COMPAQ
White Paper

November 2000

Prepared by NACS Training and
Development

Compaq Computer Corporation

Contents

Compaq Remote Insight Lights-Out Edition

Abstract: This white paper outlines new features and benefits of the firmware upgrade of the Compaq Remote Insight Lights-Out Edition to version 2.30. Key elements of the upgrade include the addition of secure sockets layer (SSL) security as well as improved board group administration tools.

The paper also provides samples of the Remote Insight Command language and a batch file, as well as a list of downloads and reference material.

Help us improve our technical communication. Let us know what you think about the technical information in this document. Your feedback is valuable and will help us structure future communications. Please send your comments to: j.worrell@compaq.com

Overview

The purpose of this White Paper is to provide the reader with information pertaining to the firmware upgrade of the Compaq Remote Insight Lights-Out Edition to version 2.30. Included in this document are a list of key features and a list of upgrades and changes to the new version; information on secure sockets layer (SSL) security, improved board group administration tools; examples of command lines and a batch file; and a list of references and download material.

Key Features of 2.30 ROM

The Remote Insight Lights-Out board has the following key features:

- Enhanced security features, including SSL security
- Compaq Insight Manager XE 2.0 support
- Grouping of Remote Insight Lights-Out Edition boards
- Compaq Remote Insight command language
- Group administration using batch or PERL scripts
- ROM Setup block
- Reset page

Secure Sockets Layer Security

The firmware version 2.30 upgrade adds SSL security to the Remote Insight Lights-Out Edition, providing IT administrators with greater assurance that transmitted information remains secure.

40/128-bit SSL Encryption for all HTML Traffic

The Remote Insight Lights-Out Edition supports industry-standard SSL encryption of the HTML data stream. All new cards are now shipped standard with 40-bit SSL. Compaq also offers a free 128-bit SSL firmware version. It can be downloaded from:

http://www.compaq.com/lights-out.

HTTPS Session

Point your browser to the Remote Insight Lights-Out Edition board to immediately establish the HTTPS session (encrypted transmission). The following screen displays (Figure 1).
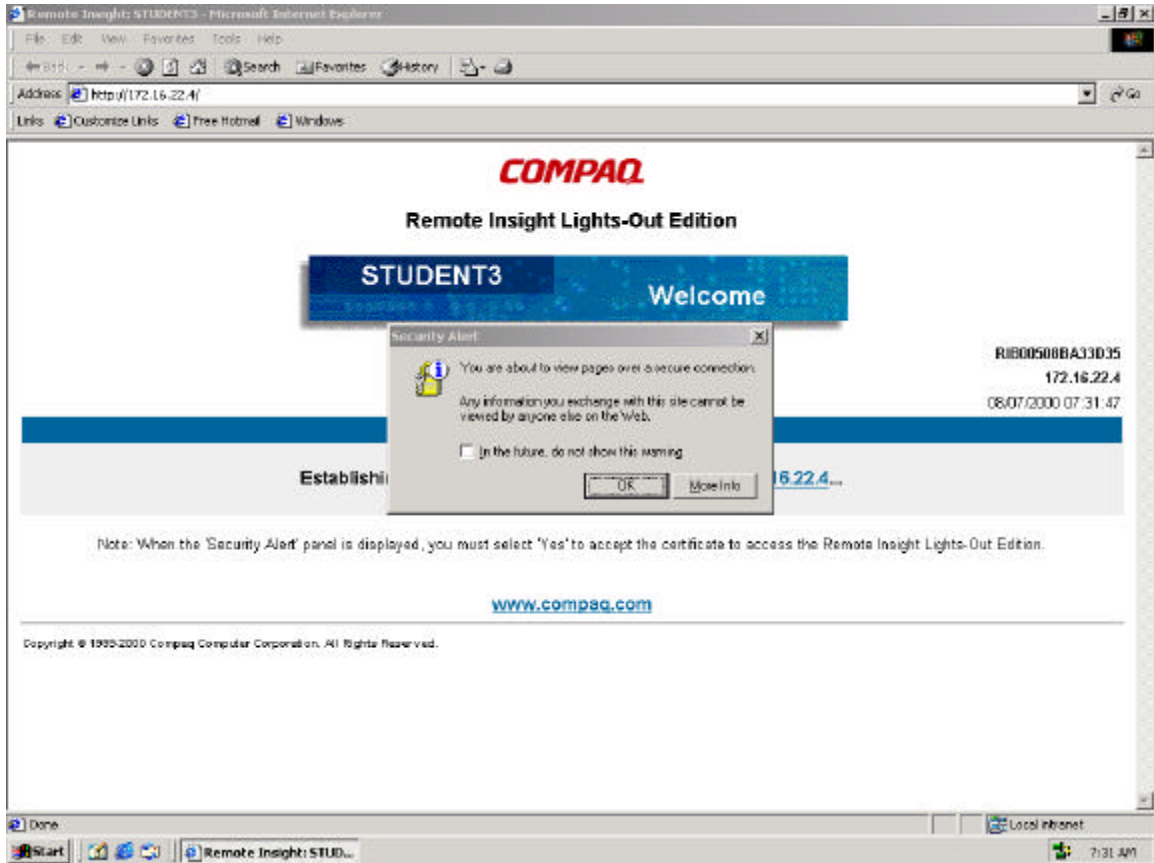
Figure 1. Remote Insight Lights-Out Edition security window

Unique X.509 Certificates

Each Remote Insight Lights-Out Edition has a unique X.509 certificate for host-side authentication. Resetting a new card automatically generates a new and unique authentication certificate. The generation of the X.509 certificate uses the MAC address of the card, which is always unique, along with a randomly generated number to ensure a unique certificate. Since the X.509 certific ates are self-signed, users receive a warning (Figure 2) that a trusted authority has not signed them. Compaq expects to add support for customer-generated X.509 certificates by early 2001.

Note: Once the security certificate is installed, the warning no longer displays.

Figure 2. Security Alert window

Installing the Security Certificate

To install the security certificate, perform the following steps:

1. From the Security Alert window, click View Certific ate. The Certificate window (Figure 3) displays.
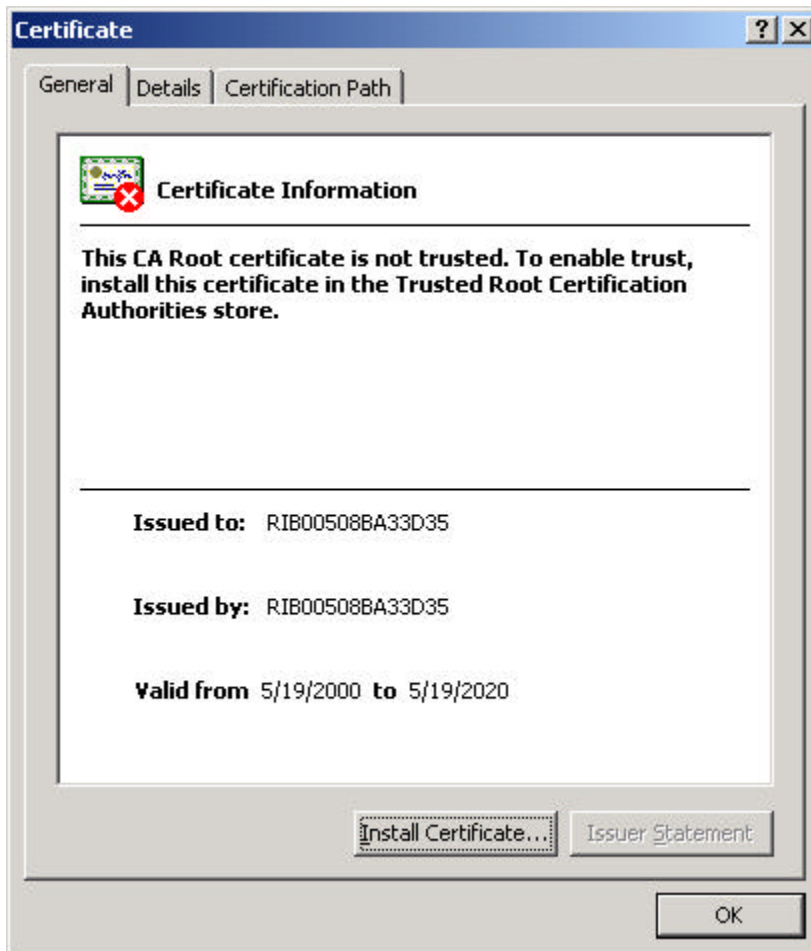
Figure 3. Certificate window

2. Click Install Certificate. The Certificate Import Wizard starts and the following window (Figure 4) displays:

Figure 4. Certificate Import Wizard

3. Click Next**.** The Certificate Store window (Figure 5) displays.
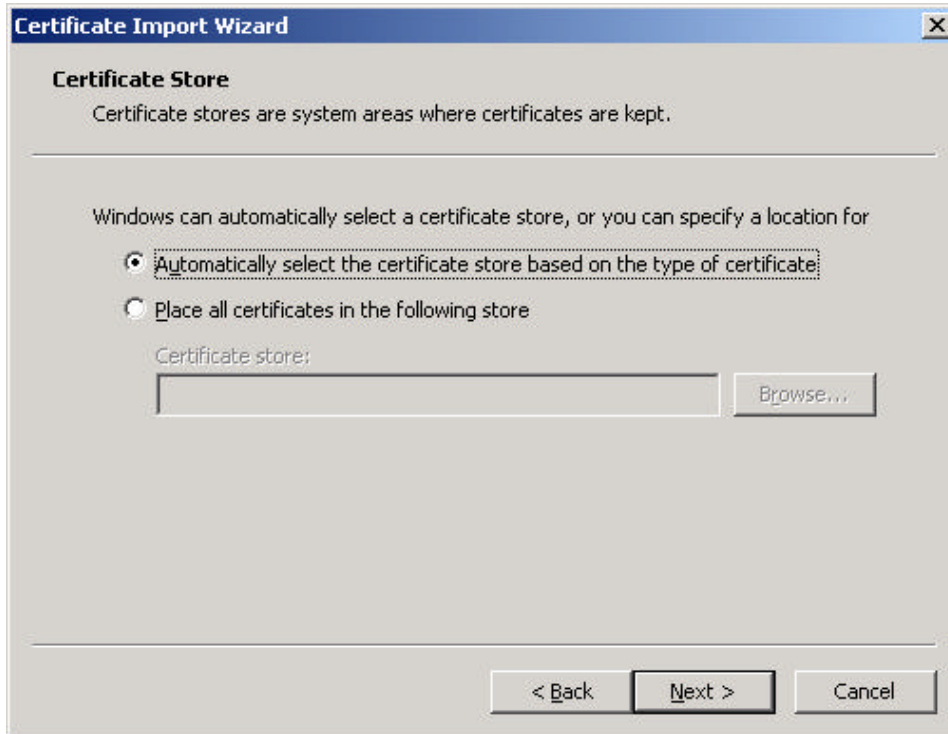
Figure 5. Certificate Store window

4.   To automatically select the certificate store, click Next. The Completing the Certificate Manager Import Wizard window (Figure 6) displays.

Figure 6   Completing the Certificate Import Wizard window

5.   Click Finish. The Root Certificate Store window (Figure 7) displays.
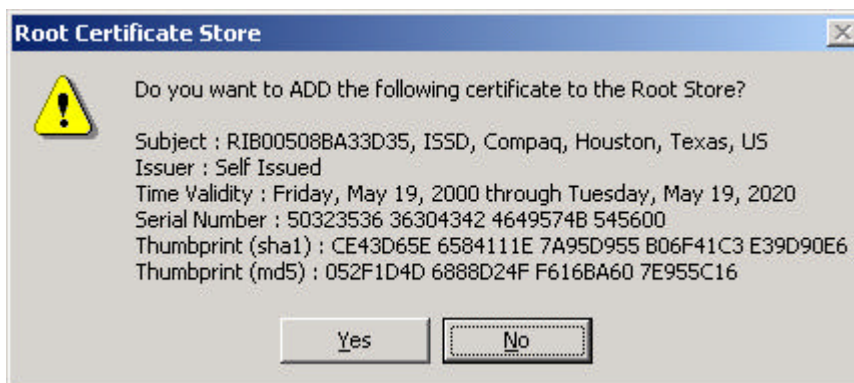
Figure 7. Root Certificate Store window

6. Click Yes to confirm the installation of the certificate. A confirmation window (Figure 8) displays.

Figure 8. Certificate Import confirmation window

Strong User Authentication

The Remote Insight Lights-Out Edition provides significant protection against automated dictionary or replay attacks by using strong user-authentication techniques. The user-authentication process completes the following steps:

- The Remote Insight Lights-Out Edition establishes an SSL session before the user log-in process begins. All log-in traffic occurs through an encrypted pipe in addition to the other security measures indicated below.

- During the log-in process, the Remote Insight Lights-Out Edition negotiates a unique session key for each session. The session key expires automatically and helps protect against replay attacks. The Remote Insight Lights-Out Edition uses the session key in the MD5 hashing of the password and throughout each session.

- A Base64 encoding with the dynamic session key obscures the user name during the log-in process. Therefore, the Remote Insight Lights-Out Edition does not transmit plain text user names across the wire during logon.

- The Remote Insight Lights-Out Edition uses MD5 one-way hashing to encrypt the password. It never transmits the password, in any form, during logon. Therefore, decryption is impossible.

Auto-logout/Auto-Key Expiration

When the Remote Insight Lights-Out Edition detects that a browser session has been inactive for a designated interval, the session key generated during the log-on process automatically expires, and the Remote Insight Lights-Out Edition logs the user out (Figure 9). The Remote Lights Edition sets the automatic log out time to 15 minutes by default. However, the administrator can configure this for 30, 60, or 120 minutes. This feature provides protection from unauthorized physical access to an active Remote Insight session when the authorized user has stepped away from the browser console. You can configure this feature through Global Settings under the Administration heading within the navigation frame.
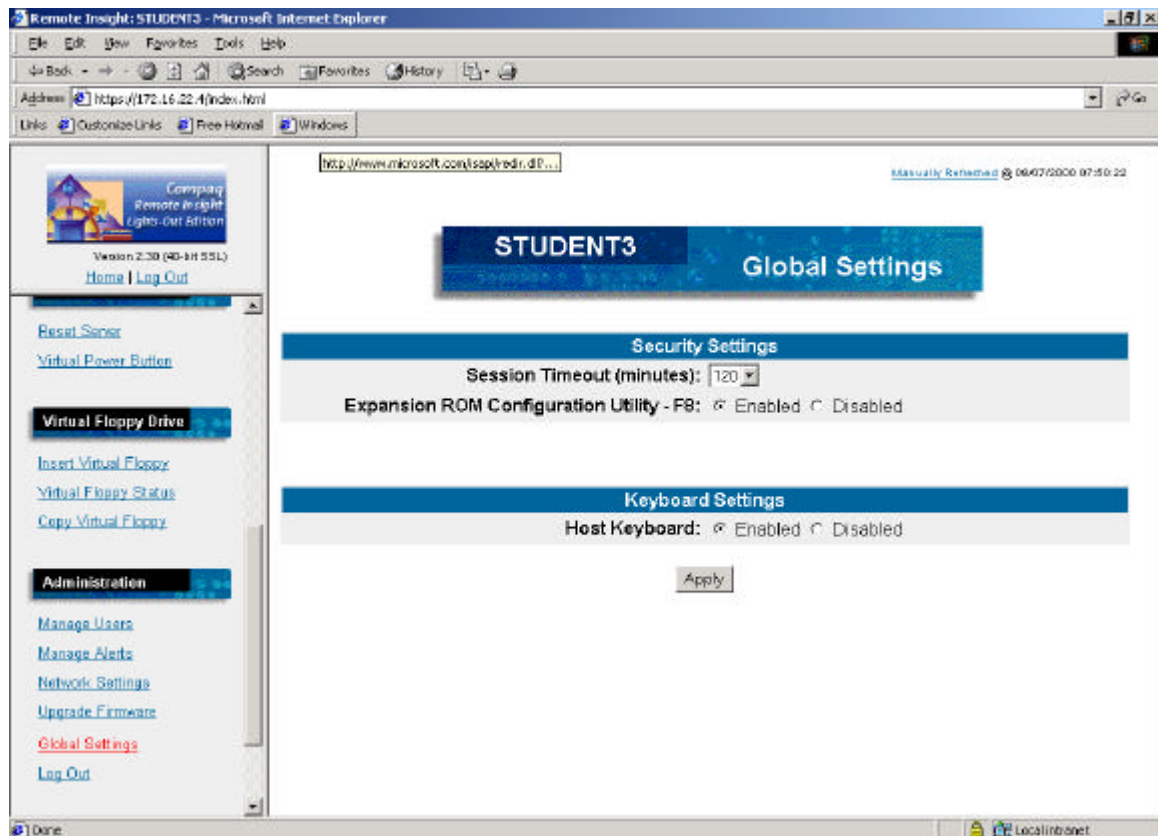
Figure 9. Auto-logout configuration and logout screen

Keystroke Privacy

The Remote Lights-Out Edition does not transmit clear text keystrokes during a remote console session. This provides security in an active remote console session, whether the session is text or graphics based.

ROM Setup Lock

An administrator can choose to block access to the ROM Setup utility for the Remote Insight Lights-Out Edition during the server boot. In the following window (Figure 10), Expansion ROM Configuration Utility and F8 control the ROM Lock.

You can configure this feature by choosing Global Settings under the Administration heading, which is located within the navigation frame.
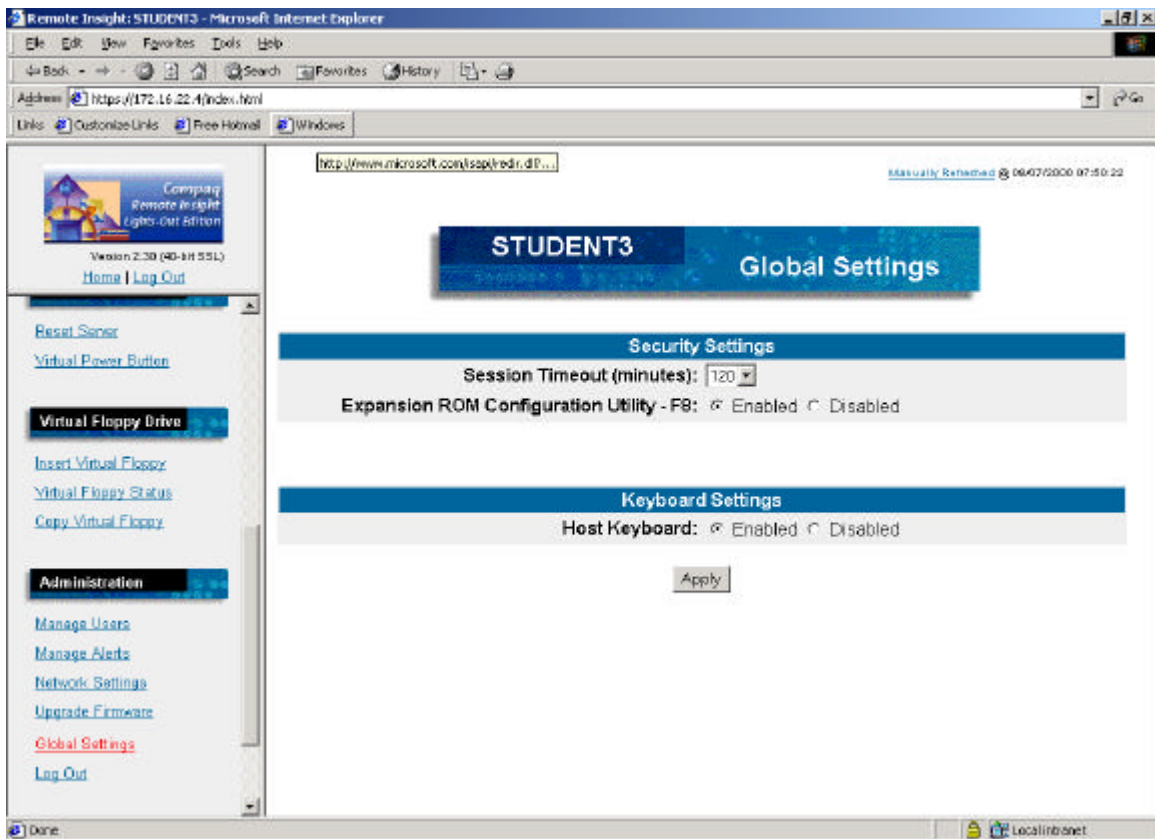
Figure 10. ROM lock screen

Resetting the Compaq Remote Insight Lights-Out Edition

The Network Settings screen (Figure 11) allows the user to change advanced configuration parameter settings for the Remote Insight Lights-Out Edition. Change any network configuration settings by entering the appropriate information into the fields. Click Apply. This will reset the board, allowing the settings to take affect. Alternatively, you can reset the board remotely by clicking Apply without entering any changes.
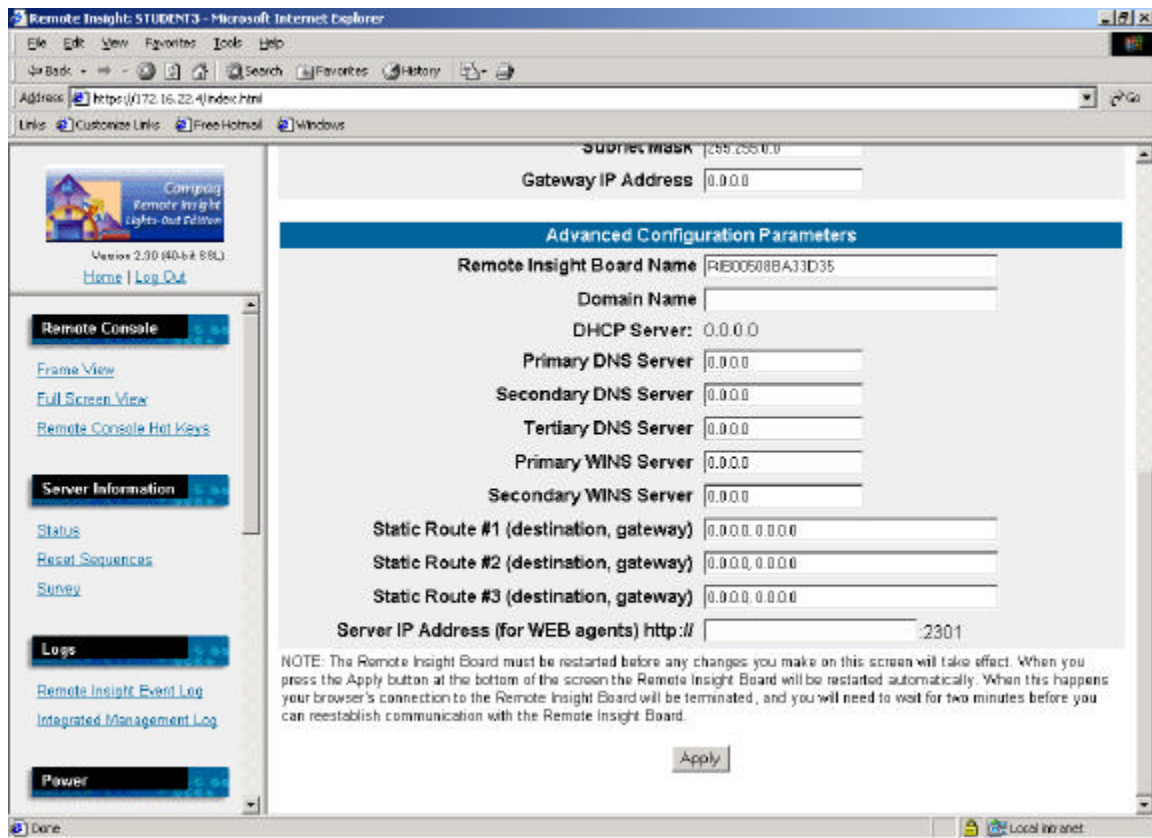
Figure 11. Remote Insight Lights-Out Edition Network Settings screen

After clicking Apply, the following screen (Figure 12) displays. It automatically redirects the user to the login page in 120 seconds.
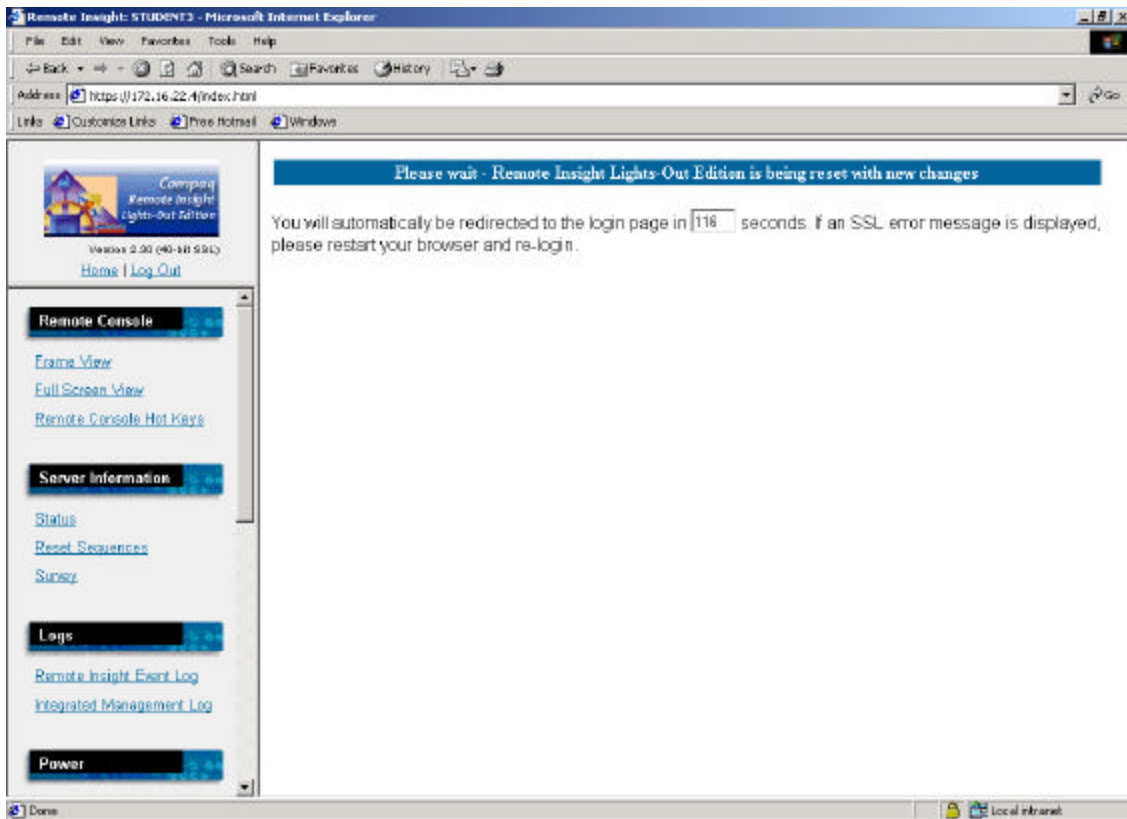
Figure 12. Timed redirect window (120 seconds)

Remote Insight Board Command Language

The Remote Insight Board Command Language (RIBCL) is one component used to execute group administration on the Remote Insight Lights-Out Edition.

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.

Command Syntax

ribconfi -s [servername|ipaddress] -l [logfilename] -f [input filename] -v

- The –s switch determines which Remote Insight Lights-Out Edition board to update. Servername is the DNS name of the target server. Alternatively, ipaddress is the IP address of the target server.

Note: *RIBCONFI.EXE* is an eight character truncated filename of what is more commonly referred to as *RIBCONFIG.EXE*.

Note: The –s switch must not be used if launching this from Compaq Insight Manager XE Application Launch

- The –l Switch defines the name and location of the log file that is generated. Logfileneame is the name of the file where all log information is stored.

Note: The -l switch must not be used if launching this from Compaq Insight Manager XE Application Launch.

- The -f switch identifies the name of the RIBCL file that contains the actions to be performed on the board. Input filename is the name of the file containing the RIBCL commands (for example, adduser.xml, moduser.xml, deluser.xml).

- The -v switch is optional and, when included, turns on the verbose message return. The resulting log file contains all commands sent to the Remote Insight Board, all responses from the Remote Insight Board, and any errors. If -v is not specified, then the RIBCONFIG is in quiet mode and only errors are logged.

Command Line Examples

Below are examples of command lines for some commonly used activities.

For a complete listing of all RIBCL commands and parameters, refer to the XML programmer's guide at the following web address:

http://csnet.compaq.com/TechInfo/

Access the XML Interface Programmers Guide by clicking Enterprise, then Server Management, then Remote Insight, then Remote Insight Lights-Out, then Reference Guides, then XML Interface Programmer's Guide.

Note: Comments are indicated by the start tag *<!--* and the end tag *-->* and do not affect the outcomes of the command lines.

Adding a User

This example adds a new user with the following attributes:

- User name of **John Q. Administrator**, user login name of **johnqa**, and user password of **realbusyguy**
- Address of 123.234.123.234 to receive traps sent to the user
- No supervisor privileges
- Login privileges
- Permission to allow remote console functionality
- No permission to remotely reset the server
- Ability to receive SNMP traps generated by the operating system

Note: All passwords must be a minimum of eight characters.

```
<!-- Specify the version of the language so that the RIB can tell if it
```

```
        can support the requests -->
<RIBCL VERSION="1.0" />


<!-- Login to the RIB with supervisor privilege -->
        <LOGIN USER_LOGIN ="Administrator" PASSWORD="password" />

        <!-- Open the user information in "write" mode -->
        <OPEN_USER_INFO MODE="write"/>

        <!-- Add the user to the RIB
Note that there is no limit on the addresses that
            this user will be able to use -->
        <ADD_USER
              USER_NAME="John Q. Administrator"
              USER_LOGIN="johnqa"
              PASSWORD="realbusyguy"
              SNMP_ADDRESS="123.234.123.234"


              SUPERVISOR_PRIV="No"
              LOGIN_PRIV="Yes"
              REMOTE_CONS_PRIV="YES"
              RESET_SERVER_PRIV="No"

              OS_TRAPS="Yes" RIB_TRAPS="No"

              CLIENT_RANGE="123.234.123.100-123.234.123.199"
        />


        <!-- Save the new user info.  This is important because the
             user info will be discarded if this command is absent.  It
             is intended to support automated script building by an
             application that has the logic to react intelligently to
             commands that do not succeed-->
        <COMMIT/>

        <!-- Free up the resources allocated to this session -->
        <CLOSE_USER_INFO/>

<!-- Tell the RIB to end the session -->
<END_RIBCL/>
```

Modifying a User

This example changes the following attributes for the existing user johnqa:

- Add supervisor privileges

- Allow remote reset of the server

Note: Any fields can be left blank except the USER_LOGIN field.

```
<!-- Specify the version of the language to that the RIB can tell if it
     can support the requests -->
<RIBCL VERSION="1.0" />
```

```
<!-- Login to the RIB with supervisor privilege -->
        < LOGIN
                USER_LOGIN="Administrator"
                PASSWORD = "password"
        />

        <!-- Open the user information in "read" mode -->
        < OPEN_USER_INFO MODE="WRITE"
        />
        <!-- Modify the specified user.  This would be the same user
        that  was created in the add_user.xml example -->
        < MOD_USER
                USER_LOGIN="johnqa"
                USER_NAME=""
                USER_LOGIN=""
                PASSWORD=""
                SNMP_ADDRESS=""


                SUPERVISOR_PRIV="Y"
                LOGIN_PRIV=""
                REMOTE_CONS_PRIV=""
                RESET_SERVER_PRIV="Y"

                OS_TRAPS=""
                RIB_TRAPS=""
                CLIENT_RANGE= "123.234.100-123.234.123.199"

                DNS_NAME="adminbox"
        />

        <!-- Save the new user info -->
        <COMMIT/>

        <!-- Free up the resources allocated to this session -->
        <CLOSE_USER_INFO/>

<!-- Tell the RIB to end the session -->
<END_RIBCL/>
```

Deleting a User

This example deletes the user named training5.

```
<RIBCL VERSION="1.0" />

        <LOGIN USER_LOGIN ="administrator" PASSWORD="administrator" />

<!-- This is a comment -->
<!-- Deleting an existing user -->

        <OPEN_USER_INFO MODE="write"/>
        <DELETE_USER USER_LOGIN="training5"
        />
        <COMMIT/>
```

```
        <CLOSE_USER_INFO/>

<END_RIBCL/>
```

Getting a User

This example returns the user information for the user johnqa.

```
<!-- Specify the version of the language to that the RIB can tell if it
can support the requests -->
<RIBCL VERSION="1.0" />

        <!-- Login to the RIB with supervisor privilege -->
        < LOGIN USER_LOGIN="Administrator" PASSWORD = "password" />

        <!-- Open the user information in "read" mode -->
        < OPEN_USER_INFO MODE="READ" />

        <!-- Read the configuration of this particular user -->
        < GET_USER USER_LOGIN="johnqa" />

        <!-- Free up the resources allocated to this session -->
        <CLOSE_USER_INFO/>

<!-- Tell the RIB to end the session -->
<END_RIBCL/>
```

Getting All Users

This example returns a list of all valid users.

```
<!-- Specify the version of the language to that the RIB can tell if it
     can support the requests -->
< RIBCL VERSION="1.0" />

        <!-- Login to the RIB with supervisor privilege -->
        <LOGIN USER_LOGIN="Administrator" PASSWORD="password" />

        <!-- Open the user information in "read" mode -->
        <OPEN_USER_INFO MODE="read" />

        <!-- Return a packet that has all of the user login names that
        the RIB knows about -->
        <GET_ALL_USERS />

        <!-- Free up the resources allocated to this session -->
        <CLOSE_USER_INFO/>

<!-- Tell the RIB to end the session -->
<END_RIBCL/>
```

Log Files

Below is an example of a log file generated when a new user is added.

```
IP Address is: 178.148.10.23:
```

```
Sending (23):

<?xml version="1.0"?>


Sending (24):

<RIBCL VERSION="1.0" />

Receiving (114):

<?xml version="1.0"?>

<RIBCL VERSION="1.0"/>

<RESPONSE

     STATUS="0x0000"

     MESSAGE='No Error'/>

<END_RIBCL/>


Sending (63):

<LOGIN USER_LOGIN ="administrator" PASSWORD="administrator" />


Receiving (114):

<?xml version="1.0"?>

<RIBCL VERSION="1.0"/>

<RESPONSE

     STATUS="0x0000"

     MESSAGE='No Error'/>

<END_RIBCL/>


Sending (31):

<OPEN_USER_INFO MODE="write"/>


Receiving (114):

<?xml version="1.0"?><RIBCL VERSION="1.0"/>

<RESPONSE

     STATUS="0x0000"

     MESSAGE='No Error'/>

<END_RIBCL/>


Sending (430):

<ADD_USER USER_NAME="training5"

                USER_LOGIN="training5"
```

```
                    PASSWORD="training5"

                    SNMP_ADDRESS="178.148.10.23"

                    SUPERVISOR_PRIV="Yes"

                    LOGIN_PRIV="Yes"

                    REMOTE_CONS_PRIV="YES"

                    RESET_SERVER_PRIV="Yes"

                    OS_TRAPS="Yes"

                    RIB_TRAPS="Yes"

                    CLIENT_IP="178.148.10.21"

        />


Receiving (114):

<?xml version="1.0"?>

<RIBCL VERSION="1.0"/>

<RESPONSE

    STATUS="0x0000"

    MESSAGE='No Error'/>

<END_RIBCL/>


Sending (10):

<COMMIT/>

Receiving (114):

<?xml version="1.0"?>

<RIBCL VERSION="1.0"/>

<RESPONSE

    STATUS="0x0000"

    MESSAGE='No Error'/>


<END_RIBCL/>


Sending (19):

<CLOSE_USER_INFO/>


Receiving (114):

<?xml version="1.0"?>

<RIBCL VERSION="1.0"/>

<RESPONSE
```

```
       STATUS="0x0000"

       MESSAGE='No Error'/>

<END_RIBCL/>
```

Sample Batch File

You may use batch files to deliver group administration to the Remote Insight Lights-Out
Edition. This delivery requires three components:

- The Remote Insight Group Administration utility

- An RIBCL file

- A batch file

Below is a sample batch file.

```
REM Updating the Compaq Remote Insight Lights-Out Edition board
REM Repeat line for each board to be updated.
REM
RIBCONFIG –S RIB1 –f C:CIMXE20\USERS.XML –l RIB1LOG.TXT –v
RIBCONFIG –S RIB2 –f C:CIMXE20\USERS.XML –l RIB1LOG.TXT –v
RIBCONFIG –S RIB3 –f C:CIMXE20\USERS.XML –l RIB1LOG.TXT –v
.
.
.
RIBCONFIG –s RIBN –f C:\CIMXE20\USERS.XML –l RIBNLOG.TXT -v
```

Compaq Insight Manager XE 2.0

Compaq Insight Manager XE 2.0 adds support for a new device type called the "Management
Processor." Compaq Insight Manager XE recognizes all Remote Insight boards installed on the
network as management processors.

After updating the firmware, you can manage multiple Remote Insight boards through Compaq
Insight Manager XE. The four components for group administration are:

- Remote Insight Board Command Language

- Remote Insight Group Administration Utility

- Query Definition in Compaq Insight Manager XE

- 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 Remote Insight Group Administration 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.

Note: You must have the RIB driver and agent installed correctly in order for Compaq Insight Manager XE to properly identify the board as a management processor. First install the RIB driver, then SNMP, then the Management Agents.

Note: *RIBCONFIG.EXE* gets truncated to *RIBCONFI.EXE* when expanded from the softpaq.

Remote Insight Group Administration Utility

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

http://www.compaq.com/lights-out

The Remote Insight Group Administration Utility must reside on the same server as Compaq Insight Manager XE. The Remote Insight Group Administration Utility generates two types of error messages: runtime and syntax. A runtime error occurs when an invalid action is requested. When the Remote Insight Group Administration Utility encounters a runtime error, it logs the error and continues processing.

A syntax error occurs when an invalid XML tag is encountered. When a syntax error occurs, the Remote Insight Group Administration Utility stops running and logs the error.

Note: Syntax errors take the format of Syntax error: expected "x" but found "y," shown in the following example: Syntax error: expected USER_LOGIN= "userlogin" but found USER_NAME= "username"

See the section titled "Remote Insight Board Command Language" for a complete listing of runtime error codes.

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. Follow these steps to create the query:

1. Log on to Compaq Insight Manager XE.

2. Click on Device Queries in the navigation bar on the left of the screen. The following screen (Figure 13) displays.
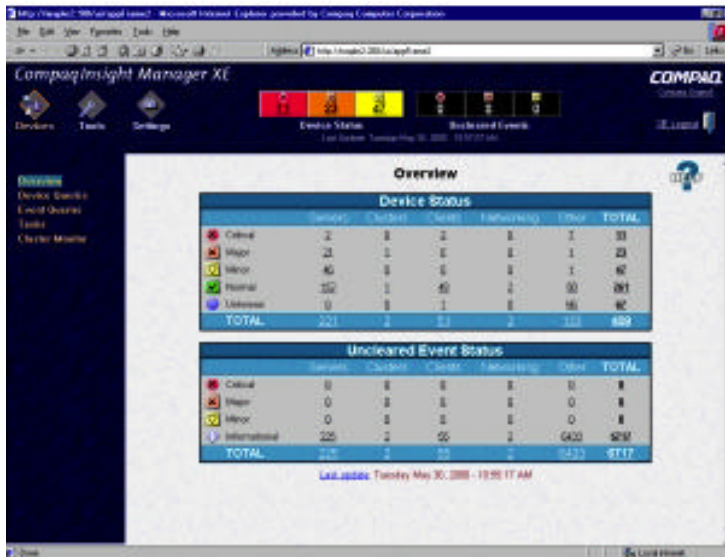

Figure 13. Starting the Device Queries in Compaq Insight Manager XE

3. Find the Personal Queries section (Figure 14) in the main window. If a query category already exists, proceed to Step 6; otherwise, proceed to Step 4.
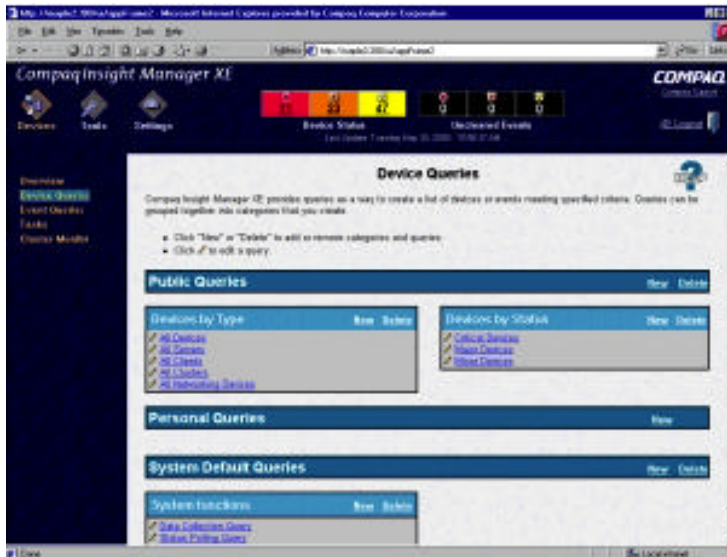

Figure 14. Finding personal queries

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

5. Click Create Category. The following window (Figure 15) displays.

Figure 15. Creating a new query category

6. Click Queries page to return to the Device Queries screen.

7. Click New within the query category to open the Create/Edit Query page (Figure 16) where the query definition is created.

Figure 16. Creating the query definition

8. Define your query name, for example Mgmt Processors.

9. Check Device(s) of Type within the Query Criteria Selection frame to create a query definition.

10. Click on Type in the Query Description frame to define the device type. This opens a pop-up window where you define the device type (Figure 17).
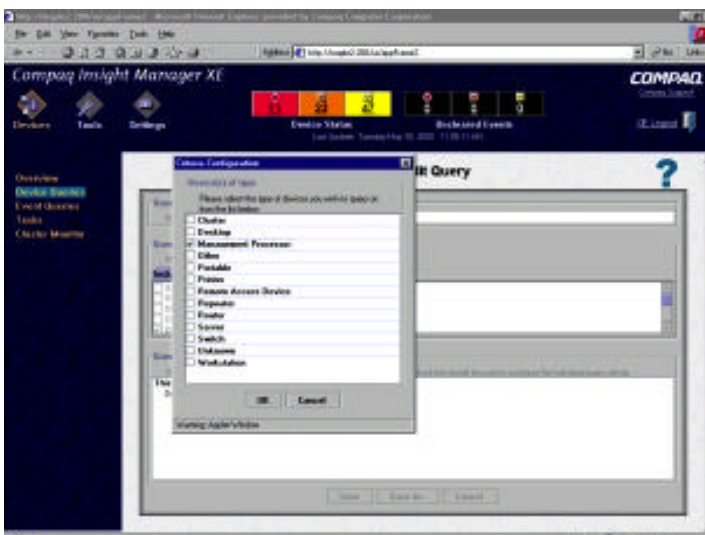

Figure 17. Selecting the device type

11. Check Management Processor and click OK.

12. Click Save to return to the Device Query screen.

13. Find the newly created query in the new category and click the query name to run it for verification.

14. Click Overview on the left side of the screen after the verification has taken place. This opens the initial page for Compaq Insight Manager XE.

Application Launch

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

Create an Application Launch Task by completing the following steps:

1. Click Tasks in the navigation bar on the left side of the screen to open the Tasks page. The following window (Figure 18) displays
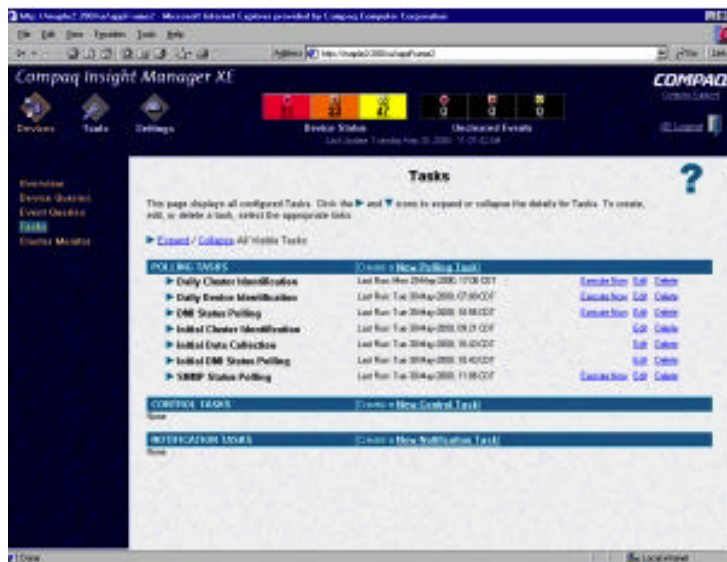

Figure 18. Opening the Task page

2. Click New Control Task in the main window. A drop-down menu displays (Figure 19).
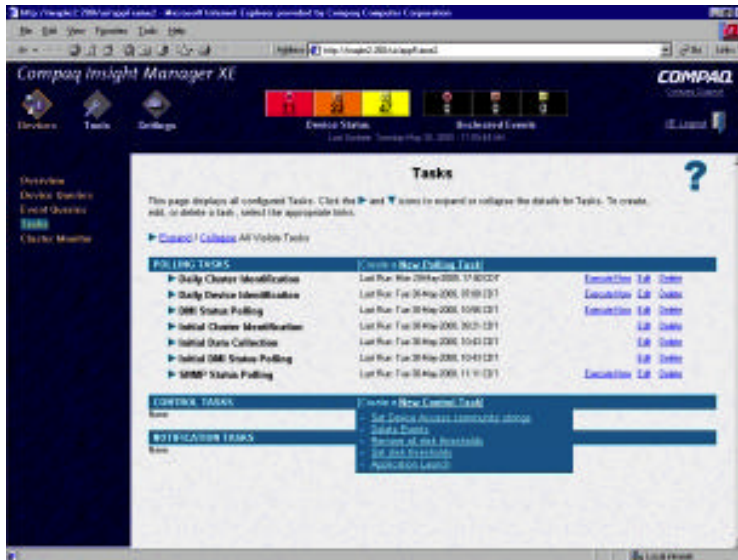

Figure 19. Initiating the application launch

3. Click Application Launch from the drop-down menu to open the Create/Edit Task page (Figure 20).
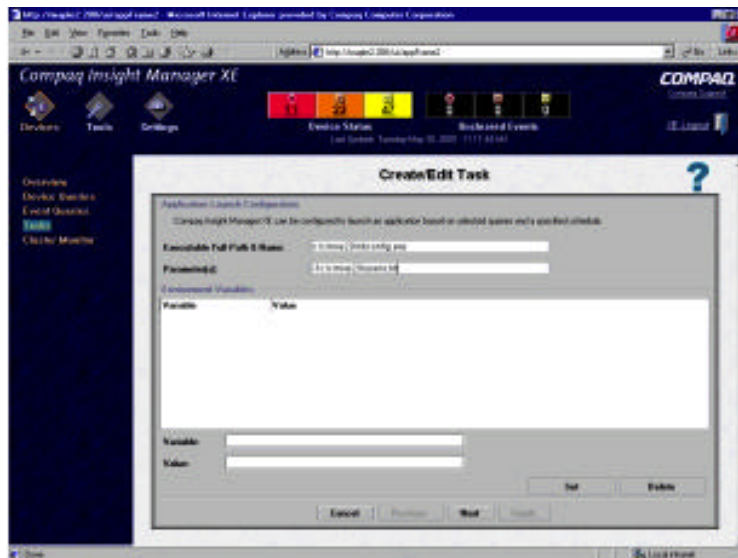
Figure 20. Creating a new task

4. Type the full path and name to the Remote Insight Group Administration Utility in the area provided. If the *RIBCONFIG.EXE* file is in the root directory of Compaq Insight Manager XE on the C:\DRIVE, then the path is:

```
C:\CIMXE20\RIBCONFIG.EXE
```

5. Type the parameter(s) in the area provided. Compaq Insight Manager XE requires the following parameters for the Remote Insight Group Administration Utility:

- -F—Path of the RIBCL file name

- -V—Verbose message (optional)

Note: If the RIBCL files are in the root directory of Compaq Insight Manager XE, only the name of the file is necessary: `-F manageusers.xml-v`. If the RIBCL files are in a directory other than Compaq Insight Manager XE, then full path and name of the file are required: `-F C:\ribconfig\manageusers.xml-v`.

---

6. Click Next. A page opens with options for naming the task, defining the query association, and setting a schedule for the task (Figure 21).

Figure 21. Defining the task

7. Enter a task name in the field provided.

8. Select the query that had been created earlier, for example **mgmt processors**.

9. Click Schedule to define when the application launch task runs. A schedule configuration window displays (Figure 22).

Figure 22. 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. The following screen (Figure 23) displays.
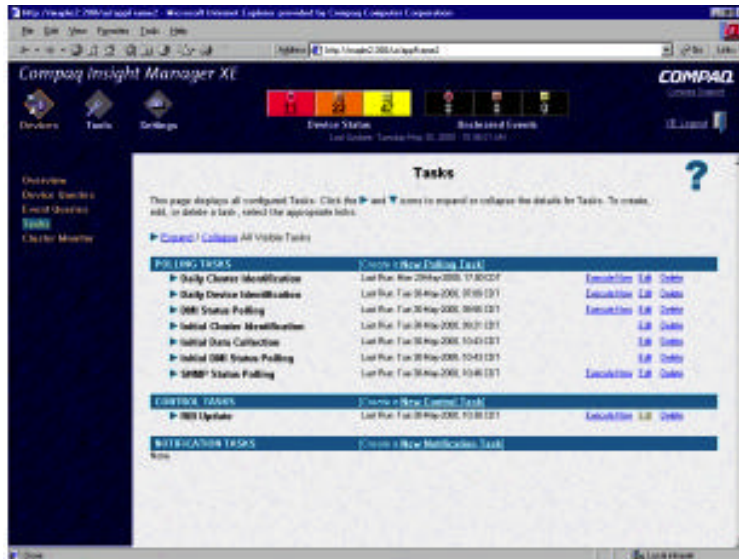

Figure 23. Running the control task

Labs (Optional)

Equipment Requirements

In order to perform these labs, you need the following equipment:

- A server with DHCP and DNS services, Compaq Server Agents, CIM XE 2.0, a Remote Insight Lights-Out Edition board with ROM version 2.30, and the group administration SoftPaq installed (SP14688)

- A second server with Compaq Server Agents and a Remote Insight Lights-Out Edition with ROM version 2.30 installed

Adding a User from the Command Line

Using the example starting on page 14, generate an xml file with Notepad that enables the following attributes for adding a new user:

- User name of **compaq**

- User login name of **compaq**

- Password of **attitude**

- SNMP address suitable to your network

- Remote console privileges

- OS and RIB traps enabled

Using the command syntax identified on page 15, execute a command to add the user to one Remote Insight Lights-Out Edition board. If errors occur, look at the log file to troubleshoot the

problem. Afterwards, try logging into the Remote Insight Lights-Out Edition board with a user name of **compaq** and a password of **attitude**.

Modifying a User from the Command Line

Using the example starting on page 16, generate an xml file with Notepad that makes the following changes for the user added in the previous example:

- Change the user password to **innovate**

- Enable remote reset privileges

Using the command syntax identified on page 14, execute a command to add the user to one Remote Insight Lights-Out Edition board. If errors occur, look at the log file to troubleshoot the problem. Afterwards, attempt to log in to the Remote Insight Lights-Out Edition board with a user name of **compaq** and a password of **innovate**.

Deleting a User from the Command Line

Using the example on page 17, delete the user added in the previous example. If errors occur, look at the log file to troubleshoot the problem. Afterwards, try logging into the Remote Insight Lights-Out Edition board with a user name of **compaq** and a password of **innovate**.

Group Administration of Multiple Remote Insight Lights-Out Edition Boards

Using the example starting on page 22:

- Execute a discover within Compaq Insight Manager XE 2.0 and verify that the Remote Insight Lights-Out boards were discovered.

- Group all of the Remote Insight Lights-Out Edition boards.

- Configure application launch to add a new user, use the same file created in the "Adding a User from the Command Line" lab.

- Attempt to log in to each Remote Insight Lights-Out board with a username of **compaq** and a password of **attitude**.

Downloads and Reference Material

- *Remote Insight Lights-Out Edition User Guide* (PDF format)

  - ftp://ftp.compaq.com/pub/products/servers/management/lightsout-guide.pdf

- *Group Administration and SSL User Guide*

  - ftp://ftp.compaq.com/pub/products/servers/management/GA-SS-Layer-Security.pdf

- Ten Tips for Remote Console

  - http://www.compaq.com/manage/remote-lightsout-tentips.html

- Tips and Tricks

  - http://www.compaq.com/manage/remote-lightsout-tipstricks.html

- Troubleshooting

    - http://www.compaq.com/manage/lightsout-documentation-troubleshooting.html

- Security Features

    - http://www.compaq.com/manage/remote-lightsout-security.html

- *Compaq Insight Manager Users Guide*

    - http://www.compaq.com/support/files/server/us/WebDoc/470/cimusrgd.pdf

- *XML Interface Programmers Guide*

    - http://csnet.compaq.com/TechInfo/

        Access the XML Interface Programmers Guide by clicking Enterprise, then Server Management, then Remote Insight, then Remote Insight Lights-Out, then Reference Guides, then XML Interface Programmer's Guide.

Firmware Changes since Version 2.21

Remote Insight Lights-Out Edition version 2.30 has several updates. The list below highlights these changes.

- Added SSL security

- Added XML-based group administration

- Added an **F8** Setup On/Off switch from the browser

- Added automatic detection of the Microsoft Windows 2000 ATI Rage IIC driver

    If the CPPRIB.SYS driver finds the version that does not cause the system to lock up, then the workaround in firmware is disabled.

- Corrected JAVA VM lockup on clients running Windows ME with Internet Explorer 5.X

- Corrected a server lockup when the Remote Insight Lights-Out Edition is installed on IRQ9

- Fixed an issue where the board would be inaccessible for two minutes if the user "ejects" a virtual floppy and then attempts to use it

- Corrected the "Send Image" and "Update Firmware" buttons, which are now onscreen if Netscape Communicator 4.73 is at less than full screen

    The progress bar for firmware updates in Netscape 4.73 is now colored rather than clear.

- Added a reset page that informs users that the board is inaccessible until it can complete resetting

- Corrected the Manual Refresh link to work with all browsers

- Corrected the problem of Netscape 4.7 running out of memory while operating a JVM in a Windows 9X environment

- Corrected the problem of the local and remote mouse cursors not being in alignment when the mouse sync button is pressed

- Added POST fails and a halt codes, which now display if a simple test of the FPGA fails

- Added the ability for factory test to be able to turn off video

- Copied down the date and time to the Remote Insight Lights-Out Edition from the F8 Setup utility

- Corrected an issue where the Remote Insight Lights-Out Edition would reset itself under some network conditions

- Corrected an error message for sending an individual test alert for a user with no alert designation

- Changed F8 Setup to prevent a user from enabling traps without first specifying a trap address

- Corrected F8 Setup so that it no longer overwrites the Remote Console status bit in the SMIF header

  Therefore, utilities like the F10 Config can now properly detect a Remote Console session in progress.

- Made minor changes to the browser interface

- Corrected a bug introduced in pass three where the Remote Insight Lights-Out Edition would not detect a power status change

- Changed the defaults for the administrator account to have traps disabled

- Corrected the Compaq logo in the server's POST splash screen to display red when viewed in Remote Console with Windows NT or Windows 2000 selected

- Corrected an Out of Memory error in Netscape 4.6 and 4.7

- Moved the PCI devices on the secondary PCI bus to offset 0x01000000 (16MB)

  When it was at offset 0, accesses to the Network Interface Card (NIC) contended with video on Freezer between the Freezer BIOS enabled memory on the video adapter and the time it gives a base address.

- Redirected the welcome page to the index page using either the DNS name or IP address

- Set the timeout on the welcome page to 0 seconds

- Corrected the F8 Setup to update the Remote Insight Lights-Out Edition with the server reset sequence (if an ASM is present) every time the server POSTs and after resetting the board to its factory defaults

- Corrected a bug preventing new users from being added in the F8 Setup utility

- Changed the PCI clock-out-of-phase workaround so that the user turning off power during its timeout period does not falsely trigger it

- Corrected a problem with garbled characters to the keyboard strings in the F8 Setup utility when the language is set to Japanese

- Improved reporting of the virtual power button and running off external or auxiliary power

Conclusion

The firmware upgrade for the Compaq Remote Insight Lights-Out Edition adds several key features to the board and improves its overall performance. With its additions and fixes, the board has become an even more valuable tool in providing reliable, remote server access.