.

Pocket PC Access is currently under development and is being provided by Compaq as a Technology Preview only. It is not a supported feature beyond the Compaq Technical Phone Support Center verifying whether it is configured correctly.

Compaq would appreciate feedback from customers on this functionality. To provide feedback, access the following website and submit the feedback form:

www.compaq.com/manage/riloe/feedback.html

Features on the handheld interface in firmware version 2.32 and later include:

- Remote Insight Summary
- Status
- Virtual Power Button
- Reboot Server
- Virtual Floppy Status
- Integrated Management Log
- Remote Insight Event Log
- SSL Encryption—40-bit and 128-bit options

To enable the Pocket PC Access feature:

1. Log on to the RILOE board using an account that has supervisor status.
2. Click **Global Settings** in the **Administration** section of the **Remote Insight** navigation frame.

   NOTE: If you do not have supervisor status, you can only view the **Global Settings window.**

3. Click **Enabled** in the **Pocket PC Access** section.
4. Click **Apply** to save the changes.

After **Apply** is clicked, the RILOE board restarts. When this happens, your browser's connection to the board is terminated. After the system has restarted, it initiates an auto-connect, allowing you to log in to the RILOE board.

The following is an example of accessing the **Remote Insight Light-Out Edition** built-in website with the Compaq iPAQ H3600 Pocket PC:

1. When the **Remote Insight Lights-Out Edition** built-in website is accessed, the client browser is detected. If the client is an iPAQ running Pocket Internet Explorer, specific content is provided that has been optimized for display on the small form factor screen. The initial Web page, as shown in Figure 5-15, is not encrypted. You must tap **Tap here to login to *RILOE name.***

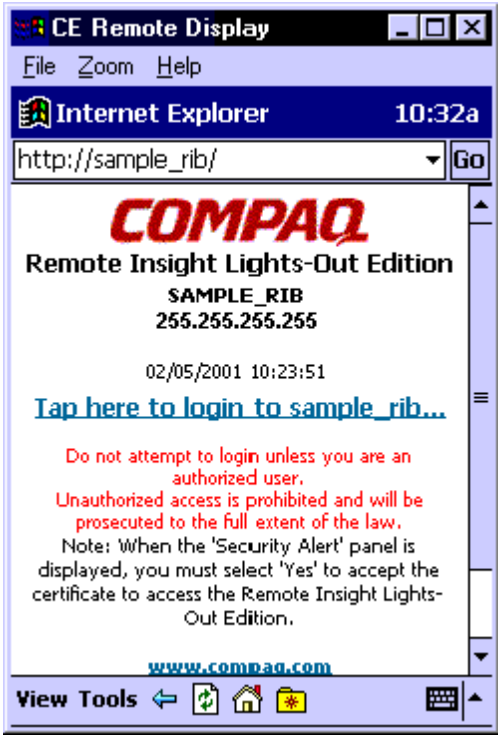

Figure 5-15. Initial display window for iPAQ

2. An SSL session is negotiated and a certificate warning is displayed, as shown in Figure 5-16. Tap **Yes** to proceed to the login screen.

Figure 5-16. Security certificate for iPAQ

3. In the login window, Figure 5-17, enter a valid user ID and password and tap **Go.** Do not enable the **Save Password** option.

NOTE: The user ID and password are case sensitive. The password must be at least eight characters in length.

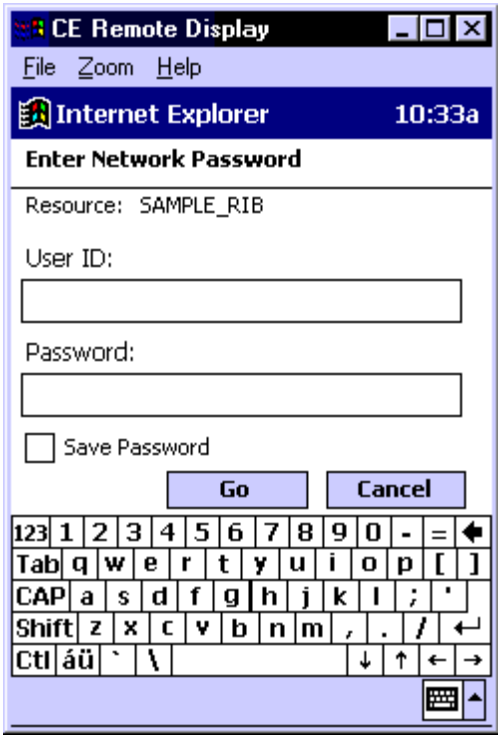

Figure 5-17. Login window for iPAQ

4. If your user ID and password are valid, you are logged in to the RILOE board and a Web page similar to that shown in Figure 5-18 displays.

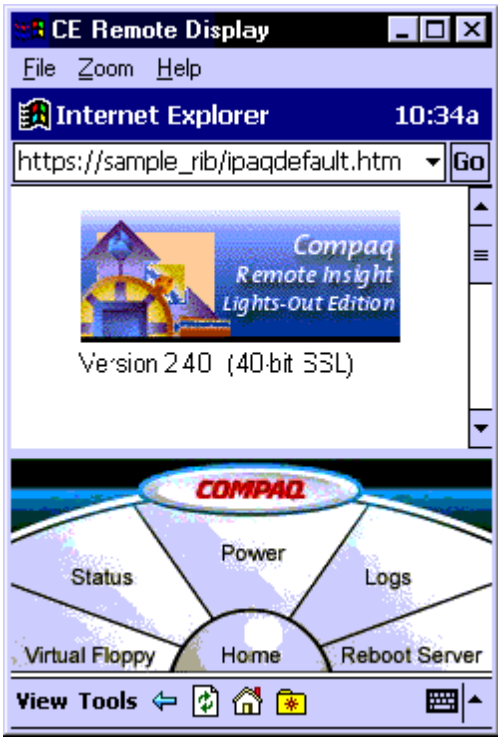

Figure 5-18. Web page for iPAQ

At a minimum, the iPAQ browser interface supports a way to exercise the Virtual Power Button, reboot the server, change the Virtual Floppy status, view the logs, and show status information.

> **NOTE:** If you attempt to browse any unsupported Web page, you are redirected to the Web page shown in Figure 5-18, which is the initial display window.

Browsing an unsupported Web page would be considered any attempt to utilize the iPAQ browser interface for functionality beyond the scope of the functions listed. For example, attempting to access **Global Settings** from the iPAQ would result in being redirected to the initial display window.

In this case, because you are already logged in, tapping the **Tap here to login to *RILOE name*** option at the initial display window bypasses the login screen and takes you to the home page.

You can enable or disable the iPAQ browser interface in **Global Settings** only from a desktop browser. If access has been disabled, the iPAQ user will be notified by the Web page message, "Handheld access to sample_rib has been DISABLED."

Trying the Pocket PC feature, note the following:

- User authentication is required for access to the RILOE board. After authentication, the Pocket PC user remains logged in until the session is ended by closing the Pocket PC browser. To close the browser, tap the **Q** key, tap **Close active task,** and stop the browser.
- When logging in to the RILOE board with the Pocket PC browser, do not select the **Save Password** option. Otherwise, the next time the browser is used to connect to the same RILOE board, the browser will automatically authenticate by presenting the saved user ID and password. Consequently, the Pocket PC user cannot log on as a different user.

  Save Password is not enabled by default. In the case where **Save Password** was enabled by the user and a different user cannot log in through the Pocket PC, you must log on to the RILOE board using the Windows desktop browser and change or delete the user ID or change the password, so automatic authentication by the Pocket PC will no longer match.
- Pocket PC users may be unable to establish a connection to a RILOE board with version 2.32 (128-bit SSL) because of insufficient security software in the Pocket PC browser. The error that displays is "A connection cannot be established," however, the issue is that the browser requires 128-bit encryption. To resolve this issue, the user must download the Microsoft 128-bit Encryption Pack for Pocket PCs from Microsoft. This scenario does not occur with version 2.32 (40-bit SSL). The encryption pack can be downloaded from Microsoft at

  www.microsoft.com/mobile/pocketpc/downloads/ssl128.asp

Chapter **6**

Group Administration

This chapter discusses administration for a group of Remote Insight Lights-Out Edition boards by using the Compaq Lights-Out Configuration Utility executable file, *CPQLOCFG.EXE*. This executable can be utilized through either Compaq Insight Manager XE or batch processing.

NOTE: The commands listed in this document are based on the 2.40 firmware update. If you have not done so already, download the 2.40 update from the Compaq website at

www.compaq.com/lights-out

NOTE: Due to functional changes and the expansion of the command language, the 2.40 update is not backwards compatible with earlier versions of firmware. To update a RILOE board that is on firmware version 2.32 or earlier, you must use a browser or ROMPaq.

NOTE: The commands for firmware version 2.40 should not be used on a RILOE board containing the firmware version 2.32 or prior. The commands for firmware version 2.32 or prior should not be used on a RILOE board containing the 2.40 firmware update.

Features

The Compaq Lights-Out Configuration Utility allows you to perform the following functions.

- Add, modify, or delete a user.
- Obtain individual or all users' configuration information.
- Modify network settings.
- Modify global settings.
- Clear the RILOE Event Log
- Obtain the firmware version of the RILOE board.
- Update the RILOE board firmware.
- Obtain and set the Virtual Floppy status.
- Insert, copy, and eject a Virtual Floppy image.
- Configure Remote Console hotkey settings.
- Obtain and set the Virtual Power Button status.
- Obtain the server power status.
- Reset the server.

Compaq Insight Manager XE

After the firmware has been updated, the IT administrator can manage multiple Remote Insight boards through Compaq Insight Manager XE. The four components of group administration are Remote Insight board Command Language (RIBCL), the Compaq Lights-Out Configuration Utility, Query Definition in Compaq Insight Manager XE, and Application Launch.

Compaq Insight Manager XE discovers the Compaq Remote Insight Lights-Out Edition boards as management processors. During this process, it also discovers Remote Insight board/PCI as management processors. When group administration is performed, the Remote Insight boards/PCI generates an error. Exclude these boards during the Query Definition process.

Compaq Insight Manager XE uses the Compaq Lights-Out Configuration Utility to send an RIBCL file to a group of Remote Insight Lights-Out Edition boards to manage the user accounts for those boards. The boards then perform the action designated by the RIBCL file and send a response to the log file.

Remote Insight Board Command Language

The RIBCL is a dialect of XML. The information presented in the XML file is not designed to display information in a Web browser but is designed to enable secure communication between the Remote Insight Lights-Out Edition board and the host application.

See Appendix C for a complete listing of RIBCL tags and error messages.

See Appendix C for a sample script used for adding, modifying, or deleting a user on a Remote Insight Lights-Out Edition board.

Compaq Lights-Out Configuration Utility

The Compaq Lights-Out Configuration Utility is used to execute the RIBCL on the Remote Insight Lights-Out Edition boards. The executable file for the utility is *CPQLOCFG.EXE*. This file can be downloaded from the Compaq website:

www.compaq.com/lights-out

The Compaq Lights-Out Configuration Utility must reside on the same server as Compaq Insight Manager XE. The Compaq Lights-Out Configuration Utility generates two types of error messages: runtime and syntax. A runtime error occurs when an invalid action is requested.

NOTE: Runtime errors are logged to the following directory:

C:\PROJ FILES\COMPAQ\COMPAQ INSIGHT MANAGER XE

A syntax error occurs when an invalid XML tag is encountered. When a syntax error occurs, the Compaq Lights-Out Configuration Utility stops running and logs the error in the runtime script and output log file.

NOTE: Syntax errors take the format of "Syntax error: expected 'x' but found 'y'" as shown in the following example:

Syntax error: expected USER_LOGIN=*userlogin* but found USER_NAME=*username*

See Appendix C for a complete listing of errors.

Query Definition in Compaq Insight Manager XE

To group all of the Remote Insight Lights-Out Edition boards, log on to Compaq Insight Manager XE and create a query.

To create the query:

1. Log on to Compaq Insight Manager XE.
2. Click **Device Queries** in the navigation bar on the left side of the screen.

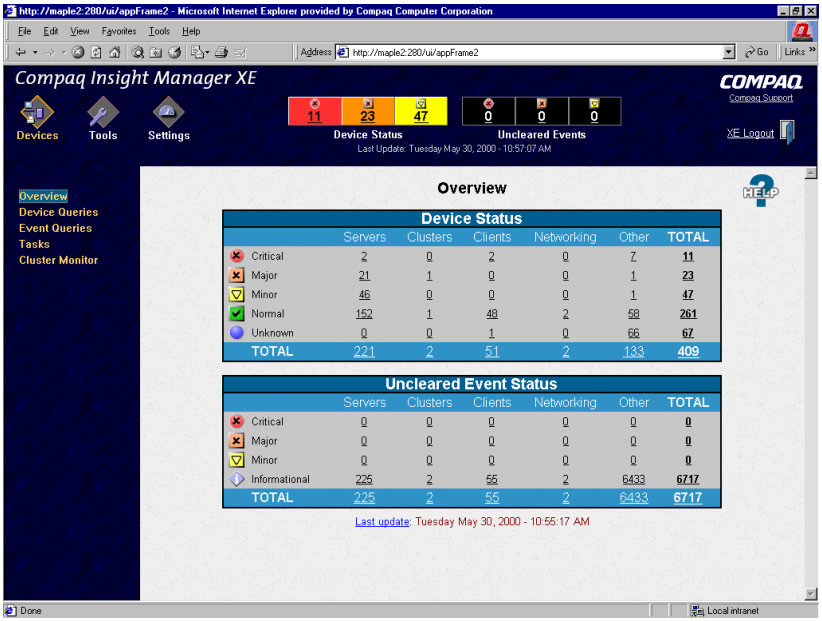

Figure 6-1. Starting the Device Queries in Compaq Insight Manager XE

3. Locate the **Personal Queries** section in the main window. If a query category exists, proceed to step 6, otherwise proceed to step 4.

Figure 6-2. Finding Personal Queries

4. Click **New** to create a new category. For this example, the name of the new category is RIB Cards. Click **Create Category.**

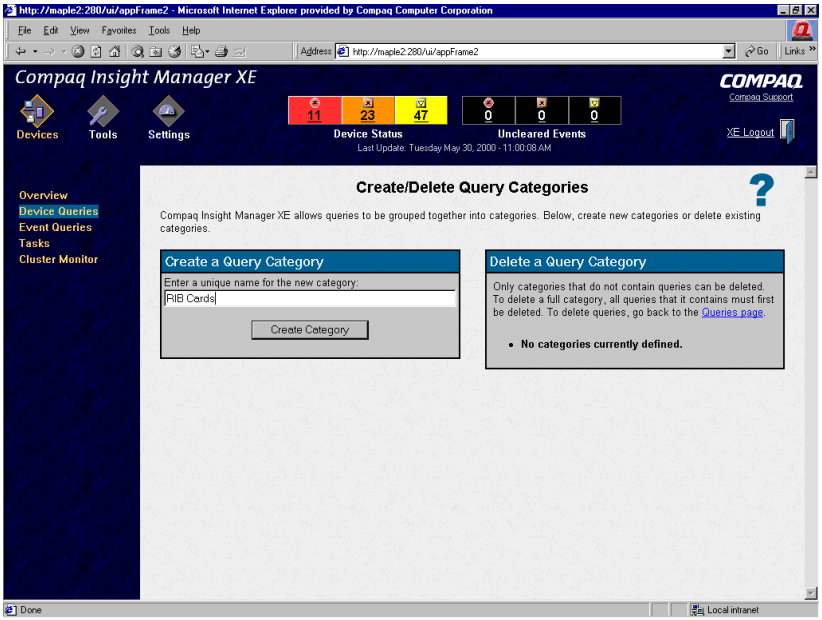

Figure 6-3. Creating a new query category

5. Click **Queries page** to return to the **Device Queries** screen.
6. Click **New,** within the appropriate query category, to open the **Create/Edit Query** screen where the query definition is created.

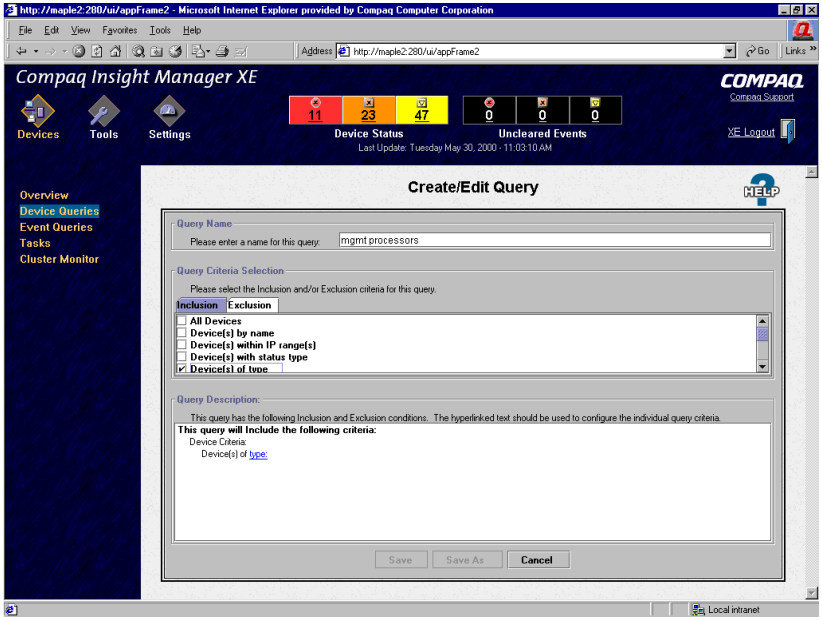

Figure 6-4. Creating the query definition

7. Define your query name, for example Mgmt Processors.
8. Select **Device(s) of type** within the **Query Criteria Selection** frame to create a query definition.

9. Click **type** in the Query Description frame, which opens a pop-up window where you define the device type.

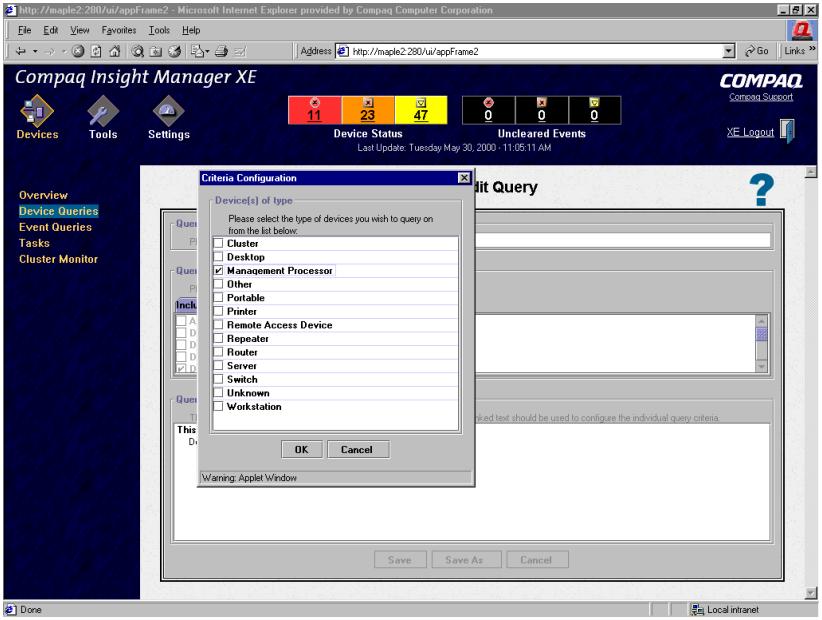

Figure 6-5. Selecting the device type

10. Check **Management Processor** and click **OK.**
11. Click **Save** to return to the **Device Query** screen.
12. Find the newly created query in the appropriate query category and click the query name to run it for verification.
13. Click **Overview** on the left side of the screen after the verification has taken place. The initial page for Compaq Insight Manager XE opens.

Application Launch

The application launch combines the RIBCL, the Compaq Lights-Out Configuration Utility, and the query definition to manage the group administration for the Remote Insight Lights-Out Edition boards.

To create an Application Launch Task:

1. Click **Tasks** in the navigation bar on the left side of the screen to open the **Tasks** screen.

Figure 6-6. Opening the Tasks page

2. Click **New Control Task.** A drop-down menu displays.

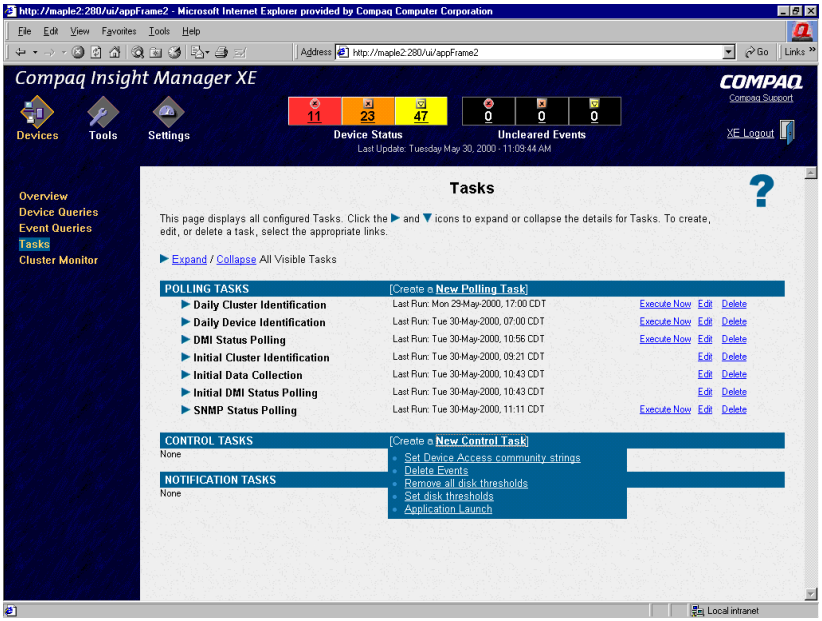

Figure 6-7. Initiating the application launch

3. Click **Application Launch** from the drop-down menu to open the **Create/Edit Task** screen.

4. Type the full path and name for the Compaq Lights-Out Configuration Utility in the area provided. If the *CPQLOCFG.EXE* file is in the root directory of Compaq Insight Manager XE on the C:\ drive, then the path is:

   C:\CIMXE20\CPQLOCFG.EXE

5. Type the parameters in the area provided. Compaq Insight Manager XE requires the following parameters for the Compaq Lights-Out Configuration Utility:

   - -F—Full path of the RIBCL file name
   - -V—Verbose message (optional)

   If the RIBCL file is in the root directory of Compaq Insight Manager XE on the C:\ drive the parameters are:

   -F C:\CIMXE20\MANAGEUSERS.TXT -V

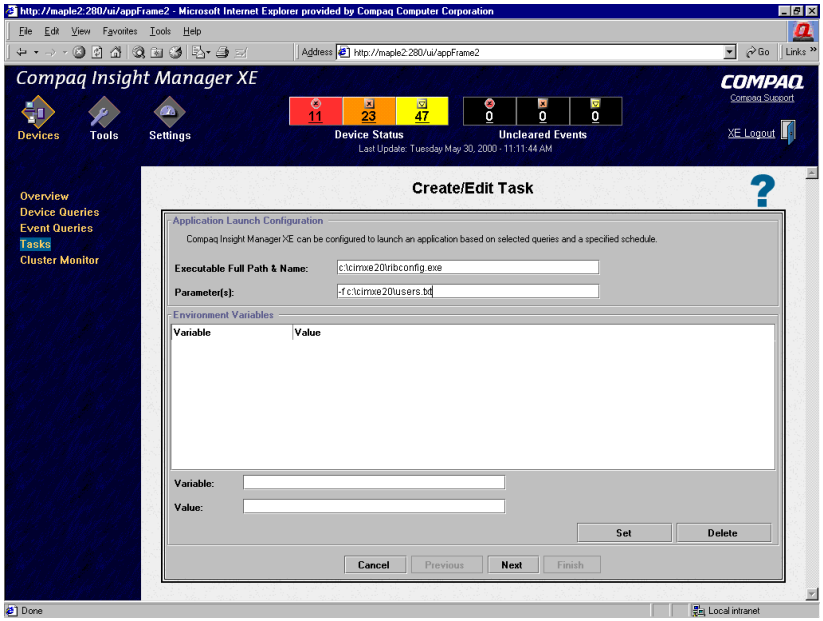

Figure 6-8. Creating a new task

NOTE: Compaq Insight Manager XE 2.0 does not send all the required environment variables when launching an application. *CPQLOCFG.EXE* requires that the "systemroot" variable be set. This usually points to the Windows NT directory. Check your settings by typing "**SET**" at a command prompt. An example:

SYSTEMROOT=C:\WINNT

Compaq Insight Manager XE 2.1b and later do not require you to set the environment variable.

NOTE: Compaq Insight Manager XE does not allow the -L parameter to designate an output log file. A default log file named with the DNS name or the IP address is created in the same directory where CPQLOCFG is launched.

6. Click **Next.** A screen displays with options for naming the task, defining the query association, and setting a schedule for the task.

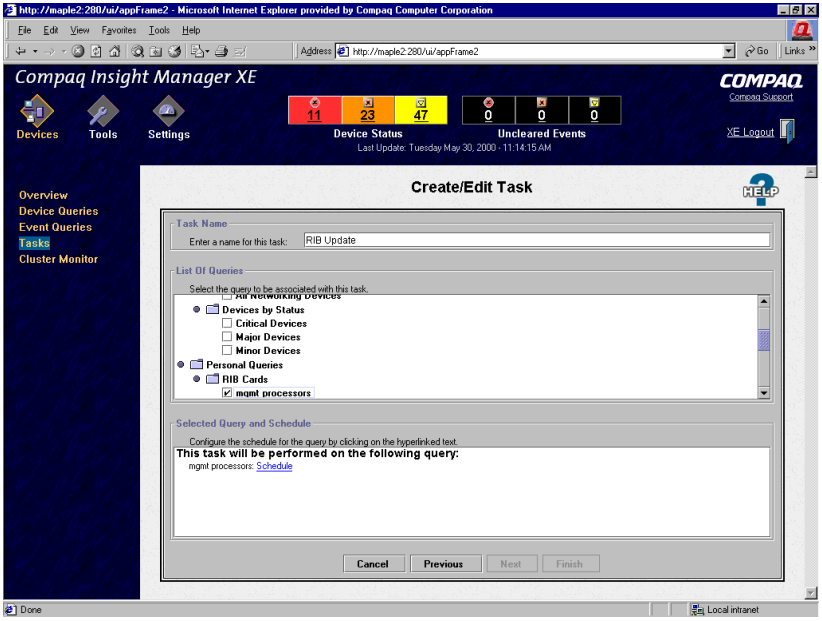

Figure 6-9. Defining the task

7. Enter a task name in the **Enter a name for this task** field.
8. Select the query that had been created earlier, for example Mgmt Processors.

9. Click **Schedule** to define when the Application Launch Task will run. A schedule configuration window displays.

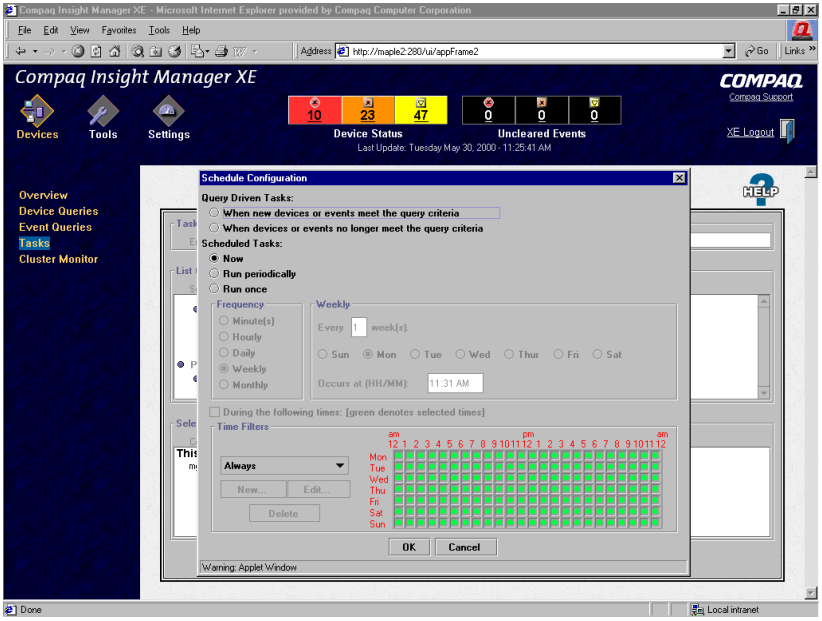

Figure 6-10. Defining the schedule

10. Click **OK** to set the schedule.

NOTE: The default schedule for a control task is **Now.**

11. Click **Finish** to save the Application Launch Task.

12. Click **Execute Now,** which is to the right of the newly created control task, to execute the group administration.

Figure 6-11. Running the Control Task

Batch Processing

Group administration can also be delivered to the Compaq Remote Insight Lights-Out Edition boards through batch processing. The components used by batch processing are the Compaq Lights-Out Configuration Utility, an RIBCL file, and a batch file.

Compaq Lights-Out Configuration Utility

The Compaq Lights-Out Configuration Utility is used to execute the RIBCL on the Compaq Remote Insight Lights-Out Edition boards. The executable for the Compaq Lights-Out Configuration Utility is *CPQLOCFG.EXE*. This file can be downloaded from the Compaq website at

www.compaq.com/lights-out

The following is an example of the Compaq Lights-Out Configuration Utility command line and explanations of the switches:

```
CPQLOCFG.EXE –S SERVER_NAME –F C:\RIBCLFILE.TXT –L C:\LOGFILE.TXT –V
```

where:

- -S is the switch that determines the Compaq Remote Insight Lights-Out Edition board that is to be updated. This switch is either the DNS name or IP address of the target server.

  Do not use this switch if launching from Compaq Insight Manager XE.

- -F is the switch that gives the location and name of the RIBCL file that contains the actions to be performed on the board.

- -L is the switch that defines where the log file will be generated and what the file name will be. If this switch is omitted, a default log file named with the DNS name or the IP address is created in the same directory where CPQLOCFG is launched.

  Do not use this switch if launching from Compaq Insight Manager XE.

- -V is the optional switch that turns on the verbose message return. The resulting log file will contain all commands sent to the RIB board, all responses from the RIB board, and any errors. By default, only errors and responses from GET commands will be logged without this switch.

- -C will cause CPQLOCFG to check the syntax of the XML, but not open a connection to the RIB.

The following example shows a sample batch file that can be used to perform the Group Administration for the Compaq Remote Insight Lights-Out Edition board:

```
REM Updating the Compaq Remote Insight Lights-Out Edition board
REM Repeat line for each board to be updated
REM
CPQLOCFG -S RIB1 -F C:\CIMXE20\USERS.TXT -L RIB1LOG.TXT -V
CPQLOCFG -S RIB2 -F C:\CIMXE20\USERS.TXT -L RIB2LOG.TXT -V
CPQLOCFG -S RIB3 -F C:\CIMXE20\USERS.TXT -L RIB3LOG.TXT -V
.
.
.
CPQLOCFG -S RIBN -F C:\CIMXE20\USERS.TXT -L RIBNLOG.TXT -V
```

The switches -L and -V may or may not be set depending on the IT administrator's preferences.

If it is not in the same directory, be sure that the Compaq Lights-Out Configuration Utility is in a directory referenced by the PATH environment variable. Any log files generated will be placed in the same directory as the Compaq Lights-Out Configuration Utility executable.

NOTE: The Compaq Lights-Out Configuration Utility overwrites any existing log files.

Compaq Lights-Out DOS Utility

Compaq Lights-Out DOS Utility (CPQLODOS) is a subset of the CPQLOCFG utility. CPQLODOS provides a command-line utility that a user can use to bootstrap a Remote Insight Lights-Out Edition configuration into a new server.

The CPQLODOS utility allows the user to configure a subset of the configuration parameters exposed through:

- F8 configuration
- The Remote Insight Lights-Out Edition GUI

CPQLODOS is not intended for continued administration. The Compaq Lights-Out Configuration Utility should be use for administration purposes.

For more information on the CPQLODOS utility, refer to Appendix D.

Chapter 7

Troubleshooting the Remote Insight Lights-Out Edition

This chapter contains the following troubleshooting sections:

- Resetting the Remote Insight Lights-Out Edition Board
- Login Name and Password Not Accepted
- Troubleshooting Video and Monitor Problems
- Troubleshooting Alert and Trap Problems
- Troubleshooting NetWare Driver Problems
- Troubleshooting Miscellaneous Problems
- Interpreting LED Error Codes
- Event Log Entries

Resetting the Remote Insight Lights-Out Edition Board

There are various times when you may need to reset the Remote Insight Lights-Out Edition board. Follow the instructions for your server's operating system to reset the board.

NOTE: Resetting the Remote Insight Lights-Out Edition board will reset the Remote Console settings to the default values.

NOTE: Resetting the Remote Insight Lights-Out Edition board in a Novell NetWare server at the command line is not supported.

To reset the Remote Insight Lights-Out Edition in a Windows NT server, follow these steps:

1. In Control Panel, select **Services** and stop the Insight Agents.
2. In Control Panel, select **Insight Agents.**
3. Select **Remote Insight** and click Reset.
4. Restart the Insight Agents.

Login Name and Password Not Accepted

If you have connected to the board but it does not accept your login name and password, you must verify that your login information is configured correctly. Connect to the Remote Insight Lights-Out Edition using your browser, log in with a user name that has supervisor status, and reenter the login name and password that are not being accepted.

NOTE: The login name and password are case sensitive.

You also can reenter the login name and password using the System Configuration Utility.

1. On the server, run the System Configuration Utility.
2. Scroll down to the **Configure Users** field and press the **Enter** key.

3. Select the user having trouble, and verify the login name. The user's password will not be visible, but it can be entered again on this screen.
4. Check the **Security Access** field to verify that this user has login access.

NOTE: The ROM-Based Setup Utility can also be used to correct login problems.

Troubleshooting Video and Monitor Problems

No Video after Installing the Remote Insight Lights-Out Edition Board and Powering On the Server

The Remote Insight Lights-Out Edition contains an integrated VGA controller. When the controller board is first installed, the server detects this controller and attempts to use it by switching video from the server's integrated video controller. Therefore, your monitor must be connected to the Remote Insight Lights-Out Edition board. See the "Monitor Cable Connection" section in Chapter 2.

If you have a PCI-based VGA controller installed in a server slot, you must remove it for the VGA controller on the Remote Insight Lights-Out Edition to work.

IMPORTANT: Some Compaq servers, such as the Prosignia 200 and the ProLiant 800, contain PCI-based VGA controllers. These controllers must be removed to configure the VGA controller on the Remote Insight Lights-Out Edition board.

The Remote Insight Lights-Out Edition board must be installed in a PCI slot that is connected to the primary bus. See the "Determining an Available Slot" section in Chapter 2 to ensure that the board is installed in an appropriate slot. If your server is not listed in Table 2-1, refer to the Compaq website for an updated table:

www.compaq.com/lights-out

Some Compaq servers require disabling of the embedded video before installing the Remote Insight Lights-Out Edition board. The embedded video controller can be disabled by powering off the server and setting system configuration maintenance switch 1 to ON.

The following servers require the embedded video to be disabled:

- ProLiant 400
- ProLiant ML330
- ProLiant ML350
- Prosignia 720

Inability to Connect to the Board through the NIC

If you cannot connect to the board through the NIC, try any or all of the following troubleshooting methods:

- Confirm that the green LED indicator (link status) on the board's connector bracket is on. This condition indicates a good connection between the PCI NIC and the network hub.
- Look for intermittent flashes of the green LED indicator, indicating normal network traffic.
- Run the System Configuration Utility to confirm that the NIC is enabled and to verify the assigned IP address and subnet mask.
- From another workstation on the same network, ping the IP address of the NIC.
- Attempt to connect with browser software by typing the IP address of the NIC as the URL. You can see the Remote Insight home page from this address.
- Reset the Remote Insight Lights-Out Edition.

To reset the Remote Insight Lights-Out Edition in a NetWare server, at the command line enter:

```
RIB Reset
```

To reset the Remote Insight Lights-Out Edition in a Windows NT server, follow these steps:

1. In Control Panel, select **Services** and stop the Insight Agents.
2. In Control Panel, select **Insight Agents.**

3. Select **Remote Insight** and click **Reset.**
4. Restart the Insight Agents.

Inability to Get SNMP Information from Compaq Insight Manager XE when Connected to the Remote Insight Network Interface

The agents running on the managed server supply the SNMP information provided to Compaq Insight Manager XE. For those agents to pass information through the Remote Insight Lights-Out Edition, the Remote Insight device drivers must be installed. See the "Installing Remote Insight Lights-Out Edition Device Drivers" section in Chapter 3 for installation instructions.

If you have installed the drivers and agents for the Remote Insight Lights-Out Edition, verify that the Remote Insight Lights-Out Edition and the management PC are on the same subnet. You can verify this quickly by pinging the Remote Insight board from your management PC. See your network administrator for proper routes to access the network interface of the Remote Insight Lights-Out Edition.

Inability of Web Browser to Connect to the Remote Insight Lights-Out Edition IP Address

If your Web browser software is configured to use a proxy server, it will not connect to the Remote Insight Lights-Out Edition IP address. To resolve this issue, configure your browser not to use the proxy server for the IP address of the Remote Insight Lights-Out Edition. For example, in Internet Explorer, select **View, Options, Connection Settings,** and then enter the IP address in the **Exceptions** field.

NOTE: If your Remote Insight Lights-Out Edition is using 128-bit encryption, ensure that your client browser supports 128-bit encryption.

Troubleshooting Alert and Trap Problems

Inability to Receive Compaq Insight Manager XE Alarms (SNMP Traps) from the Remote Insight Lights-Out Edition

A user with supervisor access must connect to the Remote Insight Lights-Out Edition or run the System Configuration Utility to configure SNMP trap parameters.

1. Ensure that the correct alert types are enabled, either in the **Manage Alert Information** screen of the Remote Insight console application or in the **Alerts Received** field on the **User Information** screen in the System Configuration Utility.
2. On the server, run the System Configuration Utility and verify that the **Alerts** field is set to **Enabled.** This field globally enables or disables alerts for all Remote Insight Lights-Out Edition users.

Troubleshooting NetWare Driver Problems

When a NetWare server is started, each driver loaded in the *AUTOEXEC.NCF* is executed. If a problem is found during execution, an initialization error is displayed. Table 7-1 shows potential initialization error messages and suggested courses of action.

Table 7-1
NetWare Error Messages

Error Message	Action
Adapter IRQ or memory settings not set	Run the Compaq System Configuration Utility.
Unable to allocate resource tag	Apply any relevant NetWare patches. Contact your service provider.
Unable to register NetWare hardware options	Apply any relevant NetWare patches. Run Compaq Diagnostics on the Remote Insight Lights-Out Edition.

continued

Table 7-1
NetWare Error Messages *continued*

Error Message	Action
Remote Insight interface type unknown	Upgrade CPQRI.NLM to a newer version.
Unable to initialize the Remote Insight Lights-Out Edition	Run Compaq Diagnostics on the Remote Insight Lights-Out Edition.
Unable to allocate memory	Check available NetWare resources.
Remote Insight Lights-Out Edition not found	The Remote Insight Lights-Out Edition board is not installed in the server. The board must be installed before loading the device driver.

Troubleshooting Miscellaneous Problems

Incorrect Time or Date of Entries in the Event Log

You can update the time and date on the Remote Insight Lights-Out Edition by running the System Configuration Utility. This utility automatically sets the time and date on the board using the server time and date. The time and date are also updated by Insight Management agents on supported network operating systems.

Inability to Reboot the Server

If you have added the Remote Insight Lights-Out Edition board to a server that was already up and running, run the System Configuration Utility to properly configure the Remote Insight Lights-Out Edition board with information about that server. See Chapter 3 for the steps to configure your Remote Insight Lights-Out Edition using the System Configuration Utility.

The Remote Insight Lights-Out Edition must be installed in a PCI slot that is connected to the primary bus. See the "Determining an Available Slot" section in Chapter 2 to ensure that the board is installed in an appropriate slot. If your server is not listed, refer to the Compaq website for an updated table:

www.compaq.com

NOTE: If you are using the Virtual Power Button feature, verify that the Virtual Power Button cable has been installed correctly.

Inability to Upgrade the Board's Firmware

If you attempt to upgrade the firmware of the Remote Insight Lights-Out Edition and the board does not respond or does not accept the firmware upgrade, you must force the ROM upgrade procedure by changing the default switch settings of SW3 as shown in Table 7-2.

Table 7-2
Switch Settings (SW3)

Switch	Default	Force ROM Upgrade
1	OFF	ON
2	OFF	ON
3	OFF	OFF
4	OFF	OFF

Upgrade the firmware of the Remote Insight Lights-Out Edition using a ROMPaq diskette. When the firmware upgrade is complete, return the switches to the default position.

Interpreting LED Error Codes

The LED indicators on the front of the Remote Insight Lights-Out Edition board (with the LED indicators on top) have the following assignments:

FB	7	6	5	4	3	2	1	0

During the initial boot of the Remote Insight Lights-Out Edition, the LED indicators will flash randomly. After the board has booted, the FB LED will flash every second. The LED indicators (1 through 7) will light up after the system has booted to indicate a hardware failure. If a hardware failure is detected, reset the Remote Insight Lights-Out Edition board. See the "Resetting the Remote Insight Lights-Out Edition Board" section of this chapter.

Event Log Entries

Table 7-3 lists Event Log Entries and explanations to help you troubleshoot the Remote Insight Lights-Out Edition board. In the table, USER, #, and IP ADDRESS are used to designate that a specific user, number, or IP address is displayed, as appropriate.

Table 7-3
Event Log Entries

Event Log Display	Event Log Explanation
Server power failed	Displays when the server power fails
Browser login: IP address	Displays the IP address for the browser that logged in
Server power restored	Displays when the server power is restored
Browser logout: IP address	Displays the IP address for the browser that logged out
Server reset	Displays when the server is reset
Failed Browser login - IP Address: IP address	Displays when a browser login fails
Remote Insight Self Test Error: #	The Remote Insight board has failed an internal test. The probable cause is a critical component has failed. Further use of this board is not recommended.
Remote Insight Board reset	Displays when the board is reset
On-board clock set; was #:#:#:#:#:#	Displays when the on board clock is set
Server logged critical error(s)	Displays when the server logs critical errors
Event log cleared by: USER	Displays when a user clears the event log
Keyboard cable disconnected	Displays when the keyboard cable is disconnected
Keyboard cable connected	Displays when the keyboard cable is connected
Remote Insight Board reset to factory defaults	Displays when the board is reset to the default settings
Remote Insight Board reset	Displays when the board is reset

continued

Table 7-3
Event Log Entries *continued*

Event Log Display	Event Log Explanation
Remote Insight ROM upgrade to #	Displays when the ROM has been upgraded
Remote Insight Board reset for ROM upgrade	Displays when the board is rest for the ROM upgrade
Remote Insight Board reset by user diagnostics	Displays when the board is reset by a user diagnostics
Power restored to Remote Insight Board	Displays when the power is restored to the board
Remote Insight Board reset by watchdog	A non-critical error has occurred in the Remote Insight board and the board has covered by resetting itself. If this persists call customer support.
Remote Insight Board reset by host	Displays when the board is reset by the server
Recoverable Remote Insight Error, code #	A non-critical error has occurred in the Remote Insight board and the board has covered by resetting itself. If this persists call customer support.
SNMP trap delivery failure : IP address	Displays when the SMNP trap does not connect to the specified IP address
Test SNMP trap alert failed for: IP address	Displays when the SNMP trap does not connect to the specified IP address
Power outage SNMP trap alert failed for: IP address	Displays when the SNMP trap does not connect to the specified IP address
Server reset SNMP trap alert failed for: IP address	Displays when the SNMP trap does not connect to the specified IP address
Illegal login SNMP trap alert failed for: IP address	Displays when the SNMP trap does not connect to the specified IP address
Keyboard cable SNMP trap alert failed for: IP address	Displays when the SNMP trap does not connect to the specified IP address
Diagnostic error SNMP trap alert failed for: IP address	Displays when the SNMP trap does not connect to the specified IP address
Host generated SNMP trap alert failed for: IP address	Displays when the SNMP trap does not connect to the specified IP address

continued

Table 7-3
Event Log Entries *continued*

Event Log Display	Event Log Explanation
Network resource shortage SNMP trap alert failed for: IP address	Displays when the SNMP trap does not connect to the specified IP address
Mouse cable SNMP trap alert failed for: IP address	Displays when the SNMP trap does not connect to the specified IP address
Remote Insight network link up	Displays when the network is connected to the board
Remote Insight network link down	Displays when the network is not connected to the board
Mouse cable connected	Displays when the mouse cable is connected
Mouse cable disconnected	Displays when the mouse cable is disconnected
External power adapter connected	Displays when the external power adapter is connected
External power adapter disconnected	Displays when the external power adapter is disconnected
Remote Insight Firmware upgrade started by: USER	Displays when a user starts a firmware upgrade
Remote Floppy Inserted by: USER	Displays when a user inserts the remote floppy
Host server reset by: USER	Displays when a user resets the host server
Host server powered OFF by: USER	Displays when a user powers off a host server
Host server powered ON by: USER	Displays when a user powers on a host server
Virtual Floppy Inserted by: USER	Displays when a user inserts a virtual floppy
Remote Console login: USER	Displays when a user logs on a remote console
Remote Console Closed	Displays when a remote console is closed
Failed Console login - IP Address: IP address	Displays a failed console login and IP address

continued

Table 7-3
Event Log Entries *continued*

Event Log Display	Event Log Explanation
Handheld login: IP address	Displays when a handheld logs in
Handheld logout: IP address	Displays when a handheld logs out
Failed Handheld login - IP Address: IP ADDRESS	Displays a failed handheld login and IP address
Added User: User	Displays when a user adds a user
User Deleted by: User	Displays when a user deletes a user
Modified User: User	Displays when a user modifies a user
Browser login: USER	Displays when a valid user logs on to the RILOE using a non-handheld Internet browser.
Browser logout: USER	Displays when a valid user logs off the RILOE using a non-handheld Internet browser.
Failed Browser login – IP Address: IP ADDRESS	Displays when a browser login attempt fails.
Remote Console login: USER	Displays when an authorized user logs on using the remote console port.
Remote Console Closed	Displays when an authorized remote console user is logged out or when the remote console port is closed following a failed login attempt.
Failed Console login – IP Address: IP ADDRESS	Displays when an unauthorized user has failed three login attempts using the remote console port.
Handheld login: USER	Displays when an authorized user logs on using a handheld browser.
Handheld logout: USER	Displays when an authorized user logs off from a handheld browser session.
Failed Handheld login – IP Address: IP ADDRESS	Displays when a wireless handheld login attempt fails.

continued

Table 7-3
Event Log Entries *continued*

Event Log Display	Event Log Explanation
Added User: USER	Displays when a new entry is made to the authorized user list.
User Deleted by: USER	Displays when an entry is removed from the authorized user list. The USER section displays the user who requested the removal.
Event Log Cleared: USER	Displays when the USER clears the Event Log.
Power Cycle (Reset): USER	Displays when the power has been reset.
Virtual Power Event: USER	Displays when the Virtual Power Button is used.
XML Login	Displays when a user has logged in and executed an XML script.
XML Logout	Displays when a user has terminated an XML script.

Appendix **A**

Regulatory Compliance Notices

Federal Communications Commission Notice

Part 15 of the Federal Communications Commission (FCC) Rules and Regulations has established Radio Frequency (RF) emission limits to provide an interference-free radio frequency spectrum. Many electronic devices, including computers, generate RF energy incidental to their intended function and are, therefore, covered by these rules. These rules place computers and related peripheral devices into two classes, A and B, depending upon their intended installation. Class A devices are those that may reasonably be expected to be installed in a business or commercial environment. Class B devices are those that may reasonably be expected to be installed in a residential environment (that is, personal computers). The FCC requires devices in both classes to bear a label indicating the interference potential of the device as well as additional operating instructions for the user.

The rating label on the device shows which class (A or B) the equipment falls into. Class B devices have an FCC Logo or FCC ID on the label. Class A devices do not have an FCC Logo or FCC ID on the label. Once the class of the device is determined, refer to the following corresponding statement.

Class A Equipment

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

Class B Equipment

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Compaq Computer Corporation may void the user's authority to operate the equipment.

Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

Declaration of Conformity for Products Marked with FCC Logo, United States Only

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For questions regarding your product, contact:

Compaq Computer Corporation
P. O. Box 692000, Mail Stop 530113
Houston, Texas 77269-2000

Or call 1-800-652-6672 (1-800-OK COMPAQ). For continuous quality improvement, calls may be recorded or monitored.

For questions regarding this FCC declaration, contact:

Compaq Computer Corporation
P. O. Box 692000, Mail Stop 510101
Houston, Texas 77269-2000

Or call 281-514-3333.

To identify this product, refer to the part, series, or model number found on the product.

Canadian Notice (Avis Canadien)

Class A Equipment

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Class B Equipment

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union Notice

Products with the CE Marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms (in parenthesis are the equivalent international standards):

- EN55022 (CISPR 22) - Electromagnetic Interference
- EN50082-1 (IEC801-2, IEC801-3, IEC801-4) - Electromagnetic Immunity
- EN60950 (IEC950) - Product Safety

Appendix ***B***

Electrostatic Discharge

To prevent damage to the system, be aware of the precautions to follow when setting up the system or when handling parts. A discharge of static electricity from a finger or other conductor can damage system boards or other static-sensitive devices. This type of damage can reduce the life expectancy of the device.

To prevent electrostatic damage, observe the following precautions:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.

Grounding Methods

There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megaohm ± 10 percent resistance in the ground cords. To provide proper grounding, wear the strap snug against the skin.
- Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding, static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, have a Compaq authorized reseller install the part.

NOTE: For more information about static electricity, or for assistance with product installation, contact your Compaq authorized reseller.

Appendix ***C***

Remote Insight Board Command Language

Remote Insight Board Command Language

This section describes the Remote Insight Board Command Language (RIBCL) tags, the parameters associated with the tags, and the errors that might occur if an invalid action is requested. Each of the tags, along with their respective parameters and error codes, are discussed in this guide and are listed in the following sections.

IMPORTANT: Comments should not interrupt a command. An error message will be generated in this case.

NOTE: The commands listed in this document are based on the 2.40 firmware update. If you have not done so already, download the 2.40 update from the Compaq website at

www.compaq.com/lights-out

NOTE: Due to functional changes and the expansion of the command language, the 2.40 update is not backwards compatible with earlier versions of firmware. To update a RILOE board that is on firmware version 2.32 or earlier, you must use a browser or ROMPaq.

NOTE: The commands for firmware version 2.40 should not be used on a RILOE board containing the firmware version 2.32 or prior. The commands for firmware version 2.32 or prior should not be used on a RILOE board containing the 2.40 firmware update.

RIBCL Guidelines

The following sections describe some general guidelines when utilizing RIBCL.

XML Header

The XML header must be the first item that is not white space to be sent to the Remote Insight Lights-Out Edition board. It tells the Remote Insight Lights-Out Edition board that the connection is supposed to be an XML connection, not an HTTP connection. The XML header is built into the utility and has the following format:

```
<?xml version="1.0"?>
```

General Guidelines

All of the commands are grouped by functionality. All commands that manipulate user information are grouped together. This allows the firmware to view the data to be manipulated as a block of information, similar to a text document, allowing for multi-threaded access of the different kinds of information.

An opening command opens a database. The database remains open until the matching closing command is sent. All changes made within a single command block are applied simultaneously when the database is closed. Any errors within the block will cause the enclosed changes to be discarded.

An example of an opening and its matching closing command are as follows:

```
<USER_INFO>
</USER_INFO>
```

In the following sections, the opening and closing commands will be displayed in the example.

Data Types

There are three data types that are allowed in the parameter. They are:

- String
- Specific string
- Boolean string

String

A string is any text enclosed in quotes. It can include spaces, numbers, or any printable character. A string may start with either a double or single quote and it must end with the same type of quote. The string may contain a quote if it is different from the string delimiter quotes.

For example, if a string is started with a double quote, a single quote can be used within the string and the string must be closed with a double quote.

Specific String

A specific string is one that is required to contain certain characters. In general, you will have a choice of words that are accepted as correct syntax and all other words will produce an error.

Boolean String

A Boolean string is a specific string that specifies a "yes" or "no" condition. Acceptable boolean strings are "yes," "y," "no," "n," "true," "t," "false," and "f." These strings are not case sensitive.

RIBCL

This command is used to start and end an RIBCL session. You can use it only once to start an RIBCL session, and it must be the first command to display in the script. The RIBCL tags are required to mark the beginning and the end of the RIBCL document.

Example:

```
<RIBCL VERSION="1.2">
</RIBCL>
```

RIBCL Parameters

VERSION is a string that indicates the version of the RIBCL that the client application is expecting to use. The VERSION string is compared to the version of the RIBCL that the Remote Insight Lights-Out Edition board is expecting, and an error is returned if the string and the version do not match. The only acceptable string value for the VERSION parameter is "1.2." The VERSION parameter can never be blank.

RIBCL Errors

The possible RIBCL error messages include:

- Unsupported RIBCL version. The supported version is 1.2.
- Version must not be blank.

LOGIN

The LOGIN command provides the Remote Insight Lights-Out Edition board with the information that will be used to authenticate the user who will perform the RIBCL actions. The specified user must have supervisor privileges. If the user does not have supervisor permission or is not a valid user, then an error message will be returned. The application that sent the login name is then expected to send a new LOGIN command or to send the /RIBCL command to terminate the connection.

Example:

```
<LOGIN
      USER_LOGIN = “username”
      PASSWORD = “password”>
</LOGIN>
```

NOTE: If using firmware version 2.40 or later, users with user-only privileges are able to change some of their own user settings. The user settings that can be changed are:

- PASSWORD
- SNMP_ADDRESS
- OS_TRAPS
- RIB_TRAPS

LOGIN Parameters

USER_LOGIN is the login name of the user during the session and has a maximum length of 48 characters. The user must exist as a valid user with supervisor privileges in the Remote Insight Lights-Out Edition board. This data string is case sensitive and can never be blank.

PASSWORD is the password of the user that will log in to the Remote Insight Lights-Out Edition board. The password has a minimum length of 8 characters and a maximum length of 48 characters. The password is case sensitive and can never be blank.

LOGIN Errors

The possible LOGIN error messages include:

- User login name was not found.
- Password must not be blank.

USER_INFO

This command may only display within a LOGIN command. When the Remote Insight Lights-Out Board parses this command, it reads the user information database into memory and gets ready to edit it. Only commands that are USER_INFO type commands are valid inside the USER_INFO block. The USER_INFO command generates a response that indicates to the host application whether the user information was successfully read or not. If the user information is open for writing by another application, then this call will fail.

Example:

```
<USER_INFO MODE = “write”>
</USER_INFO>
```

LOGIN Parameters

MODE tells the Remote Insight Lights-Out Edition board what you intend to do with the user information. MODE has a maximum length of 10 characters. Valid arguments are “read,” “write,” “r,” and “w.” These arguments are not case sensitive. Write mode enables reading and writing, and other users cannot open the user information. Read mode enables several users to open the user information, but the users cannot change any user data.

USER_INFO Errors

A possible USER_INFO error message is:

Mode parameter must not be blank.

ADD_USER

The ADD_USER command is used to add a user to the Remote Insight Lights-Out Edition board. All of the attributes that pertain to the user are set using the parameters described below. For this command to work, the user must not already exist. Use the MOD_USER command to change an existing user's information instead. The ADD_USER command must display within a USER_INFO element and USER_INFO must be in write mode.

Example:

```
<RIBCL VERSION="1.2">
      <LOGIN USER_LOGIN = "adminname" PASSWORD = "password">
      <USER_INFO MODE = "write">
      <ADD_USER
            USER_NAME          ="Admin User"
            USER_LOGIN         ="username"
            PASSWORD           ="password">
            <SNMP_ADDRESS value ="255.255.255.255"/>
            <SUPERVISOR_PRIV value ="N"/>
            <LOGIN_PRIV value  ="Y"/>
            <REMOTE_CONS_PRIV value ="Y"/>
            <RESET_SERVER_PRIV value ="Y"/>
            <OS_TRAPS value    ="N"/>
            <RIB_TRAPS value   ="N"/>
            <CLIENT_IP value   ="255.255.255.255"/>
      </ADD_USER>
      </USER_INFO>
      </LOGIN>
</RIBCL>
```

ADD_USER Parameters

USER_NAME is the actual name of the user to be added. The USER_NAME parameter has a maximum length of 48 characters and can be any ASCII string containing printable characters, including white spaces. This string is used for display only and must never be blank.

USER_LOGIN is the name that the user will type to log into the Remote Insight Lights-Out Edition board. The USER_LOGIN parameter has a maximum length of 48 characters, can be an ASCII string containing any combination of printable characters, and is case sensitive. This parameter must never be blank.

PASSWORD is the password that will be associated with the user. This parameter has a maximum length of 48 characters and is an ASCII string that may contain any combination of printable characters. PASSWORD must be at least eight characters long and cannot contain both single and double quote characters. The Remote Insight Board treats this string as being case sensitive. This parameter must never be blank.

SNMP_ADDRESS is the address of the system that will receive the traps that are sent to the user. This address has a maximum length of 50 characters and can be any valid IP address or DNS name. This parameter is optional and should be left out if the user is not to receive SNMP traps.

The following four parameters control a user's rights. These parameters are optional and may have a "Y" or "N" value, which grants or denies the right. If the parameter is not entered, the value is assumed to be "N."

SUPERVISOR_PRIV is a Boolean parameter that grants all of the other permissions, even those that are marked with an "N" value or are blank. This parameter is optional and must be left out if the user should not get supervisory privileges.

LOGIN_PRIV is a Boolean parameter that allows the user to log into the Remote Insight Lights-Out Edition board and use resources such as Web pages. Marking this parameter with an "N" value effectively disables the account without deleting it. (See the SUPERVISOR_PRIV parameter.)

REMOTE_CONS_PRIV is a Boolean parameter that gives permission for the user to access the Remote Console functionality of the Remote Insight Lights-Out Edition board. Leaving out this parameter will deny the user Remote Console privileges, unless they have supervisory privileges.

RESET_SERVER_PRIV is a Boolean parameter that gives the user permission to remotely reset the server or power it down. Leaving out this parameter will deny the user server reset privileges, unless they have supervisory privileges.

The following two parameters indicate whether the user should receive SNMP traps. These parameters are optional and may have a "Y" or "N" value, which grants or denies the right. If the parameter is not entered, the value is assumed to be "N."

OS_TRAPS is a Boolean parameter that, if set to "Y," indicates that this user will receive the SNMP traps generated by the operating system. An SNMP address must be specified to receive the SNMP traps.

RIB_TRAPS is a Boolean parameter that, if set to "Y," indicates that this user will receive SNMP traps generated by the Remote Insight Lights-Out Edition board. An SNMP address must be specified to receive the SNMP traps.

> **IMPORTANT:** The following parameters limit the address from which the user may log in. If the user attempts to log in from other addresses, the request will be refused as though the user has typed an incorrect password. Exactly one of the following parameters must be present but should not be entered if you want to indicate that there is no limit. If the parameter is not blank, then the client addresses will be limited as indicated.

CLIENT_IP specifies a single IP address to connect with the Remote Insight Lights-Out Edition board. CLIENT_IP has a maximum length of 50 characters and must be a complete numerical IP address. This data parameter is mutually exclusive to the CLIENT_RANGE and the DNS_NAME data parameters.

CLIENT_RANGE specifies a range of addresses from which the user is allowed to access the Remote Insight Lights-Out Edition board. CLIENT_RANGE has a maximum length of 50 characters. Two addresses are specified with a dash (-) between them. Both addresses must be valid and complete TCP/IP numerical addresses. Any address that falls between them numerically will be accepted. This data parameter is mutually exclusive to the CLIENT_IP and the DNS_NAME data parameters.

DNS_NAME specifies a DNS name with which the user logs in to the Remote Insight Lights-Out Edition board. DNS_NAME has a maximum length of 50 characters. This parameter is mutually exclusive to the CLIENT_IP and the CLIENT_RANGE data parameters.

ADD_USER Errors

The possible ADD_USER error messages include:

- Login name is too long. Maximum length is 48 characters.
- User name is too long. Maximum length is 48 characters.
- Password is too short. Minimum length is 8 characters.
- Password is too long. Maximum length is 48 characters.
- User table is full. No room for new user.
- Cannot add user. The user name already exists.
- User information is open for read-only access. Write access is required for this operation.
- User name cannot be blank.
- User login ID cannot be blank.
- Password must not be blank.

DELETE_USER

The DELETE_USER command is used to remove an existing user's information from the Remote Insight Lights-Out Edition board. Before this command is used, the USER_INFO command must have been issued with the mode set to "write."

Example:

```
<RIBCL VERSION="1.2">
      <LOGIN USER_LOGIN = "adminname" PASSWORD = "password">
      <USER_INFO MODE = "write">
      <DELETE_USER USER_LOGIN = "username"/>
      </USER_INFO>
      </LOGIN>
</RIBCL>
```

DELETE_USER Parameters

USER_LOGIN is the login name of the user that you want to delete. This parameter has a maximum length of 48 characters and must be an ASCII string containing any combination of printable characters. The Remote Insight Lights-Out Edition board treats this string as case sensitive.

DELETE_USER Errors

The possible DELETE_USER errors include:

- User information is open for read-only access. Write access is required for this operation.
- Cannot delete user information for currently logged in user.
- User login name was not found.
- User login name must not be blank.

MOD_USER

This command is used to modify an existing user's information. It is not required to enter any of the fields except for the first one, which specifies which user to modify. If any parameter does not need to be modified, it should be omitted. MOD_USER must display within a USER_INFO parameter and USER_INFO must be in write mode.

With the MOD_USER command, the IT administrator can modify the user's login name. It is not possible to modify the user name that is currently being used to gain access to the Remote Insight Lights-Out Edition board, if the user is a supervisor.

Example:

```
<RIBCL VERSION="1.2">
      <LOGIN USER_LOGIN = "adminname" PASSWORD = "password">
      <USER_INFO MODE = "write">
      <MOD_USER USER_LOGIN       ="loginname">
                  <USER_NAME value  ="username"/>
                  <PASSWORD value   ="password"/>
                  <SNMP_ADDRESS value ="255.255.255.255"/>
                  <SUPERVISOR_PRIV value ="N" />
                  <LOGIN_PRIV value   ="Y" />
                  <REMOTE_CONS_PRIV value ="Y" />
                  <RESET_SERVER_PRIV value ="N" />
                  <OS_TRAPS value    ="N" />
                  <RIB_TRAPS value    ="N" />
                  <CLIENT_IP value    ="255.255.255.255"/>
      </MOD_USER>
      </USER_INFO>
      </LOGIN>
</RIBCL>
```

NOTE: If using firmware version 2.40 or later, users with user-only privileges are able to change some of their own user settings. The user settings that can be changed are:

- PASSWORD
- SNMP_ADDRESS
- OS_TRAPS
- RIB_TRAPS

MOD_USER Parameters

USER_LOGIN is the login name of the user to be modified. This login name has a maximum length of 48 characters. The name is case sensitive and must be an ASCII string containing any combination of printable characters. This parameter must never be blank.

USER_NAME is the actual name of the user and has a maximum length of 48 characters. This name can be any ASCII string containing printable characters, including white space. This string is used for display only. If this parameter is not specified, then the value for the specified user is not changed.

USER_LOGIN is the login name of the user and has a maximum length of 48 characters. This name is case sensitive and must be an ASCII string containing any combination of printable characters. If this parameter is not specified, then the value for the specified user is not changed.

PASSWORD is the password that will be associated with the user. This parameter has a maximum length of 48 characters and is an ASCII string that may contain any combination of printable characters. The password must be at least eight characters long and cannot contain both single and double quote characters. The Remote Insight Lights-Out Edition board treats this string as case sensitive. If this parameter is not specified, then the value for the specified user is not changed.

SNMP_ADDRESS is the address of the system that will receive the traps for the user. This address has a maximum length of 50 characters and can be any valid IP address or DNS name. If this parameter currently exists for the specified user, change the value to blank by using an empty string instead of a valid IP address. If this parameter is left not specified, then the current value is not changed.

SUPERVISOR_PRIV is a Boolean parameter that grants all of the other permissions, even those that are marked with an "N" value or are blank. If this parameter is left not specified, then the current value is not changed.

LOGIN_PRIV is a Boolean parameter that allows the user to log in to the Remote Insight Lights-Out Edition board and use resources such as Web pages. Marking this with an "N" value disables the account without deleting it. (See the SUPERVISOR_PRIV parameter.) If this parameter is left not specified, then the current value is not changed.

REMOTE_CONS_PRIV is a Boolean parameter that gives permission for the user to access the remote console functionality of the Remote Insight Lights-Out Edition board. Note that the SUPERVISOR_PRIV parameter overrides REMOTE_CONS_PRIV if it is specified as being on. If this parameter is not specified, then the current value is not changed.

RESET_SERVER_PRIV is a Boolean parameter that gives the user permission to remotely reset the server or power it down. Note that the SUPERVISOR_Priv parameter overrides RESET_SERVER_PRIV if the value is specified as being on. If this parameter is not specified, then the current value is not changed.

OS_TRAPS is Boolean parameter that, if set to "Y", indicates that this user will receive the SNMP traps generated by the operating system. If the OS_TRAPS parameter is left not specified, then the current value is not changed. An SNMP address must be specified to receive the SNMP traps.

RIB_TRAPS is a Boolean parameter that, if set to "Y", indicates that this user will receive the SNMP traps generated by the Remote Insight Lights-Out Edition board. If the RIB_TRAPS parameter is left not specified, then the current value is not changed. An SNMP address must be specified to receive the SNMP traps.

> **IMPORTANT:** The following parameters limit the address from which the user may log in. If the user attempts to log in from another address, the address will be refused as though the user has typed an incorrect password. Exactly one of the following parameters may be present but may be blank to indicate that there is no limit. (See the example for MOD_USER.) If the parameter is not blank, then the client addresses will be limited as indicated. If the parameter is not specified, the current value is not changed.

CLIENT_IP specifies a single IP address that the user may use to connect with the Remote Insight Lights-Out Edition board. CLIENT_IP has a maximum length of 50 characters and must be a complete numerical IP address. This data parameter is mutually exclusive to the CLIENT_RANGE and the DNS_NAME data parameters.

CLIENT_RANGE specifies a range of addresses from which the user is allowed to access the Remote Insight Lights-Out Edition board. CLIENT_RANGE has a maximum length of 50 characters. Two addresses are separated by a dash (-), and both addresses must be valid and complete TCP/IP numerical addresses. Any address that falls between them numerically will be accepted. This data parameter is mutually exclusive to the CLIENT_IP and the DNS_NAME data parameters.

DNS_NAME specifies a DNS name with which the user logs into the Remote Insight Lights-Out Edition board. DNS_NAME has a maximum length of 50 characters and is mutually exclusive to the CLIENT_IP and the CLIENT_RANGE data parameters.

MOD_USER Errors

The possible MOD_USER error messages include:

- Login name is too long. Maximum length is 48 characters.
- User name is too long. Maximum length is 48 characters.
- Password is too short. Minimum length is 8 characters.
- Password is too long. Maximum length is 48 characters.
- User information is open for read-only access. Write access is required for this operation.
- User login ID cannot be blank.
- Cannot modify user information for currently logged user.

- This user is not logged in.
- User login name was not found.

GET_USER

The GET_USER command returns the user's information, excluding the password.

Example:

```
<RIBCL VERSION="1.2">
      <LOGIN USER_LOGIN = "adminname" PASSWORD = "password">
      <USER_INFO MODE = "read">
      <GET_USER USER_LOGIN = "username"/>
      </USER_INFO>
      </LOGIN>
</RIBCL>
```

GET_USER Parameters

USER_LOGIN is the name that a user would type to log in to the Remote Insight Lights-Out Edition board. It has a maximum length of 48 characters and can be an ASCII string containing any combination of printable characters. The USER_LOGIN parameter is case sensitive and must never be blank.

GET_USER Errors

The possible GET_USER error messages include:

- User login name was not found.
- User login ID cannot be blank.

GET_USER Return Messages

A possible GET_USER return message would be:

```
<?xml version="1.0"?>
<RIBCL VERSION="1.2"/>
<RESPONSE
        STATUS = "0x0000"
        MSG = "No Errors"

        />

        <GET_USER
                USER_NAME = "Admin User"
                USER_LOGIN = "username"
                SNMP_ADDRESS = ""
                SUPERVISOR_PRIV = "N"
                LOGIN_PRIV = "Y"
                REMOTE_CONS_PRIV = "Y"
                RESET_SERVER_PRIV = "N"
                OS_TRAPS = "N"
                RIB_TRAPS = "N"
                CLIENT_IP = ""
        />
```

GET_ALL_USERS

The GET_ALL_USERS command requests that the Remote Insight Lights-Out Edition board return a list of all of the valid user names that are currently in the user database. The user database must have been successfully opened with the USER_INFO command and must have been opened in read or write mode for this command to work.

Example:

```
<RIBCL VERSION="1.2">
      <LOGIN USER_LOGIN = "adminname" PASSWORD = "password">
      <USER_INFO MODE = "read">
      <GET_ALL_USERS/>
      </USER_INFO>
      </LOGIN>
</RIBCL>
```

GET_ALL_USERS Errors

The possible GET_ALL_USERS error messages include:

- No user is currently logged in.
- User information has not been opened yet.

GET_ALL_USERS Return Messages

An example of a successful request follows:

```
<?xml version="1.0"?>
    <RIBCL VERSION="1.2"/>
    <RESPONSE
            STATUS="0x0000"
            MESSAGE='No Error'/>
    <GET_ALL_USERS
            USER_LOGIN="username"
            USER_LOGIN="user2"
            USER_LOGIN="user3"
            USER_LOGIN="user4"
            USER_LOGIN="user5"
            USER_LOGIN="user6"
            USER_LOGIN="user7"
            USER_LOGIN="user8"
            USER_LOGIN="user9"
            USER_LOGIN="user10"
            USER_LOGIN="user11"
            USER_LOGIN="user12"
    />
```

The following is an example of an unsuccessful request:

```
<RESPONSE
    STATUS = "0x0001"
    MSG = "Error Message"/>
```

RIB_INFO

The RIB_INFO command is used to tell the firmware that the configuration of the Remote Insight Lights-Out Edition board is about to be changed.

Example:

```
<RIB_INFO mode="write">
…… RIB_INFO commands ……
</RIB_INFO>
```

RIB_INFO Parameters

MODE is a specific string and has a maximum length of 10 characters. It tells the Remote Insight Lights-Out Edition board what you intend to do with the user information. Valid arguments are "read" and "write". Write mode enables both reading and writing and other users will be unable to open the RILOE board information. Read mode is not able to change any RILOE board data. Read mode is assumed if the mode attribute is left out.

RIB_INFO Errors

There are no RIB_INFO errors.

MOD_NETWORK_SETTINGS

This command will modify certain network settings. This command is only valid inside a RIB_INFO block. The logged in user needs to have supervisory privilege and the mode of the containing RIB_INFO block must be “write”. All of these elements are optional, and may be left out. If an element is left out, then the current setting is preserved.

Example:

```
<RIBCL VERSION="1.2">
        <LOGIN USER_LOGIN = "adminname" PASSWORD = "password">
        <RIB_INFO MODE = "write">
        <MOD_NETWORK_SETTINGS>
                <ENABLE_NIC value = "Y"/>
                <SPEED_AUTOSELECT value = "N"/>
                <FULL_DUPLEX value = "Y"/>
                <NIC_SPEED value = "100"/>
                <DHCP_ENABLE value = "Y"/>
                <IP_ADDRESS value = "255.255.255.255"/>
                <SUBNET_MASK value = "255.255.0.0"/>
                <GATEWAY_IP_ADDRESS value = "255.255.255.255"/>
                <DNS_NAME value = "demorib.internal.net"/>
                <DOMAIN_NAME value = "internal.net"/>
                <DHCP_GATEWAY value = "N"/>
                <DHCP_DNS_SERVER value = "N"/>
                <DHCP_STATIC_ROUTE value = "N"/>
                <REG_WINS_SERVER value = "N"/>
                <HTTPS_PORT value = "443"/>
                <HTTP_PORT value = "80"/>
                <REMOTE_CONSOLE_PORT value = "23"/>
                <PRIM_DNS_SERVER value = "255.255.255.255"/>
                <SEC_DNS_SERVER value = "255.255.255.255"/>
                <STATIC_ROUTE_1 DEST="255.255.0.0" GATEWAY="255.0.0.0"/>
                <STATIC_ROUTE_2 DEST="255.255.0.0" GATEWAY="255.0.0.0"/>
                <WEB_AGENT_IP_ADDRESS value = "255.255.255.255"/>
        </MOD_NETWORK_SETTINGS>
        </RIB_INFO>
        </LOGIN>
</RIBCL>
```

MOD_NETWORK_SETTINGS Parameters

ENABLE_NIC is used to enable or disable the NIC. The possible values are "Y" or "N." It is case-insensitive.

SPEED_AUTOSELECT is used to automatically select the transceiver speed. The possible values are "Y" or "N."

FULL_DUPLEX is used to select if the RIB is to support full-duplex or half-duplex mode. It is only applicable if SPEED_AUTOSELECT was set to "N." The possible values are "Y" or "N."

NIC_SPEED is used to set the transceiver speed if SPEED_AUTOSELECT was set to NO. The possible values are 10 or 100.

DHCP_ENABLE is used to select if DHCP is enabled. The possible values are "Y" or "N."

IP_ADDRESS is used to select the IP address for the Remote Insight Lights-Out Edition board if DHCP is not enabled. If an empty string is entered, the current value is deleted.

SUBNET_MASK is used to select the subnet mask for the Remote Insight Lights-Out Edition board if DHCP is not enabled. If an empty string is entered, the current value is deleted.

GATEWAY_IP_ADDRESS is used to select the default gateway IP address for the Remote Insight Lights-Out Edition board if DHCP is not enabled. If an empty string is entered, the current value is deleted.

DNS_NAME is used to specify the DNS name for the Remote Insight Lights-Out Edition board. If an empty string is entered, the current value is deleted.

DOMAIN_NAME is used to specify the domain name for the network where the Remote Insight Lights-Out Edition board resides. If an empty string is entered, the current value is deleted.

DHCP_GATEWAY specifies if the DHCP assigned gateway address is to be used. The possible values are "Y" or "N." This selection is only valid if DHCP is enabled.

DHCP_DNS_SERVER specifies if the DHCP assigned DNS server is to be used. The possible values are "Y" or "N." This selection is only valid if DHCP is enabled.

DHCP_WINS_SERVER specifies if the DHCP assigned WINS server is to be used. The possible values are "Y" or "N." This selection is only valid if DHCP is enabled.

DHCP_STATIC_ROUTE specifies if the DHCP assigned static routes are to be used. The possible values are "Y" or "N." This selection is only valid if DHCP is enabled.

REG_WINS_SERVER specifies if the Remote Insight Lights-Out Edition board needs to register with the WINS server. The possible values are "Y" or "N." This selection is only valid if DHCP is enabled.

HTTPS_PORT specifies the HTTPS (SSL) port number for the Remote Insight Lights-Out Edition board.

HTTP_PORT specifies the HTTP port number for the Remote Insight Lights-Out Edition board.

REMOTE_CONSOLE_PORT specifies the remote console port for the Remote Insight Lights-Out Edition board.

PRIM_DNS_SERVER specifies the IP address of the primary DNS server. This is only relevant if DHCP assigned DNS server address feature is disabled. If an empty string is entered, the current value is deleted.

SEC_DNS_SERVER specifies the IP address of the secondary DNS server. This is only relevant if DHCP assigned DNS server address feature is disabled. If an empty string is entered, the current value is deleted.

TER_DNS_SERVER specifies the IP address of the tertiary DNS server. This is only relevant if DHCP assigned DNS server address feature is disabled. If an empty string is entered, the current value is deleted.

PRIM_WINS_SERVER specifies the IP address of the primary WINS server. This is only relevant if DHCP assigned WINS server address feature is disabled. If an empty string is entered, the current value is deleted.

SEC_WINS_SERVER specifies the IP address of the secondary WINS server. This is only relevant if DHCP assigned WINS server address feature is disabled. If an empty string is entered, the current value is deleted.

STATIC_ROUTE_1, STATIC_ROUTE_2, and STATIC_ROUTE_3 are used to specify the destination and gateway IP addresses of the static routes. The following two parameters are used within the static route commands. If an empty string is entered, the current value is deleted.

DEST specifies the destination IP addresses of the static route. This is only relevant if the DHCP assigned static route feature is disabled. If an empty string is entered, the current value is deleted.

GATEWAY specifies the gateway IP addresses of the static route. This is only relevant if the DHCP assigned static route feature is disabled. If an empty string is entered, the current value is deleted.

WEB_AGENT_IP_ADDRESS specifies the address for the Web-enabled agents. If an empty string is entered, the current value is deleted.

NOTE: The Remote Insight Lights-Out Edition board is rebooted to apply the changes once MOD_NETWORK_SETTINGS has been closed.

MOD_NETWORK_SETTINGS Errors

A possible MOD_NETWORK_SETTINGS error message is:

RIB information is open for read-only access. Write access is required for this operation.

MOD_GLOBAL_SETTINGS

This command is used to change the Global Settings field in the Remote Insight Lights-Out Edition board. RIB_INFO needs to be issued in write mode before this command. All of the parameters are optional.

Example:

```
<RIBCL VERSION="1.2">
      <LOGIN USER_LOGIN = "adminname" PASSWORD = "password">
      <RIB_INFO MODE = "write">
      <MOD_ GLOBAL_SETTINGS>
                <SESSION_TIMEOUT value = "60"/>
                <F8_PROMPT_ENABLED value = "Y"/>
                <HOST_KEYBOARD_ENABLED value = "Y"/>
                <REMOTE_CONSOLE_PORT_STATUS value = "0"/>
                <POCKETPC_ACCESS value = "Y"/>
      </MOD_GLOBAL_SETTINGS>
      </RIB_INFO>
      </LOGIN>
</RIBCL>
```

MOD_GLOBAL_SETTINGS Parameters

SESSION_TIMEOUT determines the maximum session timeout value in minutes. The accepted values are from 0 to 120. If a value greater than 120 is specified, the SESSION_TIMEOUT will return an error.

HOST_KEYBOARD_ENABLED determines if the host keyboard is enabled or disabled. The possible values are "Y" or "N."

F8_PROMPT_ENABLED determines if the F8 prompt for ROM based configuration is displayed during POST. The possible values are "Y" or "N."

REMOTE_CONSOLE_PORT_STATUS determines the configuration for the Remote Console port. The valid values for this setting are "0," "1," "2," or "3," which correspond to the port being set as No Change, Disabled, Automatic, or Enabled. In the Automatic setting, the Remote Console port is only enabled when a Remote Console session through a browser is in progress and is disabled otherwise.

POCKETPC_ACCESS determines if the PocketPC access is allowed or not. The possible values are "Y" or "N,"which enable and disable the access.

MOD_GLOBAL_SETTINGS Errors

The possible MOD_GLOBAL_SETTINGS error messages include:

- RIB information is open for read-only access. Write access is required for this operation.
- The remote console port status value specified is invalid. It needs to be either 0, 1, 2 or 3.

CLEAR_EVENTLOG

This command will clear the RIB event log. The CLEAR_EVENTLOG command must display within a RIB_INFO element and RIB_INFO must be in write mode.

Example:

```
<RIBCL VERSION="1.2">
      <LOGIN USER_LOGIN = "adminname" PASSWORD = "password">
      <RIB_INFO MODE = "write">
      <CLEAR_ EVENT_LOG/>
      </RIB_INFO>
      </LOGIN>
</RIBCL>
```

CLEAR_EVENTLOG Parameters

There are no parameters for this command.

CLEAR_EVENTLOG Errors

A possible CLEAR_EVENTLOG error message is:

RIB information is open for read-only access. Write access is required for this operation.

UPDATE_RIB_FIRMWARE

The UPDATE_RIB_FIRMWARE command copies the firmware upgrade file to the Remote Insight Lights-Out Edition board, starts the upgrade process and reboots the board after the image has been flashed successfully. The UPDATE_RIB_FIRMWARE command must display within a RIB_INFO element and RIB_INFO must be in write mode. The Remote Insight Lights-Out Edition board is reset after the firmware upgrade completes.

Example:

```
<RIBCL VERSION="1.2">
      <LOGIN USER_LOGIN = "adminname" PASSWORD = "password">
      <RIB_INFO MODE = "write">
      <UPDATE_RIB_FIRMWARE IMAGE_LOCATION = "C:\cpqrb240.bin"/>
      </RIB_INFO>
      </LOGIN>
</RIBCL>
```

UPDATE_RIB_FIRMWARE Parameters

IMAGE_LOCATION takes the full path filename of the firmware upgrade file.

UPDATE_RIB_FIRMWARE Errors

The possible UPDATE_RIB_FIRMWARE error messages include:

- RIB information is open for read-only access. Write access is required for this operation.
- Unable to open the firmware image update file.
- Unable to read the firmware image update file.
- The firmware upgrade file size is too big.
- The firmware image file is not valid.
- A valid firmware image has not been loaded.
- The flash process could not be started.
- IMAGE_LOCATION must not be blank.

GET_FW_VERSION

The GET_FW_VERSION command will return the version and date of the firmware on the Remote Insight Lights-Out Edition board.

Example:

```
<RIBCL VERSION="1.2">
      <LOGIN USER_LOGIN = "adminname" PASSWORD = "password">
      <RIB_INFO MODE = "read">
      <GET_ FW_VERSION/>
      </RIB_INFO>
      </LOGIN>
</RIBCL>
```

GET_FW_VERSION Parameters

There are no parameters for this command.

GET_FW_VERSION Errors

There are no errors for this command.

INSERT_VIRTUAL_FLOPPY

This command copies a floppy image to the Remote Insight Lights-Out Edition board The INSERT_VIRTUAL_FLOPPY command must display within a RIB_INFO element and RIB_INFO must be in write mode.

Example:

```
<RIBCL VERSION="1.2">
      <LOGIN USER_LOGIN = "adminname" PASSWORD = "password">
      <RIB_INFO MODE = "write">
      <INSERT_VIRTUAL_FLOPPY IMAGE_LOCATION = "C:\test.img"/>
      </RIB_INFO>
      </LOGIN>
</RIBCL>
```

INSERT_VIRTUAL_FLOPPY Parameters

IMAGE_LOCATION takes the full path filename for the floppy image file.

INSERT_VIRTUAL_FLOPPY Errors

The possible INSERT_VIRTUAL_FLOPPY error messages include:

- RIB information is open for read-only access. Write access is required for this operation.
- IMAGE_LOCATION must not be blank.
- The Virtual Floppy image is invalid.
- Unable to open the virtual floppy image file.
- Unable to read the virtual floppy image file.
- The virtual floppy image file size is too big.
- No image present in the Virtual Floppy drive.
- Failed to allocate virtual floppy image space.

EJECT_VIRTUAL_FLOPPY

This command ejects the virtual floppy image if one is inserted. The EJECT_VIRTUAL_FLOPPY command must display within a RIB_INFO element and RIB_INFO must be in write mode.

Example:

```
<RIBCL VERSION="1.2">
      <LOGIN USER_LOGIN = "adminname" PASSWORD = "password">
      <RIB_INFO MODE = "write">
      <EJECT_VIRTUAL_FLOPPY/>
      </RIB_INFO>
      </LOGIN>
</RIBCL>
```

EJECT_VIRTUAL_FLOPPY Parameters

There are no parameters for this command.

EJECT_VIRTUAL_FLOPPY Errors

The possible EJECT_VIRTUAL_FLOPPY error messages include:

- RIB information is open for read-only access. Write access is required for this operation.
- No image present in the Virtual Floppy drive.

COPY_VIRTUAL_FLOPPY

The COPY_VIRTUAL_FLOPPY command copies a floppy image from the Remote Insight Lights-Out Edition board to the local system. The COPY_VIRTUAL_FLOPPY command must display within a RIB_INFO element and RIB_INFO must be in write mode.

Example:

```
<RIBCL VERSION="1.2">
      <LOGIN USER_LOGIN = "adminname" PASSWORD = "password">
      <RIB_INFO MODE = "write">
      <COPY_VIRTUAL_FLOPPY IMAGE_LOCATION = "C:\test.img"/>
      </RIB_INFO>
      </LOGIN>
</RIBCL>
```

COPY_VIRTUAL_FLOPPY Parameters

IMAGE_LOCATION takes the full path filename for the location where the floppy image file needs to be copied.

COPY_VIRTUAL_FLOPPY Errors

The possible COPY_VIRTUAL_FLOPPY error messages include:

- RIB information is open for read-only access. Write access is required for this operation.
- IMAGE_LOCATION must not be blank.
- Unable to open the virtual floppy image file.
- Unable to write the virtual floppy image file.
- No image present in the Virtual Floppy drive.

GET_VF_STATUS

The GET_VF_STATUS command gets the Virtual Floppy drive status from the Remote Insight Lights-Out Edition board. The GET_VF_STATUS command must display within a RIB_INFO element and RIB_INFO must be in write mode.

Example:

```
<RIBCL VERSION="1.2">
      <LOGIN USER_LOGIN = "adminname" PASSWORD = "password">
      <RIB_INFO MODE = "read">
      <GET_VF_STATUS/>
      </RIB_INFO>
      </LOGIN>
</RIBCL>
```

GET_VF_STATUS Parameters

No parameters are required for this command.

The following information is returned within the response:

BOOT_OPTION = BOOT_ALWAYS | BOOT_ONCE | NO_BOOT

WRITE_PROTECT_FLAG = YES | NO

IMAGE_INSERTED = YES | NO

GET_VF_STATUS Errors

There are no errors for this command.

SET_VF_STATUS

The SET_VF_STATUS command sets the Virtual Floppy drive status on the Remote Insight Lights-Out Edition board. The SET_VF_STATUS command must display within a RIB_INFO element and RIB_INFO must be in write mode. All the parameters in the command are optional.

Example:

```
<RIBCL VERSION="1.2">
      <LOGIN USER_LOGIN = "adminname" PASSWORD = "password">
      <RIB_INFO MODE = "write">
      <SET_VF_STATUS>
            <VF_BOOT_OPTION = "BOOT_ONCE"/>
            <VF_WRITE_PROTECT value = "Y"/>
      </ SET_VF_STATUS>
      </RIB_INFO>
      </LOGIN>
</RIBCL>
```

SET_VF_STATUS Parameters

VF_BOOT_OPTION specifies the boot option parameter for the virtual floppy. The possible values are BOOT_ALWAYS, BOOT_ONCE or NO_BOOT. The value is case-sensitive.

VF_WRITE_PROTECT sets the write protect flag value for the virtual floppy. The possible values are “Y” or “N”.

SET_VF_STATUS Errors

The possible SET_VF_STATUS error messages include:

- RIB information is open for read-only access. Write access is required for this operation.
- An invalid virtual floppy option has been given.

HOTKEY_CONFIG

The HOTKEY_CONFIG command configures the remote console hotkey settings on the Remote Insight Lights-Out Edition board. The HOTKEY_CONFIG command must display within a RIB_INFO element and RIB_INFO must be in write mode. All of the sub-elements of the command are optional.

Upper case letters are not supported and they will be converted automatically to lower case. If either a double quote or a single quote is used, it must be different from the delimiter. CTRL sub-elements that are not present will not be modified. Specifying a blank string will remove the current value.

Example:

```
<RIBCL VERSION=“1.2”>
      <LOGIN USER_LOGIN = “adminname” PASSWORD = “password”>
      <RIB_INFO MODE = “write”>
      <HOTKEY_CONFIG>
            <CTRL_W value = ”CTRL,ALT,ESC”/>
            <CTRL_V value = ”L_SHIFT,F10,F12”/>
      </HOTKEY_CONFIG>
      </RIB_INFO>
      </LOGIN>
</RIBCL>
```

HOTKEY_CONFIG Parameters

CTRL_W specifies settings for the CTRL_X hotkey. The settings need to be separated by commas. For example, CTRL_X=**"CTRL,ALT,ESC"**. Up to five keystrokes can be configured for each hotkey.

CTRL_X specifies settings for the CTRL_X hotkey. The settings need to be separated by commas. For example, CTRL_X=**"CTRL,ALT,ESC"**. Up to five keystrokes can be configured for each hotkey.

CTRL_Y specifies settings for the CTRL_Y hotkey. The settings need to be separated by commas. For example, CTRL_Y=**"CTRL,ALT,ESC"**. Up to five keystrokes can be configured for each hotkey.

CTRL_T specifies settings for the CTRL_T hotkey. The settings need to be separated by commas. For example, CTRL_T=**"CTRL,ALT,ESC"**. Up to five keystrokes can be configured for each hotkey.

CTRL_U specifies settings for the CTRL_U hotkey. The settings need to be separated by commas. For example, CTRL_U=**"CTRL,ALT,ESC"**. Up to five keystrokes can be configured for each hotkey.

CTRL_V specifies settings for the CTRL_V hotkey. The settings need to be separated by commas. For example, CTRL_V=**"CTRL,ALT,ESC"**. Up to five keystrokes can be configured for each hotkey.

HOTKEY_CONFIG Errors

The possible HOTKEY_CONFIG error messages include:

- RIB information is open for read-only access. Write access is required for this operation.
- The hotkey parameter specified is not valid.

SERVER_INFO

The SERVER_INFO command is used to tell the firmware that the configuration of the Remote Insight Lights-Out Edition board is about to be changed.

Example:

```
<SERVER_INFO mode = "write">
…… SERVER_INFO commands …….
</SERVER_INFO>
```

SERVER_INFO Parameters

MODE is a specific string parameter has a maximum length of ten characters. It tells the Remote Insight Lights-Out Edition board what you intend to do with the server information. Valid arguments are “read” and “write”. If it is open in write mode, then both reading and writing are enabled. If it is open is read mode then this instance will not be able to perform any server actions.

SERVER_INFO Errors

A possible SERVER_INFO error is:

Mode parameter must not be blank.

SET_HOST_POWER

The SET_HOST_POWER command sets the Virtual Power Button feature on the Remote Insight Lights-Out Edition board. This is used to turn the server on or off, if the feature is supported. The SET_HOST_POWER command must display within a SERVER_INFO element and SERVER_INFO must be in write mode.

Example:

```
<RIBCL VERSION=“1.2”>
      <LOGIN USER_LOGIN = “adminname” PASSWORD = “password”>
      <SERVER_INFO MODE = “write”>
      <SET_HOST_POWER HOST_POWER = “Y”/>
      </SERVER_INFO>
      </LOGIN>
</RIBCL>
```

SET_HOST_POWER Parameters

HOST_POWER sets the value to “Y” or “N” to power on or power off the server.

SET_HOST_POWER Errors

The possible SET_HOST_POWER error messages include:

- Server information is open for read-only access. Write access is required for this operation.
- Virtual Power Button feature is not supported on this server.

GET_VPB_CABLE_STATUS

The GET_VPB_CABLE_STATUS command gets the Virtual Power Button cable status on the Remote Insight Lights-Out Edition board. The GET_VPB_CABLE_STATUS command must display within a SERVER_INFO element and SERVER_INFO must be in write mode.

Example:

```
<RIBCL VERSION="1.2">
      <LOGIN USER_LOGIN = "adminname" PASSWORD = "password">
      <SERVER_INFO MODE = "read">
      <GET_VPB_CABLE_STATUS/>
      </SERVER_INFO>
      </LOGIN>
</RIBCL>
```

GET_VPB_CABLE_STATUS Parameters

There are no parameters for GET_VPB_CABLE_STATUS command.

GET_VPB_CABLE_STATUS Errors

The possible GET_VPB_CABLE_STATUS error messages include:

- Virtual Power Button cable is attached.
- Virtual Power Button cable is not attached.

GET_HOST_POWER_STATUS

The GET_HOST_POWER_STATUS command gets the server power state from the Virtual Power Button cable on the Remote Insight Lights-Out Edition board. The GET_HOST_POWER_STATUS command must display within a SERVER_INFO element and SERVER_INFO must be in write mode.

Example:

```
<RIBCL VERSION="1.2">
      <LOGIN USER_LOGIN = "adminname" PASSWORD = "password">
      <SERVER_INFO MODE = "read">
      <GET_HOST_POWER_STATUS/>
      </SERVER_INFO>
      </LOGIN>
</RIBCL>
```

GET_HOST_POWER_STATUS Parameters

There are no parameters for the GET_HOST_POWER_STATUS command.

GET_HOST_POWER_STATUS Errors

The possible GET_HOST_POWER_STATUS error messages include:

- Host power is OFF.
- Host power is ON.

RESET_SERVER

The RESET_SERVER command will reset the server if the server is turned ON. The RESET_SERVER command must display within a SERVER_INFO element and SERVER_INFO must be in write mode.

Example:

```
<RIBCL VERSION="1.2">
      <LOGIN USER_LOGIN = "adminname" PASSWORD = "password">
      <SERVER_INFO MODE = "write">
      <RESET_SERVER/>
      </SERVER_INFO>
      </LOGIN>
</RIBCL>
```

RESET_SERVER Parameters

There are no parameters for the RESET_SERVER command.

RESET_SERVER Errors

The possible RESET_SERVER error messages include:

- Server information is open for read-only access. Write access is required for this operation.
- Server is currently powered off.

Appendix D

Compaq Lights-Out DOS Utility

The purpose of the Compaq Lights-Out DOS Utility (CPQLODOS) is to provide a command line utility that a user can use to bootstrap a Remote Insight Lights-Out Edition configuration into a new server.

CPQLODOS allows the user to configure a subset of the configuration parameters exposed through:

- F8 configuration
- The Remote Insight Lights-Out Edition GUI

CPQLODOS is not intended for continued administration. The Compaq Lights-Out Configuration Utility (CPQLOCFG) should be used for administration purposes. See Appendix C in this guide for more information.

Prerequisites

The following are prerequisites for using CPQLODOS:

- Familiarity with Compaq remote option boards
- Familiarity with DOS batch scripting

Features

The following list details the features available through CPQLODOS:

- Query NIC settings
- Query DHCP configuration settings
- Query RILOE user list
- Query board type and firmware version
- Modify NIC settings
- Modify DHCP settings
- Add a RILOE user
- Capture the board configuration to a file
- Load and apply a configuration to a RILOE board
- Reload and apply a board's configuration from a file
- Detect a RILOE board
- Support a 'pause on error' mode
- Reset the RILOE board

Important Information

The following information should be read before using the CPQLODOS utility.

Operating System Requirements

The CPQLODOS utility will only work under real MS-DOS or Windows 95 DOS (not a DOS window). It is not supported on any other operating system.

CPQLODOS Utility

The CPQLODOS utility has been designed to fit on to a 1.44-MB floppy disk with other utilities, DOS, and scripts. The utility runs under DOS 6, and the Windows 95 floppy generated by the ROMPAQ software. It is not necessary to use a memory expander to use this utility.

The utility is to be used only in a DOS environment (not a DOS shell under Windows NT). If attempting to run CPQLODOS in a DOS shell under Windows NT or Windows 2000, an error message similar to the following displays:

```
CPQLODOS: RILOE bootstrap config utility.
(C) 2001 Compaq Computer Corporation
Version 1.0
No PCI BIOS found.
This is common under NT and other OSs where raw memory access is not permitted.
Please run this only under real MS-DOS or Windows 95 DOS (not DOS window).
```

The utility performs updates except in the following circumstances:

- A virtual floppy is inserted.

  NOTE: When using CPQLODOS, applying a configuration involves resetting RILOE board, which will wipe out the Virtual Floppy image and leave the server in an indeterminate state. For any scenario in which CPQLODOS would be used on a virtual floppy, the CPQLOCFG utility should be used.

  The CPQLODOS utility will not run if a virtual floppy is detected in the RILOE. A message is sent to the console telling the user to eject the floppy and retry.

- A Remote Console session is active.

  NOTE: If a Remote Console session is detected, and the operation would cause a reset of the RILOE board, a warning message is displayed at the Remote Console informing the user that the operation is going to reset the board and that the Remote Console session needs to be re-established after 2 minutes.

- A flash of the RILOE ROM is in progress. The program aborts in this instance.

Output Logging

The command line option, /log, must be used to capture the output to a file instead of using the DOS redirection “>” arrow. Using the “>” changes the DOS environment sufficiently enough to cause problems accessing the 32-bit memory space.

When the output is not redirected to a log file, the output is paginated (screen-at-a-time with pause) for ease of viewing. When the output is redirected to a log file using the /log command line option, only critical (lethal) error messages will appear on the console and pagination is disabled.

Reset to Factory Defaults

Before configuring specific information to the RILOE board, it is reset to the factory defaults. Because of this, a single user, "Administrator," is created with the default network settings tag password.

Since CPQLODOS 1.0 does not support modifying existing users, and attempting to add an existing user will cause an error, the user should not attempt to add "Administrator" in their XML scripting. If you have captured a configuration file by using the /write_xml command, be sure to delete the Administrator user from this file before using it to configure a RILOE board.

Minimum Firmware

CPQLODOS is coded to require a minimum firmware level of 2.30 by default. This can be modified using the command line parameter. CPQLODOS also requires a SMIF header of at least 2.0 and will not run against old SMIF 1.0 interfaces.

Command Line Parameters

The following sections list the command line parameters available with the CPQLODOS utility, as well as examples, return messages, and error messages if applicable.

/help

The /help command displays a simple help message listing available CPQLODOS commands and return codes. The /? command has the same functionality.

The /help command has a return message similar to the following:

```
CPQLODOS: RILOE bootstrap config utility.
(C) 2001 Compaq Computer Corporation
Version 1.0
CPQLODOS {cmds}
where cmds are:
/detect          - Detect the RIB card.
/help            - Display this message.
/reset_riloe     - Reset the RILOE card.
/get_status      - Get RILOE status.
/get_hostinfo    - Discover RILOE host info.
/get_nicconfig   - Discover RILOE network config.
/get_dhcpconfig  - Discover DHCP config.
/write_xml =     - Write settings to an XML file.
/load_xml =      - Read settings from an XML file.
/verify_xml =    - Validate an XML file syntax.
/p               - Pause on error.
/log =           - Capture output to a log file.
/min_fw =        - Do not run on a firmware less than (default is 2.30).
Return Codes:
0 - Success
1 - Failure
```

/detect

The /detect command determines if a RILOE board is installed and returns a success or failure error code. The /detect command returns a code of "0" if the detection is successful, or a "1" if the detection was unsuccessful.

/get_status

The /get_status command obtains the RILOE board status displays the following information:

- Firmware version and date
- RILOE board serial number
- Current RILOE board time and date
- RILOE board type
- Remote Console session warning, if one is in progress

The /get_status command has a return message similar to the following:

```
CPQLODOS: RILOE bootstrap config utility.
(C) 2001 Compaq Computer Corporation
Version 1.0
SMIF STATUS:
FIRMWARE: 2.32 00:00:00 04/04/2001
BOARD SERIAL NUM: P432A0CBFKI958
RILOE TIME/DATE: 13:26:32 05/08/2021
BOARD TYPE: THUNDERCHILD+i960RD
A REMOTE CONSOLE IS NOT CONNECTED
```

/get_hostinfo

The /get_hostinfo command obtains the current host information stored in the RILOE board and displays the server name and server number.

The /get_hostinfo command has a return message similar to the following:

```
CPQLODOS: RILOE bootstrap config utility.
(C) 2001 Compaq Computer Corporation
Version 1.0
Host Information:
Server Name: 'MTEST'
Server Num:  '1234'
```

/get_userinfo

The /get_userinfo command obtains the current users stored in the RILOE board and displays the following information:

- User name
- Login name
- Security mask information

The /get_userinfo command has a return message similar to the following:

```
CPQLODOS: RILOE bootstrap config utility.
(C) 2001 Compaq Computer Corporation
Version 1.0
User Information:
0: ---------------------------------
User Number: 1
Login: 'Administrator'
Username: 'Administrator'
Login: True
Remote Cons: True
Reset Server: True
1: ---------------------------------
User Number: 2
Login: 'test'
Username: 'test'
Login: True
Remote Cons: True
Reset Server: True
2: ---------------------------------
User Number: 3
Login: 'admin'
Username: 'admin'
Login: True
Remote Cons: True
Reset Server: True
```

/get_nicconfig

The /get_nicconfig command obtains the current NIC settings stored in the RILOE board and displays the following information:

- MAC address
- Option settings (speed, duplex)
- NIC condition
- MTU setting
- IP address
- Subnet mask
- Gateway IP address
- DNS server IP address
- DNS name of RILOE card
- HTTP port number

- HTTPS port number
- Remote Console port number
- Remote Console port mode (enabled/disabled/enabled with console)

The /get_nicconfig command has a return message similar to the following:

```
CPQLODOS: RILOE bootstrap config utility.
(C) 2001 Compaq Computer Corporation
Version 1.0
NIC Config:
DNS NAME:       TESTRIB
IP ADDRESS:     192.22.23.24
SUBNET MASK:    255.255.255.0
MAC:  00:02:a5:61:71:73
REMOTE CONSOLE PORT:    23
HTTP PORT:      80
HTTPS PORT:     443
DNS IP:         0.0.0.0
GATEWAY IP:     0.0.0.0
NIC OPT:        ENABLED,AUTOSEL
```

/get_dhcpconfig

The /get_dhcpconfig command obtains the current DHCP settings stored in the RILOE board and displays the following:

- DHCP negotiation settings
- DHCP negotiation results
- Lease information
- DHCP server IP address
- WINS #1's IP address
- WINS #2's IP address
- DNS server #2's IP address
- DNS server #3's IP address
- 0-3 fixed routes
- Domain name for RILOE card

The /get_dhcpconfig command has a return message similar to the following:

```
CPQLODOS: RILOE bootstrap config utility.
(C) 2001 Compaq Computer Corporation
Version 1.0
DHCP CONFIG:
RILOE NAME:
DHCP SERVER:   0.0.0.0
WINS: 0.0.0.0,172.25.55.3
DNS:  0.0.0.0,0.0.0.0
ROUTES:        0.0.0.0:0.0.0.0,0.0.0.0:0.0.0.0,0.0.0.0:0.0.0.0
LEASE:         21:48:37 03/21/203721:48:37 03/21/2037
DHCP OPT:      GATEWAY,DNS,ROUTES,WINS,REGWINS,
DHCP RESULT: IP GOTTEN
```

/write_xml

The /write_xml command writes the current SMIF settings to a file in XML format. The following information is written to the file:

- NIC configuration
- DHCP configuration
- User configuration

The name of the file to be written to is specified in the command line parameter, as shown in the following example:

```
/write_xml = C:\configsettings
```

A captured configuration contains all users, including the Administrator. The passwords will be blank in the file. Prior to reloading the information in this file to a RILOE board, delete the Administrator user and supply the valid passwords for the remaining user accounts.

/load_xml

The /load_xml command loads an XML formatted file and applies its changes to the current configuration. This command is used to modify NIC settings, DHCP settings, and add users. For more information on creating an XML file to change configuration settings, see the “Supported XML Syntax” section in this appendix.

The file name to be used to change settings is specified in the command line parameter, as shown in the following example:

```
/load_xml = C:\configsettings
```

Modifying the NIC settings, DHCP settings, and adding users is available only when specified in the configuration file and loaded in that manner. It is not available as a separate command line action.

/verify_xml

The /verify_xml command allows you to verify the XML script of a specified file for accuracy. This command reviews the script and gives a message for any incorrect script.

For example, in a CPQLODOS script, "Administrator" cannot be one of the users to be added in a configuration file. If "Administrator" is in the file being verified, a message will be given stating to remove "Administrator" from the file.

Example:

```
/verify_xml = C:\scriptfile
```

/p

The /p command enables the system to display an error message and pause before exiting.

/min_fw

The /min_fw command allows you to set the minimum firmware version that the board will run on.

Example:

```
/min_fw = 2.30
```

/reset_riloe

The /reset_riloe command resets the RILOE board, which is recommended after performing configuration changes. A reset of the RILOE board can also be achieved by using the RESET_RIB command in an XML script file. For more information, see the RESET_RIB section of this appendix.

/log

The /log command captures all output to a designated log file instead of the console. The file name to be used as the designated output file is specified in the command line parameter, as shown in the following example:

Example:

```
/log = C:\riloelogfile
```

The /log command must be used to capture the output to a file instead of using the DOS redirection arrow, “>”. Using the redirection arrow changes the DOS environment sufficiently enough to cause problems accessing the 32-bit memory space.

Supported XML Syntax

The CPQLODOS utility is intended as a subset of CPQLOCFG utility. Therefore, the XML syntax used in the CPQLODOS utility closely parallels the syntax used to command the CPQLOCFG utility. However, there are a number of syntax parameters within CPQLOCFG utility that have no meaning within the CPQLODOS utility and were removed for simplicity. Administration functionality should be handled through CPQLOCFG utility.

The following sections discuss the commands and parameters that are supported for CPQLODOS. Review these sections before creating an XML file to be used by CPQLODOS utility.

CPQLODOS

CPQLODOS is always used at the beginning of a session and is displayed with the current version. The version should be “1.0.”

ADD_USER

The ADD_USER command is used to add a user to the Remote Insight Lights-Out Edition board. The only parameters that are set through CPQLODOS are the USER_NAME, USER_LOGIN, and PASSWORD. If any CPQLOCFG parameter is entered that is not supported by CPQLODOS, it will cause an error.

> **NOTE:** The RILOE board is reset to factory defaults before configuring specific information. Because of this, a single user, "Administrator," is created with the default network settings tag password. Since CPQLODOS 1.0 does not support modifying existing users, the user should not attempt to add "Administrator" in their XML scripting. If you have captured a configuration file by using the /write_xml command, be sure to delete the Administrator user from this file before using to configure a RILOE board.

Since there are only three parameters within the ADD_USER command, each user added will have all privileges, including supervisor privileges. Use the MOD_USER command in CPQLOCFG to change the added user's privileges. For more information on using the MOD_USER command, see Appendix C.

Example:

```
<CPQLODOS VERSION="1.0">
      <ADD_USER
            USER_NAME       ="Admin User"
            USER_LOGIN      ="username"
            PASSWORD        ="password">
      </ADD_USER>
</CPQLODOS>
```

ADD_USER Parameters

USER_NAME is the actual name of the user to be added. The USER_NAME parameter has a maximum length of 48 characters and can be any ASCII string containing printable characters, including white spaces. This string is used for display only and may be blank.

USER_LOGIN is the name that the user will type to log into the Remote Insight Lights-Out Edition board. The USER_LOGIN parameter has a maximum length of 48 characters, can be an ASCII string containing any combination of printable characters, and is case sensitive. This parameter must never be blank.

PASSWORD is the password that will be associated with the user. This parameter has a maximum length of 48 characters and is an ASCII string that may contain any combination of printable characters. PASSWORD must be at least eight characters long and cannot contain both single and double quote characters. The Remote Insight Board treats this string as being case sensitive. This parameter must never be blank.

ADD_USER Runtime Errors

The possible ADD_USER runtime error messages include:

- Login name is too long. Maximum length is 48 characters.
- Password is too short. Minimum length is 8 characters.
- Password is too long. Maximum length is 48 characters.
- User name cannot be blank.
- User login ID cannot be blank.
- Password must not be blank.

MOD_NETWORK_SETTINGS

The following NIC/DHCP settings can be modified using the MOD_NETWORK_SETTINGS command:

- NIC Settings
  - Option settings (speed, duplex)
  - IP address
  - Subnet mask
  - Gateway IP address
  - DNS server IP address
  - DNS name of RILOE board
- DHCP Settings
  - DHCP negotiation settings
  - WINS #1's IP address
  - 0-3 fixed routes
  - Domain name for RILOE board

The MOD_NETWORK_SETTINGS command will modify certain network settings. All of these elements are optional, and may be left out. If an element is left out, then the board default is preserved.

Not all parameters are available to modify network settings within the CPQLODOS utility. Use the MOD_NETWORK_SETTINGS command in CPQLOCFG to be able to modify all existing network settings. If any CPQLOCFG parameter is entered that is not supported by CPQLODOS, an error will be generated.

For more information on using the MOD_NETWORK_SETTINGS command, see appendix C.

Example:

```
<CPQLODOS VERSION="1.0">
        <MOD_NETWORK_SETTINGS>
                <SPEED_AUTOSELECT value = "N"/>
                <FULL_DUPLEX value = "Y"/>
                <DHCP_ENABLE value = "Y"/>
                <NIC_SPEED value = "100"/>
                <IP_ADDRESS value = "255.255.255.255"/>
                <SUBNET_MASK value = "255.255.0.0"/>
                <GATEWAY_IP_ADDRESS value = "255.255.255.255"/>
                <DNS_NAME value = "demorib.internal.net"/>
                <DOMAIN_NAME value = "internal.net"/>
                <DHCP_GATEWAY value = "N"/>
                <DHCP_DNS_SERVER value = "N"/>
                <DHCP_WINS_SERVER value = "N"/>
                <DHCP_STATIC_ROUTE value = "N"/>
                <REG_WINS_SERVER value = "N"/>
                <PRIM_DNS_SERVER value = "255.255.255.255"/>
                <PRIM_WINS_SERVER value = "255.255.255.255"/>
                <STATIC_ROUTE_1 DEST="255.255.0.0" GATEWAY="255.0.0.0"/>
                <STATIC_ROUTE_2 DEST="255.255.0.0" GATEWAY="255.0.0.0"/>
                <STATIC_ROUTE_3 DEST="255.255.0.0" GATEWAY="255.0.0.0"/>
        </MOD_NETWORK_SETTINGS>
        <RESET_RIB value = "Y"/>
</CPQLODOS>
```

MOD_NETWORK_SETTINGS Parameters

SPEED_AUTOSELECT is used to automatically select the transceiver speed. The possible values are "Y" or "N."

FULL_DUPLEX is used to select if the RILOE board is to support full-duplex or half-duplex mode. It is only applicable if SPEED_AUTOSELECT was set to "N." The possible values are "Y" or "N."

DHCP_ENABLE is used to select if DHCP is enabled. The possible values are "Y" or "N."

NIC_SPEED is used to set the transceiver speed if SPEED_AUTOSELECT was set to NO. The possible values are 10 or 100.

IP_ADDRESS is used to select the IP address for the Remote Insight Lights-Out Edition board if DHCP is not enabled. If an empty string is entered, the current value is deleted.

SUBNET_MASK is used to select the subnet mask for the Remote Insight Lights-Out Edition board if DHCP is not enabled.

GATEWAY_IP_ADDRESS is used to select the default gateway IP address for the Remote Insight Lights-Out Edition board if DHCP is not enabled. If an empty string is entered, the current value is deleted.

DNS_NAME is used to specify the DNS name for the Remote Insight Lights-Out Edition board. If an empty string is entered, the current value is deleted.

DOMAIN_NAME is used to specify the domain name for the network where the Remote Insight Lights-Out Edition board resides. If an empty string is entered, the current value is deleted.

DHCP_GATEWAY specifies if the DHCP assigned gateway address is to be used. The possible values are "Y" or "N." This selection is only valid if DHCP is enabled.

DHCP_DNS_SERVER specifies if the DHCP assigned DNS server is to be used. The possible values are "Y" or "N." This selection is only valid if DHCP is enabled.

DHCP_WINS_SERVER specifies if the DHCP assigned WINS server is to be used. The possible values are "Y" or "N." This selection is only valid if DHCP is enabled.

DHCP_STATIC_ROUTE specifies if the DHCP assigned static routes are to be used. The possible values are "Y" or "N." This selection is only valid if DHCP is enabled.

REG_WINS_SERVER specifies if the Remote Insight Lights-Out Edition board needs to register with the WINS server. The possible values are "Y" or "N." This selection is only valid if DHCP is enabled.

PRIM_DNS_SERVER specifies the IP address of the primary DNS server. This is only relevant if DHCP assigned DNS server address feature is disabled. If an empty string is entered, the current value is deleted.

PRIM_WINS_SERVER specifies the IP address of the primary WINS server. This is only relevant if DHCP assigned WINS server address feature is disabled. If an empty string is entered, the current value is deleted.

STATIC_ROUTE_1, STATIC_ROUTE_2, and STATIC_ROUTE_3 are used to specify the destination and gateway IP addresses of the static routes. The following two parameters are used within the static route commands. If an empty string is entered, the current value is deleted.

DEST specifies the destination IP addresses of the static route. This is only relevant if the DHCP assigned static route feature is disabled. If an empty string is entered, the current value is deleted.

GATEWAY specifies the gateway IP addresses of the static route. This is only relevant if the DHCP assigned static route feature is disabled. If an empty string is entered, the current value is deleted.

NOTE: The Remote Insight Lights-Out Edition board should be rebooted using the RESET_RIB command to apply the MOD_NETWORK_SETTINGS changes. The network settings will not be applied until the RILOE board is reset.

MOD_NETWORK_SETTINGS Runtime Errors

There are no MOD_NETWORK_SETTINGS runtime errors.

RESET_RIB

The RESET_RIB command is used to reset the Remote Insight Lights-Out Edition board. It is typically used to apply the settings after using the MOD_NETWORK_SETTINGS command.

Example:

```
<CPQLODOS VERSION="1.0">
        <RESET_RIB value = "Y"/>
</CPQLODOS>
```

RESET_RIB Parameters

There are no RESET_RIB parameters.

RESET_RIB Runtime Errors

There are no RESET_RIB runtime errors.

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