Hewlett-Packard PowerTrust II-LR Uninterruptible Power Supplies SNMP/WEB Card User Guide



Part No. A1359-90001 Edition 1, May 2000 E0200 © Copyright 2000, Hewlett-Packard Company. All Rights reserved. Printed in USA

Hewlett-Packard PowerTrust II-LR Uninterruptible Power Supplies SNMP/WEB Card User Guide



Part No. A1359-90001 Edition 1, May 2000 E0200 © Copyright 2000, Hewlett-Packard Company. All Rights reserved. Printed in USA

Legal Notices

The information contained in this document is subject to change without notice.

Hewlett-Packard makes no warranty of any kind with regard to this material, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Hewlett-Packard shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Hewlett-Packard assumes no responsibility for the use or reliability of its software on equipment that is not furnished by Hewlett-Packard Company.

HEWLETT-PACKARD COMPANY 3000 Hanover Street Palo Alto, California, 94304 U.S.A

Copyright Notices: © 2000 Hewlett-Packard Company, all rights are reserved. No part of this document may be photographed, reproduced, or translated to another language without prior written consent of Hewlett-Packard Company.

Trademark Notices: Windows is a registered trademark of Microsoft Corporation. UNIX is a registered trademark in the United States and other countries, licensed exclusively through X/Open Company Limited. All other brand and product names are trademarks or registered trademarks of their respective holders.

Printing History

The manual printing date and part number indicate its current edition. The printing date will change when a new edition is printed. Minor changes may be made at reprint without changing the printing date. The manual part number will change when extensive changes are made.

Manual updates may be issued between editions to correct errors or document product changes. To ensure that you receive the updated or new editions, you should subscribe to the appropriate product support service. See your local HP support representative for details.

First Edition: May 2000

SERIOUS ERRORS, such as technical inaccuracies that may render a program or a hardware device inoperative, should be reported to your HP Response Center or directly to your local HP support representative.

Table Of Contents

Chapter 1 Overview of PowerTrust II-LR SNMP/WEB Card	1-1
Introduction	1-1
System Application	1-2
Chapter 2 HP PowerTrust II-LR SNMP/WEB Card Configuration	2-1
Preparation	2-1
Installation of Hardware for Configuration of the	
HP PowerTrust II-LR SNMP/WEB Card	2-1
Configuring HP PowerTrust II-LR from a Serial Port	2-3
Definitions of elements in the HP PowerTrust II-LR	
Configuration Utility	2-5
Set the IP Address, Gateway Address and MIB System Group	2-5
Set SNMP/WEB Card Control Group	2-6
Set Write Access Manager	2-6
Set Trap Receivers	2-6
Set IP Addresses of Primary and Secondary Time Server	2-6
Set UPS Information	2-6
UPS Model	2-7
UPS Serial Number	2-7
UPS Identification String	2-7
Date of Installation	2-7
Last Battery Replacement Date	2-8
Low Runtime Setpoint	2-8
Delay before UPS Shutdown	2-8
Delay before UPS Restart	2-8
Turn off UPS after shutdown	2-9
Restart UPS once AC power returns	2-9
Back to main menu	2-9
Set Superuser Name and Password	2-9

Display Settings	2-10
Back to Main Menu	2-10
Configuring PowerTrust II-LR from a Web Browser	2-11
Add a Routing Condition in the PC	2-11
Running the Web Browser (Netscape or Internet Explorer)	2-12
Setup Network Configuration	2-13
Telnet Console Access	2-16
Chapter 3 UPS Power Management	3-1
UPS Management from a Web Browser	3-1
Viewing UPS-specific Model Information	3-1
Becoming Superuser	3-2
Turning the UPS On and Off	3-2
Forcing the UPS to Shutdown	3-3
Planning a Scheduled UPS Shutdown and Restart	3-3
Testing the UPS	3-4
Viewing the History Log	3-4
Viewing the UPS Status with a UPS Status-like Applet	3-4
Viewing the History Log Graphically	
UPS Management from a SNMP Network Management Station.	3-5
Viewing UPS Monitoring Parameters	
Forcing the UPS to Shutdown	
Receiving Event Traps	
Automatic Shutdown of UPS-Protected Computers	
Chapter 4 The PowerTrust II-LR SNMP/WEB Card	
Home Page Reference	
Connecting to the PowerTrust II-LR SNMP/WEB Card	
HTTP Server	4-1
Running the Web Browser to Access the PowerTrust II-LR	
SNMP/WEB Card Home Page	4-1
UPS Identification	4-3

Description of Identification Parameters	
UPS Name	
UPS Model	
VA Rating	
UPS Type	
UPS Serial Number	
UPS Identification String	
Date of Installation	
Battery Last Replaced Date	
UPS Monitoring	
Status	
Description of Status Parameters	
Battery Status	
Voltage In	
Voltage Out	
UPS Load	
Frequency	
Battery Voltage	
Runtime Remaining	
UPS Internal Temperature	
Input Data	
Description of Input Parameters	
Voltage In	
Frequency	
Output Data	
Description of Output Parameters	
Voltage Out	
Current Out	
True Power	
Apparent Power	
Power Factor	
UPS Load	

Battery Data	
Description of Battery Parameters	
Battery Status	
Battery Voltage	
Runtime Remaining	
Time On Battery	
Monitoring Applets	
UPS Status Applet	
UPS Data Log Applet	
UPS History	
Description of UPS History Parameters	
Date	
Time	
Input Voltage	
Output Voltage	
UPS Configuration	
UPS Configuration Parameters	
Description of UPS Configuration Parameters	
Low Runtime Setpoint	
Delay Before Shutdown	
Delay Before Restart	
Turn off UPS after shutdown	
Restart UPS once AC power returns	
UPS Shutdown Schedule	
Event Index	
Shutdown Day or Restart Day	
Shutdown Time or Restart Time	
UPS Control	
Description of UPS Control Parameters	
Turn UPS Off	
Reboot UPS	
Enable UPS Shutdown Schedule	

Disable UPS Shutdown Schedule	
UPS Tests	
Description of UPS Manual Tests	
Initiate Battery Test	
Abort Battery Test	
PowerTrust II-LR SNMP/WEB Card Configuration	
Description of PowerTrust II-LR SNMP/WEB Card	
Parameters	
Telnet Control	
PowerTrust II-LR SNMP/WEB Card Address	
Gateway Address	
Subnet Mask	
History Log Frequency	
Refresh Frequency	
bootp/DHCP Address Enabled or Disabled	
TFTP Enabled or Disabled	
SNMP Trap Receivers	
Description of the SNMP Trap Receivers Table	
Index	
IP Address	
Community String	
Severity Level	
Status	
Registered Shutdown Clients	
Chapter 5 Installation and Operation of Client Software	5 1
Cotting Storted with Windows NT 4.0 Client	
Oversitient	
Stort	
Stall Lloing the DougerTruct II I D LIDE Chart down A sub-	
Configure Shutdown	
Configure Shutdown	
Event Action	

Getting Started with HP-UX PowerTrust II-LR UPS	
Shutdown Client	
Overview	
Start	
Mounting CD	
swinstall	
Exit swinstall	
Starting UPS Monitoring	
Obtaining help with software commands	
Stopping UPS Monitoring	
Removing the application	
 Chapter 6 The Management Information Base	
Appendix B Board Layout and Description Board Layout and Pin Assignment. Switch Description LED Indicators	B-1 B-1 B-2 B-3
Appendix C EIA-232 Cables	C-1

Chapter 1 – Overview of PowerTrust II-LR SNMP/WEB CARD

Introduction

The *HP PowerTrust II-LR SNMP/WEB Card* is a network interface for Uninterruptible Power Systems that provides both SNMP and HTTP compatibility.

SNMP-compatible network management software (user-supplied) may be utilized to monitor the UPS in a method similar to that of other network devices. Others may wish to utilize a web browser such as Netscape (Navigator Gold v3.01, Communicator v4.04) (or later) or Internet Explorer (v4.0) (or later) to monitor and manage the connected UPS.

In addition, the PowerTrust II-LR also supports remote monitoring and shutdown from UPS-protected computer systems. These programs communicate through TCP/IP with the PowerTrust II-LR Card and automatically shutdown the protected system during extended power outages.

System Application



Figure 1-1. The system application diagram for HP SNMP/WEB Adapter Card and its associated client software.

Chapter 2 – HP PowerTrust II-LR SNMP/WEB Card Configuration

Preparation

Before using the HP PowerTrust II-LR SNMP/WEB Adapter Card for the first time, you must provide a system to configure the card. The PowerTrust II-LR SNMP/WEB Adapter Card supports two methods of first time configuration:

- 1. Configuration of HP PowerTrust II-LR SNMP/WEB Adapter Card from a serial port If using a PC with a terminal emulator program, connect the serial cable supplied with the HP PowerTrust II-LR between the communications port on the PC and the communication port on the PowerTrust II-LR. (A conventional terminal may be used instead of a PC with suitable cabling.)
- 2. Configuration of PowerTrust II-LR from the network The PC (or workstation) and the HP PowerTrust II-LR SNMP/WEB Card need to be connected to the same network (Ethernet). The user will run a web browser on the system to configure the PowerTrust II-LR. *Note: Security-related and some hardware parameters can't be configured from the web browser*.

The use of both methods is described in detail on the following pages.

Installation of Hardware for Configuration of the HP PowerTrust II-LR SNMP/WEB Card

Step 1. With the UPS turned off, remove the two screws securing the cover plate to the communication slot on the back of the UPS. Retain the screws, as they will be used to secure the HP PowerTrust II-LR SNMP/WEB Card in the slot.

2-2	Chapter 2 PowerTrust II-LR SNMP/WEB Card Configuration
Step 2.	The HP PowerTrust II-LR SNMP/WEB Card comes with a mounting plate that allows it to be secured properly.
Step 3.	With the mounting plate attached, insert the HP PowerTrust II-LR SNMP/WEB Card into the communication slot on the UPS. Please refer to Figure 2-1.
Step 4.	Secure the card to the UPS chassis by using the screws retained in Step 1
Step 5.	Connect an active 10BaseT cable to the network connector on the HP PowerTrust II-LR SNMP/WEB Card.





Figure 2-1. Inserting the HP PowerTrust II-LR SNMP/WEB Card into the UPS.

Please refer to the next section for serial port configuration or refer to the final section of this chapter for configuration from a web browser.

CAUTION

Before inserting or removing the PowerTrust II-LR SNMP/WEB Card from the UPS, please make sure the UPS is turned off. Hot swapping the card is prohibited.

Configuring PowerTrust II-LR from a Serial Port

- Step 6. Use the UPS protected Windows NT workstation or alternately use a terminal or a PC with a terminal emulation program.
- Step 7. Connect the serial cable that was supplied with your UPS between the communication port on the UPS and the serial COM port on the workstation or PC. For connection to a Hewlett-Packard terminal, use cable 5064-6204. The communications settings should be 9600 bps, 8 data bits, no parity, 1 stop bit with no flow control.
- Step 8. Make certain that both DIP switches on PowerTrust II-LR Figure 2-SNMP/WEB Card are in the OFF position. (Other positions are for factory test.)





Step 9. Turn the UPS on. If the configuration is to be done from a Windows NT machine protected by the UPS, allow the workstation to boot up, and then start Hyperterminal or another terminal emulator program. If an independent PC or terminal is used, "PowerTrust II-LR V1.00 Ready" will be displayed as the UPS powers up. Press **<Enter>**. In either case, the PowerTrust II-LR will prompt for a password. Enter the password (default is **admin.**) The main menu of the PowerTrust II-LR configuration utility will be displayed. See Figure 2-3.

Figure 2-3. The main menu of PowerTrust II-LR in the configuration mode.

Step 10. Select **1** to enter the Setting and Display screen (Figure 2-4).



Definitions of elements in the PowerTrust II-LR Configuration Utility

Set the IP Address, Gateway Address and MIB System Group

Press **1** to select this function to setup IP address, Gateway Address and MIB System Group parameters. The definition of each of these parameters is listed below:

No.	Function	Description	Example/ Remark
1	IP Address	The IP address of PowerTrust II-LR SNMP/WEB Card	192.72.173.188
2	Gateway Address	The default gateway of the network	192.72.173.254
3	Network Mask	The sub-net mask setting	255.255.255.0
4	sysContact	System contact string for MIB. Maximum length is 19 characters.	Dan Pankiw
5	sysName	System name parameter for MIB. Maximum length is 19 characters.	PowerTrust II-LR
6	sysLocation	System location parameter for MIB. Maximum length is 19 characters.	TEST LAB

Set SNMP/WEB Card Control Group

For those users who intend to use BOOTP/DHCP, Telnet, TFTP, or secure HTTP to configure, control, update, or manage the PowerTrust II-LR, certain control parameters of PowerTrust II-LR SNMP/WEB Card must be enabled. Press **2** to modify these parameters.

Set Write Access Manager

For those users who intend to use an SNMP-compatible network management system to manage PowerTrust II-LR, the IP address of the management station must be added in the list on PowerTrust II-LR SNMP/WEB Card in order to receive write access rights. Press **3** to add or delete the IP address of the management station.

Set Trap Receivers

For those who intend to use an SNMP-compatible network management system to manage PowerTrust II-LR, the IP address of the machines intended to be trap receivers must be added in the list on PowerTrust II-LR. Press **4** to add or delete the IP addresses of the trap receivers.

Set IP Addresses of Primary and Secondary Time Server

Press **5** to setup the IP addresses of the Primary and Secondary time servers. Making changes to these parameters is allowed via the HTML interface for ease of updating. If it is desired to have the entries return to their default values of 0.0.0.0, it is necessary to program the PowerTrust II-LR via the serial configuration to "Reset Configuration to default"; (keep in mind that this will default the entire PowerTrust II-LR configuration). Failing to program the Primary and Secondary Timer Server parameters to some value other than 0.0.0.0, PowerTrust II-LR will look to all Network Time Service (NTS) servers to find the best average time. The PowerTrust II-LR provides no adjustment for local time zone. If the configured Network Time Server reports times in GMT, the PowerTrust II-LR will report times in GMT.

Set UPS Information

Press **6** to enter information about the UPS that is not supported by the basic UPS or to modify parameter values that determine the operational behavior of the PowerTrust II-LR device. This information is not necessary for proper PowerTrust II-LR operation and can be added later. The PowerTrust II-LR has been programmed

with default values for some of the operational parameters that can be modified by the installer of this product.

It is necessary to view the settings via a web browser or a SNMP network management station to determine what information should be entered via the serial configuration utility to supplement the UPS-resident information.

Below is a list of parameters that can be modified by the installer of this product. A description has been added to provide the installer with a clear understanding of each parameter to aid in the programming process.

UPS Model

The PowerTrust II-LR will identify itself and its model number.

UPS Serial Number

Parameter 1. This parameter should be programmed to contain the exact serial number from the UPS being installed. Having the serial number available to PowerTrust II-LR will be helpful for future reference.

Example: TWB4007002

UPS Identification String

Parameter 2. This parameter can be programmed to contain a any text string that will be meaningful to anyone that is trying to identify which UPS is being monitored by the management program.

Example: SNMP/WEB Card

Date of Installation

Parameter **3**. This parameter should be programmed to contain the date the UPS was installed.

Example: 05/15/2000

Last Battery Replacement Date

Parameter 4. This parameter should be programmed to originally contain the same date as the date of installation. When the battery or batteries are ever replaced, this parameter should be reprogrammed to reflect the new date.

Example: 05/15/2000

Low Runtime Setpoint

Parameter 5. The PowerTrust II-LR models calculate the amount of runtime remaining internally. This allows the user to configure the UPS Low Runtime Setpoint via HTML or SNMP. When the value of battery runtime remaining is equal to the value of this setpoint, a *Battery Low* condition will exist.

Example: 5 Range: (0 - 999 minutes)

Delay before UPS Shutdown

Parameter 6. This value applies a delay in seconds before activation of **Turn UPS Off** or **Reboot UPS**. The default is 120 seconds. Allowable values are 18, 24, 30, 36, 42, 48, 54, 60, 120, 180, ..., 540, 600, ..., 5940 seconds. If you choose a different value, the next highest allowable value will be used.

Note: If the computer being protected by the UPS requires more than 120 seconds to complete its shutdown sequence, you should choose 180 seconds or more to allow enough time to complete the shutdown.

Delay before UPS Restart

Parameter 7. This value is used to determine the amount of delay time, in seconds that the UPS waits to turn On, following **Reboot UPS**.

Note: This value may not be changed from the default value of 1 minute.

Turn off UPS after shutdown

Parameter 8. The default setting for this parameter is to turn off the UPS after it has been shutdown. This is an attempt to save as much battery life as possible. However, if maximum runtime is desired, the installer may choose to allow the UPS to run on battery power until the UPS shuts itself down when the batteries are exhausted.

Choices are:

0: No

1: Yes (default)

Restart UPS once AC power returns

Parameter 9. The default setting for this parameter is for the UPS to automatically restart when AC power is restored to the building after a long power outage. This setting can be changed to "not restart", if that behavior is preferred. In some cases it is preferable to force the UPS to stay off even when AC power is restored in the event that power is restored only briefly and then is lost again. This causes computer equipment to begin their boot process only to be shut off midway through. If the user wishes to avoid this scenario, select *no* for this parameter.

Choices are:

0: No

1: Yes (default)

Back to Main Menu

Press **0** to return to the main menu.

Set Internet Administrator Name and Password

Press **7** to set or change the user name and password of the administrators who use web browsers to configure the PowerTrust II-LR.

Display Settings

Press **d** to display the current values of all the parameters.

Back to Main Menu

Press **0** to return to the main menu.

- Step 11. After completing the configuration of PowerTrust II-LR, select **0** to return to the Main Menu.
- Step 12. Then select **0** to Exit (Figure 2-5).
- Step 13. To save the new settings, select **2** to Save and Exit (Figure 2-5).

Figure 2-5. The Save and Exit menu from PowerTrust II-LR.

Note: The process of rebooting the PowerTrust II-LR may take up to 2 minutes to complete. Please wait at least this long before attempting communication with the adapter from a WEB browser.

Configuring PowerTrust II-LR from a Web Browser

- 1. Locate a machine (PC, host or server) that can run a web browser (Netscape or Internet Explorer suggested) and connect a 10BaseT Ethernet cable to its LAN port.
- 2. Connect another Ethernet cable to the Network port on the PowerTrust II-LR SNMP/WEB Card (Figure 2-6).



Figure 2-6. 10BaseT connection to SNMP/WEB Card.

Add a Routing Condition in the PC

If the IP address of the PC isn't in the same network with PowerTrust II-LR (This is only required while configuring PowerTrust II-LR), you can use the Add Routing command. If the IP address of the PC is on the same network with the PowerTrust II-LR, you may just run the WEB browser directly.

- 3. Turn on the PC and setup the TCP/IP protocol, if this has not been done before.
- 4. Enter the following command to add a routing condition to the PC:

5. Route add 192.168.7.18 10.72.173.20

(Assuming the IP address of the machine is 10.72.173.20 and the default IP address of PowerTrust II-LR is 192.168.7.18)

Note: Please refer to your operating system documentation for additional details on how to add a routing condition.

Running the WEB Browser (Netscape or Internet Explorer)

- 6. Run web browser and browse the default address 192.168.7.18.
- 7. The home page of PowerTrust II-LR will be shown on the screen (Figure 2-7).

	Identification		
PowerTrust II LR	UPS Name	PowerTrust II	
	UPS Model	LR Series	
PowerTrust II-LR SNMP/WEB Card	VA Rating	2000	
	UPS Type	Online	
LIPS Identification	UPS Serial Number	TWB4007002	
OF 5 Identification	UPS Identification String	SNMP/WEB Card	
UPS Monitoring	Date Of Installation(mm/dd/yyyy)	03/15/2000	
Monitoring Applets	Battery Last Replaced Date(mm/dd/y)	yy) 03/15/2000	
UPS History UPS Configuration UPS Control UPS Tests	SetV.	Help	
SNMP/WEB Card Configuration SNMP Trap Receivers Registered Shutdown Clients			

Figure 2-7. The home page from PowerTrust II-LR.

Setup Network Configuration

- 8. Select *PowerTrust II-LR Configuration* from the main menu of the home page to setup the PowerTrust II-LR parameters (Figure 2-8).
- 9. Press **Become Superuser** and login with the Username and Password (Default is admin, admin.)
- 10. Select and edit the PowerTrust II-LR Address.
- 11. Select and edit the Gateway Address in the network.
- 12. Select and edit the Subnet Mask of the network.
- 13. Select Set Values to save the settings.
- 14. Select *Date and Time* at the bottom of the page.

	SNMP/WEB Card Configuration	
PowerTrust II LR	Firmware Revision	PowerTrust II-LR V1.00
Dense Transf II I D	PowerTrust II UPS Address	15.8.130.226
SNMP/WEB Card	Gateway Address	15.8.128.1
	Subnet Mask	255.255.248.0
UPS Identification	Primary Date Server	0.0.0
UPS Monitoring	Secondary Date Server	0.0.0
Monitoring Applets	History Log Frequency(minutes)	1
UPS History	BOOTP/DHCP Control	Disabled 🔽
UPS Configuration	Telnet Control	Enabled V
LIPS Control	TFTP Upgrade Control	Enabled V
LIPS Tests	Reset Configuration to default	No
UPSTESS	Restart PowerTrust II-LR SNMP/WEB	Card No
NMP/WEB Card Configuration	Set Value	S
SNMP Trap Receivers		
legistered Shutdown Clients	Date and T	ime
	Back	Help

Figure 2-8. The initial configuration page from PowerTrust II-LR.

15. Enter the appropriate date and time information in the specified format.

16. Select Set Values to save the settings. See Figure 2-9.

PowerTrust II-LR - Microsoft Internet Explorer	
Die For Tiew Läkones Toors Deb	
Packand PowerTrust II LR	WARNING
PowerTrust II-LR SNMP/WEB Card —	Please set Date and Time.
UPS Identification	Date(mm/dd/yyyyy) 03/24/2000 Time(hh:mm:ss) 10:08:11
UPS Monitoring	Become Superuser
Monitoring Applets	
UPS History	Back Help
UPS Configuration	
UPS Control	
UPS Tests	
SNMP/WEB Card Configuration	
SNMP Trap Receivers	
Registered Shutdown Clients	
e Done	internet 🖉

Figure 2-9. After setting the time.

The PowerTrust II-LR is now configured for operation on your network. Please refer to the remainder of this User Manual for more detailed information.

Telnet Console Access

After the initial configuration of an IP address into the SNMP/WEB Adapter Card, the screens and functions shown for the direct connection are also available from a Telnet connection. Simply telnet to the assigned IP address.

Chapter 3 – UPS Power Management

UPS Management from a Web Browser

Viewing UPS-specific Model Information

When using a web browser to browse the PowerTrust II-LR SNMP/WEB Card, the majority of UPS-related information is available by selecting any of the following menu options:

UPS Identification UPS Monitoring Monitoring Applets UPS History UPS Configuration UPS Control UPS Tests

Please refer to Chapter 4 for more detailed information on each menu selection and the parameters available under each.

Becoming Superuser

Several menus allow UPS and PowerTrust II-LR SMNP/WEB Card-related parameters to be modified by the user. However, many of these are password protected, requiring the user to become Superuser. To become Superuser, you must login with the username and provide a password. Both are configurable by Serial Configuration (Defaults are admin and admin).

Caution: Once you have become Superuser it is important that you completely exit your browser if you wish to reset the security level back to standard from Superuser.

Turning the UPS On and Off

The PowerTrust II-LR SNMP/WEB Card supports the ability to turn the UPS Off. It also supports rebooting the UPS (cycling output power), as well as the ability to schedule shutdowns and restarts on a scheduled basis.

Selecting UPS Control from the main menu provides a page that allows you, as Supervisor, to Turn the UPS Off or Reboot the UPS. In addition, you may enable or disable any scheduled shutdowns or startups specified in the table found when selecting UPS Configuration, followed by UPS Shutdown Schedule.

Forcing the UPS to Shutdown

- 1. Select UPS Configuration from the main menu, followed by UPS Configuration Parameters.
- 2. Set the appropriate *Delay Before Shutdown* in seconds and if necessary, the *Delay Before Restart* which is also in seconds. You will have to login as Supervisor to change these values.
- 3. Once the values are set, select UPS Control from the main menu.
- 4. You may then select *Turn UPS Off* or *Reboot UPS*, followed *by Set Values* to start the process.
- **Note:** Selecting *Turn UPS Off* or *Reboot UPS* will turn off the output of the UPS. Any equipment powered by the UPS will be shut off. Take care to properly prepare the protected equipment for the shutdown. If you select *Turn UPS Off*, the UPS will need to be manually restarted once the shutdown takes place.

Planning a Scheduled UPS Shutdown and Restart

You may use PowerTrust II-LR SNMP/WEB Card to schedule the day of the week and time at which a shutdown and alternately a restart may be scheduled. The ability to schedule shutdowns and restarts is UPS dependent, so consult your UPS documentation for more information.

- 1. Select UPS Configuration from the main menu, followed by UPS Shutdown Schedule.
- 2. You may configure up to seven event pairs in the table provided, by picking the upcoming Shutdown Day and Shutdown Time, followed (if necessary) by the Restart Day and Restart Time. Times are set in 24 hour time, based on the time set within PowerTrust II-LR. You will have to login as Supervisor to change these values.
- 3. Once the values are set, select UPS Control from the main menu.

- 4. Then select Enable UPS Shutdown Schedule, followed by Set Values to start the process. Any shutdown/restart events will repeat until the table is changed or the user selects Disable UPS Shutdown Schedule.
- **Note:** Before you may schedule any shutdown or startups, you must set the Date and Time within PowerTrust II-LR.

Testing the UPS

You may use PowerTrust II-LR to manually test the UPS.

- 5. To manually start a test on a PowerTrust II-LR, select *UPS Tests* from the main menu.
- 6. You may then select whether you wish to initiate a Beeper, System, Inverter or Battery Test. You should know whether the individual tests are possible on the UPS model being used. You will have to login as Supervisor to initiate or abort a test.

Viewing the History Log

Select the *UPS History* from the main menu to view a tabular list of previously recorded UPS parameters.

Viewing the UPS Status with a UPS Status-like Applet

Select the *Monitoring* Applets from the main menu, followed by *UPS Manager Applet* to display a Java applet designed to look similar to UPS Manager II Advanced. PowerTrust II-LR SNMP/WEB Card provides real-time updates to this display.

Viewing the History Log Graphically

Select the *Monitoring* Applets from the main menu, followed by *History Applet* to display a Java applet designed to present the previously recorded UPS data as easy-to-read bar or line graphs.

UPS Management from an SNMP Network Management Station

7. To access the PowerTrust II-LR SNMP/WEB Card via SNMP, use the Community strings as specified below.

GET Community string: *public* or user password (Default is *admin*). SET Community string: user password (Default is *admin*).

- **Note:** The only NMS's allowed to do a set are those whose IP address is present in the NMS table. To add an NMS in to the table, use the Serial Configuration menu.
- 8. The **hppt2lr.mib** file contains the MIB for PowerTrust II-LR. Add this file, to the MIB data base of your SNMP management software (Such as HP OpenView, IBM NetView 6000 and Sun NetManager).
- 9. Using the Facilities provided by the SNMP management software, you may now access the individual MIB objects available. Reference Chapter 6 for a complete listing of the MIB.

Viewing UPS Monitoring Parameters

The PowerTrust II-LR SNMP/WEB Card supports several MIB groups that separate specific UPS parameters into related areas. The groups used in the MIB for PowerTrust II-LR include:

- Ident
- Battery
- Input
- Output
- Config
- Control
- Test
- Alarms

Please refer to Chapter 6 for more information on these groups and the individual objects supported by the PowerTrust II-LR SNMP/WEB Card.

Forcing the UPS to Shutdown

The PowerTrust II-LR SNMP/WEB Card supports one MIB group that contains objects that allow the user to shutdown and restart the UPS.

Please refer to Chapter 6 for more information on the Control group.
Receiving Event Traps

The PowerTrust II-LR supports several event-related traps that can be reported to the SNMP network management software. The traps include:

- PowerFail
- PowerRestored
- UPSOnBattery
- UPSNotOnBattery
- LowRuntime
- UPSCanRunOnBattery
- NearLowBattery
- BatteryOK
- ScheduledTestInProgress
- ScheduledTestFailed
- CommunicationLost
- CommunicationRestored
- UPSGoingDown
- UPSTurnedOff
- UPSSleeping
- UPSWokeUp
- UPSRebooted
- HistLogWarn
- EventLogWarn
- UPSFail

Please refer to Chapter 6 for more detailed information.

Automatic Shutdown of UPS-Protected Computers

Client software in various operating systems can provide controlled computer shutdown in case of power outages. HU-UX client software is provided on CD-ROM with the PowerTrust II-LR. Windows NT includes a shutdown capability within the operating system. See appendices D and E for the installation and operation of these clients.

Clients are available for:

- Windows NT
- HP-UX 10.2/11.0

Clients can register (via the network) with a specified SNMP/WEB Adapter Card (using its IP Address). Once a client has registered, any change in UPS status is communicated to the client software. Depending on the operating system, typically the user(s) is/are alerted whenever the UPS begins supplying AC power from its batteries (i.e., the AC line has failed). Then, if AC line power does not return and the batteries reach a point where the runtime available is very limited, client software will take over and complete an operating system shutdown prior to the UPS running out of battery power.

Chapter 4 – The PowerTrust II-LR SNMP/WEB Card Home Page Reference

Connecting to the PowerTrust II-LR SNMP/WEB Card HTTP Server

- 1. Locate a machine (PC, host or server) that can run a web browser (Netscape or Internet Explorer) and connect the Ethernet cable to its LAN port.
- 2. Connect another Ethernet cable to the Network port of PowerTrust II-LR SNMP/WEB Card (Figure 4-1).



Figure 4-1. The Ethernet connection to PowerTrust II-LR SNMP/WEB Card.

Running the Web Browser to Access the PowerTrust II-LR SNMP/WEB Card Home Page

- 1. Turn on the PC and setup the TCP/IP protocol, if this has not been done before.
- 2. Run the web browser (Netscape or Internet Explorer) and browse the IP address you set during configuration.
- 3. The PowerTrust II-LR SNMP/WEB Card Home Page will be shown on the screen (Figure 4-2).
- 4. Select an item from the main menu at the left side of the Home Page to view UPS parameters or to modify the settings within PowerTrust II-LR SNMP/WEB Card.

Elle Edit View Favorites Iools Help			_			
	Identification					
PowerTrust II LR	UPS Name	PowerTrust II				
	UPS Model	LR Series				
PowerTrust II-LR SNMP/WEB Card	VA Rating	2000				
	UPS Type	Online				
	UPS Serial Number	TWB4007002				
UPS Identification	UPS Identification String	SNMP/WEB Card				
UPS Monitoring	Date Of Installation(mm/dd/yyyy)	03/15/2000				
Monitoring Applets	Battery Last Replaced Date(mm/dd/yy	yy) 03/15/2000				
UPS History						
UPS Configuration	Set Ve	alues				
UPS Control						
UPS Tests	Back	Help				
SNMP/WEB Card Configuration						
SNMP Trap Receivers						
Registered Shutdown Clients						
Done						

Figure 4-2. The Home Page of PowerTrust II-LR SNMP/WEB Card.

UPS Identification

Select the *UPS Identification* from the main menu of home page will produce a page identifying the UPS. *UPS Identification* displays UPS Name, UPS Model, VA Rating, UPS Type, Serial Number, Identification String, UPS Firmware Version, Date of Manufacture, and Battery Last Replaced. (Figure 4-3)

PowerTrust II-LR - Microsoft Internet Explorer Ele Edit View Favorites Tools Help					
	Identification				
PowerTrust II LR	UPS Name	PowerTrust II			
	UPS Model	LR Series			
PowerTrust II-LR SNMP/WEB Card	VA Rating	2000			
	UPS Type	Online			
LIPS Identification	UPS Serial Number	TWB4007002			
	UPS Identification String	SNMP/WEB Card			
UPS Monitoring	Date Of Installation(mm/dd/yyyy)	03/15/2000			
Monitoring Applets	Battery Last Replaced Date(mm/dd/yyyy)	03/15/2000			
UPS History UPS Configuration UPS Control	Set Value Back	s Help			
UPS Tests SNMP/WEB Card Configuration SNMP Trap Receivers Registered Shutdown Clients		internet			

Figure 4-3. The PowerTrust II-LR SNMP/WEB Card UPS Identification screen.

Description of Identification Parameters

UPS Name

The name will be reported as "PowerTrust II."

UPS Model

The model will be reported as "LR Series."

VA Rating

This is the apparent power rating of the UPS expressed in Volt-Amperes and abbreviated as VA.

UPS Type

This is the category of the UPS. The PowerTrust II-LR is of the Online variety.

UPS Serial Number

This is the unique number assigned to the UPS for identification. Knowing the serial number is especially helpful when you need to replace batteries or required other service. Hewlett-Packard keeps a record of all UPS sold by serial number. The serial number will allow a Hewlett-Packard service representative to help you obtain the correct replacement batteries or parts to service your UPS.

UPS Identification String

This data is programmed by the user to allow the UPS to be identified by a description for location purposes. For example "The UPS in server room."

Date of Installation

This should be the date that the UPS was installed

Battery Last Replaced Date

This is the date that the UPS batteries were last replaced. For new units, the date may be set to the Date of Installation. As supervisor, you may change this date from your browser after a technician has replaced the batteries.

UPS Monitoring

Status

Select *UPS Monitoring* from the main menu of the home page. This will display current UPS status information. *Status* contains Battery Status, Voltage In, Voltage Out, UPS Load, Frequency, Battery Voltage and Runtime Remaining (Figure 4-4).

PowerTrust II-LR - Microsoft Internet Explorer Eie Edit View Favorites Tools Help			
HEWLETT"	Status		
PowerTrust II LR	Battery Status	Normal	
	Voltage In (VAC)	119.0	
PowerTrust II-LR SNMP/WEB Card	Voltage Out(VAC)	119.0	
	UPS Load(%)	35	
LIPS Identification	Frequency(Hertz)	59.9	
	Battery Voltage(VDC)	111.0	
UPS Monitoring	Runtime Remaining(Minutes)	99	
Monitoring Applets	UPS Internal Temperature(Degrees C)	25.0	
UPS History			
UPS Configuration	<u>Input Data</u> <u>Output Data</u> <u>Battery D</u>	ata	
UPS Control	Back		
UPS Tests			
SNMP/WEB Card Configuration			
SNIMP Trap Receivers			
Registered Shutdown Clients			
a1			Internet

Figure 4-4. The PowerTrust II-LR SNMP/WEB Card UPS Status screen.

Description of Status Parameters

Battery Status

The current operating mode of the UPS (i.e. whether it is supplying power or not). The two modes displayed are "Normal" and "On Battery."

Voltage In

The measured value of AC input voltage from the utility source, expressed in VAC.

Voltage Out

The measured value of AC output voltage from the UPS, expressed in VAC.

UPS Load

The measured total load on the UPS output, expressed in percent (%) of full load.

Frequency

The measured frequency of the UPS power line input, expressed in Hertz (Hz.).

Battery Voltage

The measured voltage of the external battery string expressed in VDC.

Runtime Remaining

The amount of battery backup time available while the UPS is operating from battery power, expressed in minutes. The Runtime Remaining is accurate only when the UPS is operating from battery power.

UPS Internal Temperature

The internal UPS temperature expressed in degrees C. The temperature may range from 0 to 45 degrees C.

Input Data

Select *Input Data* from below the *Status* information. The *Input* display contains the Voltage In, and Frequency In. (Figure 4-5).

PowerTrust II-LR - Microsoft Internet Explorer File Edit View Favorites Tools Help	
PowerTrust II-LR SNMP/WEB Card	Input Voltage In (VAC) 119.0 Frequency(Hertz) 59.9
UPS Identification UPS Monitoring	Back
Monitoring Applets	
UPS Configuration	
UPS Control UPS Tests	
SNMP/WEB Card Configuration SNMP Trap Receivers	
Registered Shutdown Clients	
PowerTrust II-LR	j j 🎓 Internet

Figure 4-5. The PowerTrust II-LR SNMP/WEB Card Input Data screen.

Description of Input Parameters

Voltage In

The measured value of AC input voltage from the utility source, expressed in VAC.

Frequency

The measured frequency of the input AC line, expressed in Hertz.

Output Data

Select *Output Data* from below the *Status* information. The *Output* display contains the Voltage Out, and UPS Load (Figure 4-6).

PowerTrust II-LR - Microsoft Internet Explorer	
j <u>F</u> ile <u>E</u> dik ⊻iew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp	
PowerTrusi II LR	Output
PowerTrust II-LR SNMP/WEB Card	UPS Lond(%) 32
UPS Identification	Back
UPS Monitoring Monitoring Applets	
UPS History UPS Configuration	
UPS Control	
SNMP/WEB Card Configuration SNMP Trap Receivers	
<u>Registered Shutdown Clients</u>	
(2) Done	internet

Figure 4-6. The PowerTrust II-LR SNMP/WEB Card Output Data screen.

Description of Output Parameters

Voltage Out

The measured value of AC output voltage from the UPS, expressed in VAC.

Current Out

The measured value of the AC output current being drawn from the UPS, expressed in AC Amps.

True Power

The measured true power being drawn from the UPS, expressed in Watts.

Apparent Power

The measured apparent power being drawn from the UPS, expressed in Volt-Amperes (VA).

Power Factor

The ratio of Watts/VA is the value represented for this quantity.

UPS Load

The measured total load on the UPS output, expressed in percent (%) of full load.

Battery Data

Select *Battery Data* from below the *Status* information. The *Battery* display contains Battery Status, Battery Voltage, Runtime Remaining, and Time on Battery. (Figure 4-7).

PowerTrust II-LR - Microsoft Internet Explorer		
<u>File Edit View Favorites Tools Help</u>		1
	Battery	
PowerTrust II LR	Battery Status Normal	
PowerTrust II-LR SNMP/WEB Card	Battery Voltage(VDC)110.0Runtime Remaining(Minutes)99	
	Time On Battery(Seconds) 0	
UPS Identification	Input Data Status Output Data	
Monitoring Applets	Back Help	
UPS History		
UPS Configuration		
UPS Control		
UPS Tests		
SNMP/WEB Card Configuration		
SNMP Trap Receivers		
Registered Shutdown Clients		
e)	📄 👘 💓 Internet	

Figure 4-7. The PowerTrust II-LR SNMP/WEB Card Battery Data Screen.

Description of Battery Parameters

Battery Status

The current operating mode of the UPS (i.e. whether it is supplying power or not).

Battery Voltage

The voltage of the internal or external battery string, expressed in Volts DC.

Runtime Remaining

The remaining time available from the UPS while running from battery power expressed in Minutes.

Time On Battery

The elapsed time since the UPS began operating on battery power expressed in Seconds.

Monitoring Applets

UPS Status Applet

PowerTrust II-LR SNMP/WEB Card provides a Monitoring Applet utilizing Java the replicates the look of CheckUPS II Advanced software for Windows. This is used to display the UPS status, metered information and event history, in real time. Select *Monitoring Applets* from the main menu, then *UPS Status Applet* (Figure 4-8).



Figure 4-8. The PowerTrust II-LR SNMP/WEB Card UPS Status Applet screen.

UPS Data Log Applet

PowerTrust II-LR SNMP/WEB Card also provides an applet that displays historical data as measured by the UPS. This data is displayed in the form of line or bar graphs. Select *UPS Data Log Applet* after first selecting *Monitoring Applets* from the main menu (Figure 4-9).



Figure 4-9. The PowerTrust II-LR SNMP/WEB Card UPS History Applet screen.

UPS History

Select *UPS History* from the main menu of the home page. A table of more recent UPS Data is displayed (Figure 4-10). If there are no history logs available, a message saying "No history logs available." will be displayed. The Supervisor has the access to delete the table entries. You may save the displayed table onto your local disk by choosing *File* followed by *Save As File* from your browser window.

		UPS Data Log						
PowerTrust II LR	Date (mm/dd/yyyy)	Time (hh:mm:ss)	Input Voltage (VAC)	Output Voltage (VAC)	Load (%)	Frequency <i>(hertz</i>)	Battery Voltage (VDC)	UPS Interna Temperature (Celsius)
PowerTrust II-LR	03/24/2000	12:30:00	119.0	119.0	35.0	59.9	111.0	25.0
SINNIP/WEB Cara	03/24/2000	12:31:00	119.0	119.0	35.0	59.9	111.0	25.0
	03/24/2000	12:32:00	119.0	119.0	35.0	59.9	111.0	25.0
LIPS Identification	03/24/2000	12:33:00	119.0	119.0	35.0	59.9	111.0	25.0
or 5 identification	03/24/2000	12:34:00	119.0	119.0	35.0	59.9	111.0	25.0
UPS Monitoring	03/24/2000	12:35:00	119.0	119.0	35.0	59.9	111.0	25.0
Manitoring Applete	03/24/2000	12:36:01	119.0	119.0	35.0	59.9	111.0	25.0
Monitoring Applets	03/24/2000	12:37:00	119.0	119.0	35.0	59.9	111.0	25.0
UPS History	03/24/2000	12:38:00	119.0	119.0	35.0	59.9	111.0	25.0
LIPS Configuration	03/24/2000	12:39:00	119.0	119.0	35.0	60.0	111.0	25.0
OF 3 Configuration	03/24/2000	12:40:00	119.0	119.0	35.0	59.9	111.0	25.0
UPS Control	03/24/2000	12:41:00	119.0	119.0	35.0	59.9	111.0	25.0
LIPS Teata	03/24/2000	12:42:00	119.0	119.0	35.0	50.0	111.0	25.0
OFSTESIS	03/24/2000	12:43:00	119.0	119.0	35.0	59.9	111.0	25.0
	03/24/2000	12:44:00	119.0	119.0	35.0	59.9	111.0	25.0
NMP/WEB Card Configuration	03/24/2000	12:45:00	119.0	119.0	35.0	60.0	111.0	25.0
	03/24/2000	12:46:00	119.0	119.0	35.0	59.9	111.0	25.0
SNMP Trap Receivers	03/24/2000	12:47:00	119.0	119.0	35.0	59.9	111.0	25.0
Registered Shutdown Clients	03/24/2000	12:48:00	119.0	119.0	35.0	59.9	111.0	25.0
Registered Shatdown Clients	03/24/2000	12:49:00	119.0	119.0	35.0	59.9	111.0	25.0
	03/24/2000	12:50:00	119.0	119.0	35.0	59.9	111.0	25.0
	03/24/2000	12:51:00	119.0	119.0	35.0	59.9	111.0	25.0

Figure 4-10. The PowerTrust II-LR SNMP/WEB Card UPS Data Log screen.

Description of UPS History Parameters

Date

This column shows the date on which the recording was made.

Time

This gives the time in a 24-hour format when the values were recorded.

Input Voltage

This shows the input voltage in volts AC at the time of recording.

Output Voltage

This shows the output voltage in volts AC at the time of recording.

Load

This shows the load on the UPS in terms of percent full load, at the time of recording.

Frequency

This shows the input frequency in hertz at the time of recording.

Battery Voltage

The voltage of the battery string expressed in VDC.

Battery Temperature

This shows the temperature of the UPS batteries (or UPS) in Celsius, at the time of recording.

At the bottom of the *UPS History* display, you will find buttons for *More Data Logs* and *Event Log*. Selecting *More Data Logs* will produce an index of the available data, organized chronologically. You may choose one of the indexed items to produce a table of the UPS Data for that time period.

Choosing *Event Log* will produce a table listing UPS-related events organized by Date, Time and Event Description. Below that table will be a button that links to an index of *More Event Logs* for you to choose from.

UPS Configuration

UPS Configuration Parameters

After selecting *UPS Configuration* from the main menu of the home page, select *UPS Configuration Parameters*. The screen that follows allows you to change the Low Runtime Setpoint, Delay Before Shutdown, Delay Before Restart (Figure 4-11) Turn off UPS after shutdown, and Restart UPS once AC power returns.

PowerTrust II-LR - Microsoft Internet Explorer Eile Edit View Favorites Iools Help	×
PowerTrust II LR	Low Runtime Setpoint(0-999 minutes)
PowerTrust II-LR SNMP/WEB Card	Delay Before UPS Shutdown(0-5940 seconds) 120 Delay Before UPS Restart(0-9999 minutes) 1 Turn off UPS after shutdown Ves .
UPS Identification	Restart UPS once AC power returns
Monitoring Applets	Back Help
UPS Configuration	
UPS Control UPS Tests	
SNMP/WEB Card Configuration	
Registered Shutdown Clients	
# 3] Done	🔰 📦 Internet 🖉

Figure 4-11. The PowerTrust II-LR SNMP/WEB Card UPS Configuration Parameters.

Description of UPS Configuration Parameters

Low Runtime Setpoint

This setpoint indicates the amount of UPS runtime available at which time a Low Runtime Alarm is triggered. The default is 5 minutes. This setpoint affects the operation of management client software.

Delay Before Shutdown

This value applies a delay in seconds before activation of Turn UPS Off or Reboot UPS. The default is 120 seconds. Allowable values are 18, 24, 30, 36, 42, 48, 54, 60, 120, 180, ..., 540, 600, ..., 5940 seconds. If you choose a different value, the next highest allowable value will be used.

Delay Before Restart

This value is used to determine the amount of delay time, in seconds that the UPS waits to turn On, following Reboot UPS. The only value for the PowerTrust II-LR is 60 seconds

Turn off UPS after shutdown

In order to save battery life, the UPS can be turned off after the shutdown has been initiated.

Restart UPS once AC power returns

The UPS can be configured to restart itself with the return of AC power following an outage.

UPS Shutdown Schedule

After selecting *UPS Configuration* from the main menu of the home page, select *UPS Shutdown Schedule*. The screen that follows allows you to configure up to seven shutdown/restart events for the UPS. For each event, the shutdown day and time, as well as the restart day and time may be specified (Figure 4-13).

	UPS Shutdown Sched				
PowerTrust II LR	Event Index	Shutdown Day	Shutdown Time <i>(hh:mm</i>)	Restart Day	Restart Time <i>(hh:mm)</i>
PowerTrust II-LR	1	Friday 💌	20:00	Monday 💌	04:00
SNMP/WEB Card	2	Disabled 💌	00:00	Disabled 💌	00:00
	3	Disabled 💌	00:00	Disabled 💌	00:00
UPS Identification	4	Disabled 💌	00:00	Disabled 💌	00:00
	5	Disabled 💌	00:00	Disabled 💌	00:00
UPS Monitoring	6	Disabled 💌	00:00	Disabled 💌	00:00
Monitoring Applets	7	Disabled 💌	00:00	Disabled 💌	00:00
UPS History			Set Values		
UPS Configuration					
UPS Control		Ba	ack Hel	p	
UPS Tests		/			
IMP/WEB Card Configuration					
SNMP Trap Receivers					

Figure 4-13. The PowerTrust II-LR SNMP/WEB Card UPS Shutdown Schedule screen.

Event Index

This column provides a reference number for the shutdown/restart event pair being configured.

Shutdown Day or Restart Day

These columns specify the day of the week when the UPS needs to be Shutdown or Restarted. They are usually configured in pairs.

Shutdown Time or Restart Time

The time in 24-hour format when the UPS should turn off (shutdown) output or turn on (restart) its output power.

UPS Control

Select *UPS Control* from the main menu of the home page to Turn UPS Off, Cancel Turn UPS Off, Reboot UPS, Cancel Reboot UPS, Enable UPS Shutdown Schedule or Disable UPS Shutdown Schedule.

PowerTrust II-LR - Microsoft Internet Explorer	
j <u>E</u> ile <u>E</u> dit <u>V</u> iew F <u>a</u> vorites <u>I</u> ools <u>H</u> elp	
	UPS Control
PowerTrust II LR	Turn UPS Off
PowerTrust II-LR	Cancel Turn UPS Off
SNMP/WEB Card	Reboot UPS
	Cancel Reboot UPS
UPS Identification	No Action
UPS Monitoring	Enable UPS Shutdown Schedule
Monitoring Applets	Disable UPS Shutdown Schedule
UPS History	Set Values
UPS Configuration	
UPS Control	Back Help
UPS Tests	
l	
SNMP/WEB Card Configuration	
SNMP Trap Receivers	
Registered Shutdown Clients	
Cone Cone	🖉 İnternet

Figure 4-14. The PowerTrust II-LR SNMP/WEB Card UPS Control screen.

Description of UPS Control Parameters

Turn UPS Off

Selecting Turn UPS Off causes the UPS to switch Off its output power after the delay (in seconds) specified for Delay Before Shutdown on the UPS Configuration Parameters screen. The UPS will remain in the Off state until the UPS is manually turned back on.

Note: You may attempt to cancel the shutdown process by selecting Cancel Turn UPS Off before the Delay Before Shutdown time has expired. Remember to select Set Values to initiate the new command to the UPS.

Reboot UPS

Setting this control to *Reboot UPS* causes the UPS to switch Off its output power after a delay (in seconds) specified for *Delay Before Shutdown* on the *UPS Configuration Parameters* screen. The UPS will then turn back On after a delay (in seconds) specified for *Delay Before Restart* found on the same configuration screen.

Note: You may attempt to cancel the reboot process by selecting Cancel Reboot UPS before the Delay Before Shutdown time has expired. Set Values must be used to initiate the new command to the UPS.

Enable UPS Shutdown Schedule

Selecting this option allows any scheduled shutdown and restart events configured on the UPS Shutdown Schedule screen to be activated.

Disable UPS Shutdown Schedule

Selecting this option allows any scheduled shutdown and restart events configured on the UPS Shutdown Schedule screen to be deactivated.

UPS Tests

Select *UPS Tests* from the main menu of the home page to manually select and start a UPS test. You are also allowed to stop a test that is in progress by changing selecting Abort for the test.

UPS Manual Tests PowerTrust II-LR SNMP/WBB Card UPS Identification UPS Monitoring Monitoring Applets UPS History UPS Configuration UPS Control UPS Tests SNMPMED Configuration	
PowerTrust II-LR SNMP/WEB Card	
UPS Identification UPS Monitoring Monitoring Applets UPS History UPS Configuration UPS Control UPS Tests SNINDRMED Configuration	
UPS Monitoring Monitoring Applets UPS History UPS Configuration UPS Control UPS Tests 	
Monitoring Applets UPS History UPS Configuration UPS Control UPS Tests	
UPS History UPS Configuration UPS Control UPS Tests	
UPS Configuration UPS Control UPS Tests	
UPS Control UPS Tests	
UPS Tests	
SNINDIMED Cord Configuration	
Siverweb Card Configuration	
SNMP Trap Receivers	
Registered Shutdown Clients	

Figure 4-15. The PowerTrust II-LR SNMP/WEB Card UPS Manual Test screen.

Description of the UPS Manual Tests

Initiate Battery Test

This selection performs a battery test on the PowerTrust II-LR UPS

Abort Battery Test

End the Battery Test.

PowerTrust II-LR SNMP/WEB Card Configuration

Select *PowerTrust II-LR SNMP/WEB Card Configuration* from the main menu of the home page to setup the PowerTrust II-LR SNMP/WEB Card parameters. The PowerTrust II-LR SNMP/WEB Card Parameters page contains parameters for PowerTrust II-LR SNMP/WEB Card Firmware Version, PowerTrust II-LR SNMP/WEB Card Address, Gateway Address, Subnet Mask, Primary Date Server, Secondary Date Server, History Log Frequency, Refresh Frequency, bootp/DHCP address assignment, Telnet access, TFTP Enable/Disable, Reset to Default, and Reboot. (Figure 4-16).

PowerTrust II-LR - Microsoft Internet Explorer Ele Edit View Favorites Icols Help						
	SNMP/WEB Card	Configuration				
PowerTrust II LR	Firmware Revision	PowerTrust II-LR V1.00				
	PowerTrust II UPS Address	15.8.130.226				
Power I rust II-LK SNMP/WEB Card	Gateway Address	15.8.128.1				
	Subnet Mask	255.255.248.0				
UPS Identification	Primary Date Server	0.0.0				
UPS Monitoring	Secondary Date Server	0.0.0				
Monitoring Applets	History Log Frequency(minutes)	1				
	BOOTP/DHCP Control	Disabled 💌				
	Telnet Control	Enabled 💌				
	TFTP Upgrade Control	Enabled 💌				
UPS Control	Reset Configuration to default	No				
UPS Tests	Restart PowerTrust II-LR SNMP/WEE	Card No				
SNMP/WEB Card Configuration	Set Value	IS				
SNMP Trap Receivers						
Registered Shutdown Clients	Date and T					
	Back Help					
Done		🌍 Internet				

Figure 4-16. The PowerTrust II-LR SNMP/WEB Card Parameters screen.

Description of PowerTrust II-LR SNMP/WEB Card Parameters

Telnet Control

Allow or disallow Telnet access to the PowerTrust II-LR SNMP/WEB Card.

PowerTrust II-LR SNMP/WEB Card Address

The IP address of the UPS in dotted format (e.g. 192.9.60.229). Note that changing the IP Address of the PowerTrust II-LR SNMP/WEB Card will cause it to perform a soft reboot. While the PowerTrust II-LR SNMP/WEB Card is booting up it will be inaccessible on the network.

Gateway Address

The IP address of the network gateway in dotted format (eg.192.9.60.10).

Subnet Mask

The subnet mask required by PowerTrust II-LR SNMP/WEB Card for your network (eg. 255.255.255.0).

History Log Frequency

This value is the time in minutes to poll Input voltage, Output Voltage, Load, Capacity, Battery temperature and Input frequency and save these values in the History Log. A maximum value of 480 minutes (i.e. 8 hours) can be specified.

Refresh Frequency

This value is the time in hours to periodically save all the Initial configuration parameters, History Log and Event Log to Flash EPROM. Specify a value of 0 to disable the periodic saving function. Note that frequently performing the write function to the Flash EPROM reduces the life of the memory component, hence this value should not be very small (default = 300 minutes).

bootp/DHCP Address Enabled or Disabled.

The PowerTrust II-LR SNMP/WEB Card can acquire an IP address, netmask, and gateway address automatically if there is a configured bootp or DHCP server in the network.

TFTP Enabled or Disabled

The firmware in the PowerTrust II-LR SNMP/WEB Card may be upgraded electronically using a network connection and TFTP. In order for this operation to be successful, the name of the upgrade image must be provided. Any changes to the required filename will be provided with upgrade instructions supplied by the factory.

In addition to the upgrade image filename, the IP address of the host system where the upgrade image will be stored is required.

SNMP Trap Receivers

Select *SNMP Trap Receivers* from the main menu of the home page to configure PowerTrust II-LR SNMP/WEB Card to send SNMPv1 trap messages to specific network management stations (NMS). A maximum of eight trap receivers may be configured. (Figure 4-17).

		SNMP	Trap Receiv	vers Tabl	e
PowerTrust II LR	Index	IP Address	Community String	Severity Level	Status
	1	10.151.44.7	public	Warning 💌	Disable 💌
PowerTrust II-LR	2	10.210.39.55	public	Severe 💌	Disable 💌
SNMP/WEB Card	3	0.0.0.0	public	Informational 💌	Disable 💌
	4	0.0.0.0	public	Informational 💌	Disable 💌
UPS Identification	5	0.0.0.0	public	Informational 💌	Disable 💌
LIPS Monitoring	6	0.0.0.0	public	Informational 💌	Disable 💌
	7	0.0.0.0	public	Informational 💌	Disable 💌
Monitoring Applets	8	0.0.0.0	public	Informational 💌	Disable 💌
UPS History			Set Values		
UPS Control		l l	Back Hel	p 1	
UPS Tests				P .	
IP/WEB Card Configuration					
SNMP Trap Receivers					

Figure 4-17. The PowerTrust II-LR SNMP/WEB Card SNMP Trap Receivers screen.

Description of the SNMP Trap Receivers Table

Index

The index number of the entry in the displayed table.

IP Address

The IP Address in dotted format, of the NMS station to which the trap should be sent. If an IP Address of 0.0.0.0 is entered then this row will automatically have its Status column disabled.

Community String

The community string of the trap PDU to be sent. The maximum length of the string is 19 characters.

Severity Level

The severity level of the trap PDU to be sent. This can be set to Informational, Warning or Severe.

Status

Enabling this column specifies that the row entries are valid. The PowerTrust II-LR SNMP/WEB Card will send UPS-related traps to the IP Addresses entered in the rows with the Status column marked as "Enabled" Rows with the Status column marked "Disabled" are ignored.

Registered Shutdown Clients

Network management software on workstations can automatically register that workstation for notification of Shutdown. There is no configuration on the PowerTrust II-LR to create a client address, but the PowerTrust II-LR and report the clients that have configured themselves. (Figure 4-18).

http://15.8.130.2267 - Microsoft Internet Explorer provided b	y Hewlett Packard	_ 6 ×
<u>File Edit View Favorites Iools H</u> elp		Links »
PowerTrust II LR	Registered Shutdown Clients	
PowerTrust II-LR SNMP/WEB Card	Back	
UPS Identification		
UPS Monitoring		
Monitoring Applets		
UPS History		
UPS Configuration		
UPS Control		
UPS Tests		
SNMP/WEB Card Configuration		
SNMP Trap Receivers		
Registered Shutdown Clients		

Figure 4-18. Registered Shutdown Clients.

This Page Intentionally Blank.

Chapter 5 – Installation and Operation of Client Software

The PowerTrust II-LR SNMP/WEB Card is supplied with client software for both Windows NT 4.0 and for HP-UX machines on a common CD-ROM. The **PowerTrust II-LR UPS Shutdown Client** software provides a straightforward method for the client to register with a particular PowerTrust II-LR. The client chosen PowerTrust II-LR will then recognize the "Registered Shutdown Client" by IP address. In the event of power outage, the PowerTrust II-LR will notify the client and the client can control its own shutdown.

Getting Started with Windows NT 4.0 Client

Overview

The PowerTrust II-LR UPS Shutdown Client control panel applet allows the user to connect a client or workstation computer to a PowerTrust II-LR SNMP/WEB Card via a network. This permits the associated client service for Windows NT to be notified of power events or UPS alerts sent by the SNMP/WEB Card. The client service can be configured to provide only messaging for information purposes, or to begin an orderly shutdown of the client computer to avoid a crash in the event of power failures which could extend beyond the normal runtime of the UPS batteries.

If the CD-ROM system of the Windows NT 4.0 client is set to "Autorun," the **PowerTrust II-LR UPS Shutdown Client** software will start the loading wizard. If the system is not configured to "Autorun," select **<Start> <Run> <Browse>**. Select the CD-ROM drive. Choose **pt2lrnt.exe** in the root directory of the CD-ROM. **<Open>**

Follow the on-screen instructions to install the software. The **PowerTrust II-LR UPS Shutdown Client** logo will appear in the Control Panel. Double click to configure the shutdown procedure. See Figure 5-1.



Figure 5-1. Windows NT Control Panel with PowerTrust II-LR Logo.

Start

When the PowerTrust II-LR UPS Shutdown Client control panel applet is started, it will automatically search the network for SNMP/WEB cards.

Using the PowerTrust II-LR UPS Shutdown Applet

The PowerTrust II-LR UPS Shutdown control panel applet provides three pages from which the client service can be configured. The first deals with selection and verification of the preferred SNMP/WEB Card. The detailed configuration of the service is achieved through selections made from the other two tabs that are covered in the sections: **Configure Shutdown** and **Event Action**.

PowerTrust II-LR UPS Shutdown	×				
Configure Shutdown Event Action Select SNMP/WEB Card					
Current SNMP/WEB Card IP Address UPS Name					
204.68.225.205 Basement Systems					
Enter IP Address					
SNMP/WEB Cards					
 SNMPAWEB Cards 204.68.223.192 Customer Service 1 204.68.225.205 Basement Systems 204.68.225.206 Lab 3 204.68.225.208 Admin. Closet 103 204.68.225.211 Lab Maintenance 					
204.68.225.212 Information Services					
Reset Card List					
OK <u>C</u> ancel Apply					
PowerTrust II-LR Service: Stopped					

Figure 5-2. Selecting the SNMP/WEB Card.

When the PowerTrust II-LR UPS Shutdown Client control panel applet is started, it will automatically search the network for SNMP/WEB Cards. The control panel applet will display all the detected SNMP/WEB Cards in the window labeled SNMP/WEB Cards. Initially, the first SNMP/WEB Card in the list will be highlighted and will be shown as the Current SNMP/WEB Card. To select a different Card, click or arrow down to the preferred Card, and press **Enter**. The new selection will then be displayed as the Current SNMP/WEB Card.
Under certain conditions, network equipment may prevent all SNMP/WEB Cards available on the network, from being detected. If the desired SNMP/WEB Card is not shown on the list, you may enter its IP address manually by selecting Enter IP Address and typing in the known IP address.

Configure Shutdown

Select this option tab to configure the client service to initiate a Shutdown of the Windows NT operating system based on an extend power outage. This is done by selecting **Enable System Shutdown** (default) that will start the operating system shutdown when 5 minutes of Battery Runtime Remaining is available from the UPS.

You may choose to have the operating system shutdown start earlier by selecting a larger number of minutes remaining. This allows battery runtime to be conserved.

In addition to signaling Windows NT to start shutting down, you may choose **Execute Batch File** in order to run a user-created batch file PRIOR to the start of the System Shutdown. If you choose to execute a batch file, you must supply the path and filename, as well as the amount of time in minutes required to complete the batch file's execution prior to the start of the System Shutdown.

PowerTrust II-LR UPS Shutdown	×
Select SNMPAV/EB Card	. 1
Configure Shutdown	vent Action
Enable System Shutdown	
Start Shutdown at 5 📑	Minutes of Battery Runtime Remaining
Execute Batch File	
File C:\	
Required execution time	vlinutes
OK <u>C</u> ancel	Apply
PowerTrust II-LR Service: Stopped	

Figure 5-3. Configure Shutdown.

The time you allow for the execution of a batch file, plus the time required by your operating system to completely shutdown must be kept in mind when you program the SNMP/WEB Card to shut the UPS off following the operating system shutdown. You must be careful to program **Delay Before UPS Shutdown** in the PowerTrust II-LR SNMP/WEB Card to allow enough time in seconds for your system to complete its shutdown.

Event Action

See Figure 5-3. **Enable Event Logging** - To Enable/Disable the Logging function of the client service, click the box labeled **Event Logging Enabled**. If a check mark is present in the box, the Logging function is **Enabled** (Default).

Note: When enabled, these events are logged into the Windows NT Event Log and can be viewed with the Event Viewer.

Enable User Messaging - To Enable/Disable the User Messaging function of the client service, click the box labeled **Enable User Messaging**. If a check mark is present in the box, the User Messaging function is **Enabled** (Default).

Note: When enabled, this messaging type sends informational messages to the desktop of the local workstation/server only.

Enable Broadcasting - The broadcasting feature allows the client service to broadcast the UPS-related messages to users logged into the NT system and those users on a user-selected Domain that wish to also receive notification. To Enable/Disable Broadcasting from the client service, click the box labeled **Enable Broadcasting**. If a check mark is present in the box, the User Messaging function is **Enabled**. By default, this function is **Disabled**.

Once enabled, you may enter the Domain name that you wish to broadcast the messages to in the entry box named **Domain**.

Language - You may select **English** (Default), **French**, **German**, **Spanish**, **Italian**, and **Portuguese** to change the displayed messages.

PowerTrust II-LR UPS Shutdown	×
Select SNMP/WEB Card	1
Configure Shutdown Event Action	ı)
✓ Enable Event Logging	
Enable User Messaging	
Enable Broadcasting	
Domain	
Language English 💌	
OK <u>C</u> ancel Ap	ply
PowerTrust II-LR Service: Stopped	

Figure 5-4. Event Action.

Once you have configured the client service using the **PowerTrust II-LR Shutdown Client Control Panel Applet**, you must start the **PowerTrust II LR UPS Shutdown Service** using the **Services** in **Windows NT Control Panel**. See Figure 5-5.

🔯 Control Pa	anel					K
<u> </u>	ew <u>H</u> elp					
H	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	MS US	L)	Ť	DIGI SUITE	
Accessibility Options	Add/Remove Programs	Console	Date/Time	Devices	DigiSuite	
	14 1-13	3			B	
Display	Fonts	Internet	Keyboard	Matrox Display Properties	Modems	
C)	9 <u>9</u>	콜봇	P		P	
Mouse	Multimedia	Network	ODBC	PC Card (PCMCIA)	Ports	
0	J.	Q	•	Ģ	IS	
PowerTrust II-LR UP	Printers	QuickTime	Regional Settings	SCSI Adapters	Server	
1	s second		لـرمم.	S.		
Services	Sounds	System	Tape Devices	Telephony	Truevision DVR	
#]						
UPS)						
31 object(s)						/1.

Figure 5-5. Windows NT Control Panel.

Click on **Services** in the **Control Panel**. Highlight **UPS** and click **Startup**. See Figure 5-6.

Services			×
Ser <u>v</u> ice	Status	Startup	Close
Protected Storage	Started	Automatic	▲
Remote Procedure Call (RPC) Locator		Manual	Start
Remote Procedure Call (RPC) Service	Started	Automatic	
Schedule		Manual	Stop
Server	Started	Automatic	
Spooler	Started	Automatic	Eause
TCP/IP NetBIOS Helper	Started	Automatic	Continue
Telephony Service		Manual	Douguas
UPS		Manual	Startup
Workstation	Started	Automatic	
			HW Profiles
Startup Parameters:			
			<u>H</u> elp
TCP/IP NetBIOS Helper Telephony Service UPS Workstation St <u>a</u> rtup Parameters:	Started Started	Automatic Manual Manual Automatic	<u>Continue</u> ▼ <u>Startup</u> H <u>W</u> Profiles <u>H</u> elp

Figure 5-6. Selecting UPS in Services Menu.

Select Automatic under Startup Type. Then click OK. See Figure 5-7.

Service	×
Service: UPS	
Startup Type	ОК
O <u>M</u> anual	Cancel
C <u>D</u> isabled	<u>H</u> elp
– Log On As: –	
System Account	
Allow Service to Interact with De	sktop
<u>I</u> his Account:	
Confirm Password:	

Figure 5-7. Setting Startup.

This completes the installation of **PowerTrust II-LR Windows NT Client Software**.

Getting Started with HP-UX PowerTrust II-LR UPS Shutdown Client

Overview

The PowerTrust II-LR UPS HP-UX Shutdown Client Software allows a user to connect an HP-UX computer to a PowerTrust II-LR SNMP/WEB Card via a network. This permits the associated client service for HP-UX to be notified of power events or UPS alerts sent by the SNMP/WEB Card. The client service can be configured to provide only messaging for information purposes, or to begin an orderly shutdown of the client computer to avoid a crash in the event of power failures which could extend beyond the normal runtime of the UPS batteries.

The HP-UX PowerTrust II-LR UPS HP-UX Shutdown Client Software is supplied on the same CD-ROM as the Windows NT software.

Start

The following screens are from an HP terminal as the HP-UX console device. A Graphic User Interface may also be used. Other terminal types may show a different appearance, but they give the same information and show the same procedure. As system administrator (superuser) from the root directory, mount the CD-ROM.

If necessary, the HP-UX command **ioscan –fn** will list the system devices as shown in Figures 5-8 and 5-9.

# ioscan −f	n					
Class	Ι	H/W Path	Driver	S/W State	H/W Type	Description
	===					
bc	0		root	CLAIMED	BUS_NEXUS	
bc	1	8	ccio	CLAIMED	BUS_NEXUS	I/O Adapter
bc	2	10	ccio	CLAIMED	BUS_NEXUS	I/O Adapter
ext_bus	0	10/0	c720	CLAIMED	INTERFACE	GSC built-in Fast/Wi
de SCSI Inte	erf	ace				
target	0	10/0.5	tgt	CLAIMED	DEVICE	
disk	0	10/0.5.0	sdisk	CLAIMED	DEVICE	HP C2490WD
			/dev/dsk/c0t	5d0 /dev.	/rdsk/c0t5	d0
target	1	10/0.6	tgt	CLAIMED	DEVICE	
disk	1	10/0.6.0	sdisk	CLAIMED	DEVICE	HP C2490WD
			/dev/dsk/c0t	6d0 /dev.	/rdsk/c0t6	d0
target	2	10/0.7	tgt	CLAIMED	DEVICE	
ctl	0	10/0.7.0	sctl	CLAIMED	DEVICE	Initiator
			/dev/rscsi/cl	Dt7d0		
bc	3	10/4	bc	CLAIMED	BUS_NEXUS	Bus Converter
tty	0	10/4/0	mux2	CLAIMED	INTERFACE	MUX
			/dev/diag/mux	x0 /de [,]	v/mux0	
			/dev/diag/tt	y0p0 /de [,]	v/ttyOpO	
			/dev/diag/tt	y0p1 /de [,]	v/ttyOp1	
			/dev/diag/tty	y0p10 /de [,]	v/ttyOp10	
			/dev/diag/tt	y0p11 /de	v/ttyOp11	
f1	fá	2 f3	f4	f5	f6	f7 f8

Figure 5-8. ioscan –fn example.

Observe the device descriptor at the top of Figure 5-9. In this example system, the path to the CD-ROM is **/dev/dsk/c1t2d0**. (This path may be different in other systems.)

disk	2	10/12/5.2.0	sdisk	CLAIMED	DEVICE	PIONEER DVD-ROM DVD-
303						
			/dev/dsk/c1t2	2d0 /dev,	/rdsk/c1t2	10
target	5	10/12/5.7	tgt	CLAIMED	DEVICE	
ctl	1	10/12/5.7.0	sctl	CLAIMED	DEVICE	Initiator
			/dev/rscsi/c	lt7d0		
lan	0	10/12/6	lan2	CLAIMED	INTERFACE	Built-in LAN
			/dev/diag/la	10 /dev/e ⁻	ther0	/dev/lan0
ps2	0	10/12/7	ps2	CLAIMED	INTERFACE	Built-in Keyboard/Mo
use						-
			/dev/ps2_0	/dev/ps:	2kbd	
			/dev/ps2_1	/dev/ps	2mouse	
bc	4	10/16	bc	CLAIMED	BUS NEXUS	Bus Converter
ext_bus	3	10/16/8	scsi1	CLAIMED	INTERFACE	HP 28655A - SE SCSI
ID=7						
unknown	- 1	10/16/9		UNCLAIMED	UNKNOWN	HP 28655A - Parallel
Interface						
processor	0	32	processor	CLAIMED	PROCESSOR	Processor
processor	1	34	processor	CLAIMED	PROCESSOR	Processor
memory	0	49	memory	CLAIMED	MEMORY	Memory
-			-			-
root@ups1ab	1:/					
#						
f1	f	2 f3	f4	f5	f6	f7 f8

Figure 5-9. Identifying the CD-ROM path.

5-14

As superuser from the root directory, create a temporary directory using the HP-UX **mkdir** command as shown in Figure 5-10. In this case, the created directory is **upstemp**. Insert the CD-ROM into the CD drive. From root, mount the CD-ROM referencing the temporary directory just created. In this example, the HP-UX command is:

mount -r /dev//dsk/c1t2d0 /upstemp



Figure 5-10. Creating a temporary directory and mounting the CD-ROM drive.

As system administrator (superuser) from the root directory, enter the HP-UX command, swinstall.

```
# swinstall
Starting the terminal version of swinstall...
To move around in swinstall:
- use the "Tab" key to move between screen elements
- use the arrow keys to move within screen elements
- use "Ctrl-F" for context-sensitive help anywhere in swinstall
On screens with a menubar at the top like this:
               _____
      IFile View Options Actions
                                                   Helnl
      - use "Tab" to move from the list to the menubar
- use the arrow keys to move around
- use "Return" to pull down a menu or select a menu item
- use "Tab" to move from the menubar to the list without selecting a menu item
- use the spacebar to select an item in the list
On any screen, press "CTRL-K" for more information on how to use the keyboard.
Press "Return" to continue...
```

Figure 5-11. swinstall

An informational screen will appear. See Figure 5-11. Press Return or Enter.

HP-UX software is loaded from a "Software Depot." There are four Software Depots available on the CD-ROM. The system administrator must correctly choose the HP-UX level and the HP-UX machine series. The supported HP-UX levels are "10" (for HP-UX 10.2 and above) and "11" for all versions of HP-UX 11.0 or greater. The supported series are "700" and "800."

Figure 5-12 shows access to the software depot for a 800 series computer running HP-UX 11.0. The machine is named **upslab1**. The path to the depot is **/a1359a/hpux11/s800**. The first directory, **/a1359a**, is the product number of the SNMP/WEB Adapter Card. The second directory can be **/hpux10** or **/hpux11** according to the revision of the operating system. The final directory will be **/s700** or **/s800** depending upon the series of the machine.

File Sour Taro	SD Install - Software Selection (upslabl) (1) View Options Actions Press CTRL-K for keyboard help. rce: uet:	Help
run g	Snecify Source (unslah1)	
AII Top	Specify the source type, then host name, then path on that host.	
/ 	[Source Host Name] upslab1	-\
	[Software Filter] None	
	[OK] [Cancel] [Help]	┛║
 \		v ∕
Help Cont	On Alt Select/ ext Deselect OK Shell Ca	ancel

Figure 5-12. Setting Source Depot Path.

swinstall then indicates the software available for loading as shown in Figure 5-13. Highlight **A1359A** and then **Select** .[Special Function Key 3.]



Figure 5-13. Software Depot confirmation of product to be installed.

Press [F4] (Menubar on/off) then select the Actions menu. Scroll down to Install (analysis)... .Press Enter/Return.



Figure 5-14. Selecting Install.

On the next screen, select **Logfile** an then **OK**. See Figures 5-15 and 5-16.

File V Source Target	/iew Options e: upslab1:/ :: upslab1: ====	SD Install Actions Press a1359a/hpux / Insta	- Software Selec CTRL-K for keyl 11/S800 II Analysis (ups	ction (up board hel blab1) (2	p.))	Help
Only Top (Mar / l Yes l l l	After Anal to return Target Status Products S [Products	ysis has co to prior se : cheduled :][<u>_Log</u>	mpleted, press lection screen(: upslab1:/ Ready 1 of 1 file] [Disk	OK' to p 3). « Space	.] [Re-	r 'CANCEL analyze]	ected 2
	[ОК]		[Cancel]		[Неір]	
Help O Contex	n Alt t	Select/ Deselect		OK		She I I	Cance I

Figure 5-15. Activating Logfile.

File Vi Source: Target: Only	ем Options A upslab1:/a1: upslab1:/ === After Analys	instans Press 359a/hpux Insta is has con	CTRL-K for ke 11/S800 II Analysis (t mpleted, press	ection (d eyboard he ipslab1) (e 'OK' to	pstabl) (1 1p. 2) proceed, c	, or 'CANCEL	Help
Top (/ Yes 	to return to Target Status Products Sch [Products	prior se : : eduled : .] [Log	lection screen upslab1:/ Ready 1 of 1 file] [Di	ı(s). .sk Space.][Re-	•ana l yze]	lected) \ 2 6
I I I He In On	[OK]	Select/	[Cance I]) 	Help]	D /

Figure 5-16. Starting Installation.

Answer **Yes** on the Confirmation window shown in Figure 5-17.

On Installation will now begin. Only those products which passed Analysis will be installed.	
 If you need more information on Analysis results, reply "No" to this dialog, and in the Analysis Window, press the "Disk Space", "Logfile /- or "Product Summary" button. Once Installation begins, you will not be able to go back to Selection or Analysis until it is complete. Do you still wish to begin Installation? 	 ted
I [Yes]] [No I I I V Heln On Alt Select/ Ves Shell N] D 7

Figure 5-17. Installation confirmation.

Carefully note the startup instructions in the Log File shown in Figure 5-18.

=== Logfile (upslab1) (2)	
Target: upslab1:/ Logfile: upslab1:/var/adm/sw/swagent.log [] Automatic Scr	•olling
, The PowerTrust II-LR UPS Shutdown Client Installation Complete.	
l I To start the PowerTrust II-LR UPS Monitor I Execute the pt2lrstart program and specify the UPS IP	
For example: # /opt/powertrust2lr/pt2lrstart 10.8.120.230 	i
l For more information, read the README file and the manual. 	I
* Running install clean command /usr/lbin/sw/install_clean. NOTE: tlinstall is searching filesystem - please be patient	
\ <u>K</u>	≥/
[OK] [He	ip]
Help On Alt Select/ Context Deselect OK Shell	

Figure 5-18. Log File.

To verify the products installed by **swinstall**, select **[Products...]** as shown in Figure 5-19.

File Vi	SD Install - Software Selection (upslab1)(1) ew Options Actions	Help
Source	unslahi:/ai359a/hnuxii/S800	
Target	=== Install Window (upslab1) (3)	
Only s	Press 'Products' and/or 'Logfile' for more target information.	
Top (B	Target : upslab1:/	elected
	Status : Completed	
, Mark	Percent Complete : 100%	b) 、
/ Voc	KDytes Installed : 10/2 of 10/2 Time Left (minutes): 0	72
	Loading Software :	"
i i		
!	[_Products] [Logfile]	
	[Done] [Help]	
1		
1		
,		M /
Help On Context	Alt Select/ Done Shell	

Figure 5-19. Selecting Products.

To complete the A1359A installation, select [Done]. See Figure 5-20.

	SD Install - Software Selection (upslab1) (1)						
File Vi	ew Uptions Actions	Help					
	Press CIRL-K for keyboard help.						
Source:	ups1ab1:/a1359a/hpux11/S800						
Target	=== Install Window (upslab1) (3)						
Unly s	Press 'Products' and/or 'Logfile' for more target information.						
lob (R	larget : upslab1:7	elected					
	Status : Completed						
Mark	Percent Complete : 100%	b) .					
/	Kbytes Installed : 1072 of 1072	\					
l Yes	Time Left (minutes): 0	72					
!	Loading Software :						
	[Products] [Logfile]						
	L Done J L Help J						
!							
!							
		<u>V</u>					
NK		· 2 /					
Help On	Alt Select/ Done Shell						
Context	Deselect						

Figure 5-20. Completing A1359A installation.

To exit **swinstall**, select **File** and **Exit**. See Figure 5-21.

EFIC View Options of File View Options of Clear Session Save Session Save Session As Recall Session Search	Install - Software Selection (upslabl) (1) Ictions Press CTRL-K for keyboard help. 59a/hpux11/S800 ible with the target is available for selection.					He I p
l Print	Iducts)				0 of 1	selected
Exit	 /		Revision	Information	Size	(Kb)
\ Yes A1359/ 	γ ۹	->	1.0			
Help On Alt Context C	Select/)eselect	Menubar on/off			She I I	Exit

Figure 5-21. Exiting **swinstall**.

To start UPS monitoring, enter the command

/opt/powertrust2lr/pt2lrstart <address>

where **<address>** is the IP address of the UPS you wish to monitor. As the process begins, you will receive a configuration report as shown in Figure 5-22.

# /opt/powertrust2lr/pt2lrstart 10.8.130.226 Немlett Packard PowerTrust II-LR UPS Shutdown Client v1.0 Copyright (c)1998-99 by Best Power, All Rights Reserved.							
SNMP/WEB Card HostName SNMP/WEB Card IP SNMP/WEB Card Port # Shutdown Operating System Broadcast User Messages Log Power Events Shutdown OS in Background Time Required to Shutdown OS Start OS Shutdown at Power Event Log Broadcast Message Script OS Shutdown Script File	= 10.8.130.226 = 10.8.130.226 = 18472 = Yes = Yes = Yes = No = 2 Minute(s) = 5 Minutes Remains = ./pt2lr.log = ./pt2lr.msg = ./pt2lr.dwn	aining					
Network UPS monitoring has st	arted.						
f1 f2 f3	f4	f5	f6	f7	f8		

Figure 5-22. Startup Messages.

A listing of the README file shows the pertinent PowerTrust II-LR files as shown in Figure 5-23.

cat README The PowerTrust II-LR UPS Shutdown Client V1.0 is a monitoring program for a SNMP/WEB Card, which is monitoring a Hewlett Packard PowerTrust II-LR UPS. This program is designed to monitor, provide messages, and perform an unattended automatic shutdown of your UNIX operating system. The following files have been placed in these locations: /opt/powertrust21r/README # This file /opt/powertrust2lr/pt2lrstart # Compiled main monitor program To get a quick overview of the command line options required to run the SNMP monitor, run '/opt/powertrust2lr/pt2lrstart' with no options and a usage list will be displayed. For a more detailed explanation run '/opt/powertrust2lr/pt2lrstart -h | more' for the online help. To shutdown the client monitor: # /opt/powertrust2lr/pt2lrstop Ħ f2 f3 f4 f5 f6 f7 f8 f1

Figure 5-23. A listing of the **README** file.

5-28

The **README** file indicates that **/opt/powertrust2lr/pt2lrstart – h | more** will give a help listing of available software switches. See Figure 5-24.

```
Hewlett Packard PowerTrust II-LR UPS Shutdown Client v1.0
Copyright (c)1998-99 by Best Power, All Rights Reserved.
        _____
Usage: pt2lrstart [arguments] <hostname>
All parameters indicated with < > are required; those with [ ] are
optional.
<hostname>
             - Hostname or IP address of the SNMP/WEB Card to watch.
[h-]
             - Discover all available SNMP/WEB Cards
[-c<number>] - Cutoff Time - Specifies the amount of runtime remaining
                              at which to begin the OS shutdown.
[-m]
             - Messaging - Disables broadcast messaging.
               Default: Enabled.
[-m<filename>]- Specifies an alternate path and filename for messaging.
               Default: ./pt2lr.msg
[-1]
             - Logging - Disables event logging
               Default: Enabled
[-l<filename>]- Specifies an alternate path and filename for logging.
               Default: ./pt2lr.log
[-s]
             - Shutdown - Disables Operating System shutdown.
               Default: Enabled
[-s<filename>]- Specifies an alternate path and filename for the shutdown.
               script. Default: ./pt2lr.dwn
[-f<filename>]- Configuration File - Specifies an alternate path and
               filename. Default: ./pt2lr.cfg
[-save]
             - Creates the configuration file
               Default: No configuration file
[-h]
             - Help for command line usage
            f2
                     f3
   f1
                              f4
                                              f5
                                                        f6
                                                                 f7
                                                                          f8
```

Figure 5-24. Help screen.

To stop the UPS monitoring program, issue the command

/opt/powertrust2lr/pt2lrstop

When the system prompt returns, the process has been terminated. See Figure 5-25.



Figure 5-25. Stopping the monitoring process.

To remove the application issue the command

swremove A1359A

See Figure 5-26.



Figure 5-26. Removing software.

This Page Intentionally Blank.

Chapter 6 – The Management Information Base

Note: Always reference the MIB file (hppt2lr.mib) supplied on both the DOS and UNIX tar format CD found in the PowerTrust II-LR SNMP/WEB Adapter package. This ensures that you are viewing the most current version.

A Listing of MIB file – hppt2lr.mib

--POWERTRUST2LR-MIB { iso(1) org(3) dod(6) internet(1) private(4) ___ enterprises(1) hp(11) nm(2) hpups(26) ptii mib(5) } --MIB for use with HP's PowerTrust II-LR series UPS and SNMP/WEB card --Last Modification 1/11/00 by Brian Young --Changed some trap text for better clarity --Contributing Authors: Steve Van Duser Jamie Krueger ___ Brian Young _ _ RFC1628 model for a UPS MIB ___ POWERTRUST2LR-MIB DEFINITIONS ::= BEGIN IMPORTS enterprises, IpAddress, Gauge FROM RFC1155-SMI DisplayString FROM RFC1213-MIB OBJECT-TYPE FROM RFC-1212 TRAP-TYPE FROM RFC-1215;

```
--textual conventions
        NonNegativeInteger
                               ::= INTEGER
        PositiveInteger
                                ::= INTEGER
        TimeStamp
                                ::= TimeTicks
        hp
                    OBJECT IDENTIFIER ::= { enterprises 11 }
                   OBJECT IDENTIFIER ::= { hp 2 }
        nm
        hpups
                  OBJECT IDENTIFIER ::= { nm 26 }
        ptii mib OBJECT IDENTIFIER ::= { hpups 5 }
        upsIdent OBJECT IDENTIFIER ::= { ptii mib 1 }
        upsBattery OBJECT IDENTIFIER ::= { ptii mib 2 }
        upsInput OBJECT IDENTIFIER ::= { ptii_mib 3 }
upsOutput OBJECT IDENTIFIER ::= { ptii_mib 4 }
        upsConfig OBJECT IDENTIFIER ::= { ptii mib 5 }
        upsControl OBJECT IDENTIFIER ::= { ptii mib 6 }
        upsTest OBJECT IDENTIFIER ::= { ptii_mib 7 }
        upsAlarm OBJECT IDENTIFIER ::= { ptii mib 8 }
-- Ident Group
upsIdentUpsName OBJECT-TYPE
        SYNTAX DisplayString (SIZE (0..19))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "An ID string identifying the Family of UPS."
        ::= { upsIdent 1 }
upsIdentModel OBJECT-TYPE
        SYNTAX DisplayString (SIZE (0..29))
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The UPS model name (example: 'PowerTrust II')."
        ::= { upsIdent 2 }
upsIdentVARating OBJECT-TYPE
        SYNTAX DisplayString
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The capacity rating of the UPS expressed in
          VoltAmperes(VA)."
        ::= { upsIdent 3 }
```

```
upsIdentUpsType OBJECT-TYPE
        SYNTAX INTEGER {
                standby(1),
                online(2),
                offline(3),
                lineInteractive(4),
                hybrid(5)
                }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "Type of UPS."
        ::= { upsIdent 4 }
upsIdentUpsSerialNumber OBJECT-TYPE
        SYNTAX DisplayString
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "A unique identification number provided by the
          factory."
        ::= { upsIdent 5 }
upsIdentUpsIdentification
                             OBJECT-TYPE
        SYNTAX DisplayString
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "A string entered by the administrator to provide a
         unique name for the UPS."
        ::= { upsIdent 6 }
upsIdentDateOfManufacture
                                OBJECT-TYPE
        SYNTAX DisplayString (SIZE(6..10))
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "The date when the UPS was manufactured or installed in
         mm/dd/yyyy format."
        ::= { upsIdent 8 }
```

```
-- the upsBattery group
upsBattervStatus OBJECT-TYPE
        SYNTAX INTEGER {
               normal(1),
               onBattery(2)
               }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The status of the inverter."
        ::= { upsBattery 1 }
upsBatteryTimeOnBattery OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The elapsed time in seconds since the UPS has switched
          to battery power."
        ::= { upsBattery 2 }
upsBatteryRuntimeRemaining OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The remaining time in minutes that the UPS will be
          able to run on battery power."
        ::= { upsBattery 3 }
upsBatteryVoltage OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The UPS battery voltage expressed in 1/10 VDC."
        ::= { upsBattery 4 }
upsBatteryTemperature OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The internal UPS temperature expressed in 1/10
          degree C."
        ::= { upsBattery 6 }
```

```
upsBatteryLastReplaceDate OBJECT-TYPE
        SYNTAX DisplayString (SIZE(6..10))
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "The date when the UPS system's batteries were last
          replaced in mm/dd/yyyy format. When the UPS batteries
          are replaced, this value should be reset by the
          administrator."
        ::= { upsBattery 7 }
        -- the upsInput group
upsInputPhase OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The AC input phase."
        ::= { upsInput 1 }
upsInputFrequency OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The utility line frequency in 1/10 Hz."
        ::= { upsInput 2 }
upsInputVoltage OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The utility line voltage in 1/10 VAC."
        ::= { upsInput 3 }
```

```
-- the upsOutput group
upsOutputStatus OBJECT-TYPE
        SYNTAX INTEGER {
               unknown(1),
               onLine(2),
               onBattery(3),
               onBypass(4)
               1
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The current state of the UPS. If the UPS is unable
          to determine its state, this variable is set to
           unknown(1)."
        ::= { upsOutput 1 }
upsOutputPhase OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The output phase."
        ::= { upsOutput 2 }
upsOutputVoltage OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The output voltage of the UPS expressed in 1/10 VAC."
        ::= { upsOutput 4 }
upsOutputPercentLoad OBJECT-TYPE
        SYNTAX INTEGER
                         -- UNITS percent
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The percentage of the total UPS power capacity being
          used expressed in % of 100."
        ::= { upsOutput 9 }
```

```
-- the upsConfig group
upsConfigLowRuntimeSetpoint OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "This setpoint controls when the UPS will initiate a
          Low Runtime Alarm."
        ::= { upsConfig 1 }
upsConfigDelayBeforeRestart OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "The delay in seconds after utility line power returns
          before the UPS will turn on. This value is used in
          conjunction with TurnUPSOff, RebootUPS, and the
          Scheduled Shutdown objects."
        ::= { upsConfig 2 }
upsConfigDelayBeforeShutdown OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "The delay in seconds that the UPS waits before
          executing an off command upon request of an external
          device."
        ::= { upsConfig 3 }
upsConfigTest OBJECT IDENTIFIER ::= {upsConfig 4}
upsConfigTestLevel OBJECT-TYPE
        SYNTAX INTEGER {
               none(1),
               logic(2),
               inverter(3),
               battery(4)
               }
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "This is the level of the System Test."
        ::= { upsConfigTest 1 }
```

```
upsConfigScheduleTable OBJECT-TYPE
        SYNTAX SEQUENCE OF UpsConfigScheduleEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
          "The table to schedule shutting down the UPS."
        ::= { upsConfig 5 }
upsConfigScheduleEntry OBJECT-TYPE
        SYNTAX UpsConfigScheduleEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
          "The entries for each day."
        INDEX { upsConfigScheduleIndex }
        ::= { upsConfigScheduleTable 1 }
UpsConfigScheduleEntry ::= SEQUENCE {
                upsConfigScheduleIndex
                        INTEGER,
                upsConfigScheduleShutdownDay
                        INTEGER,
                upsConfigScheduleShutdownTime
                        DisplayString,
                upsConfigScheduleRestartDay
                        INTEGER,
                upsConfigScheduleRestartTime
                        DisplayString
        }
upsConfigScheduleIndex OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The index of scheduled events."
        ::= { upsConfigScheduleEntry 1 }
```
```
upsConfigScheduleShutdownDay
                              OBJECT-TYPE
                   SYNTAX INTEGER {
                           sunday(1),
                           monday(2),
                           tuesday(3),
                           wednesday(4),
                           thursday(5),
                           friday(6),
                           saturday(7),
                                           none(8)
                           }
                   ACCESS read-write
                   STATUS mandatory
                   DESCRIPTION
                     "The weekday on which the UPS should shut down."
                   ::= { upsConfigScheduleEntry 2 }
          upsConfigScheduleShutdownTime OBJECT-TYPE
                   SYNTAX DisplayString
                   ACCESS read-write
                   STATUS mandatory
                   DESCRIPTION
                     "The time that the process of shutting down the UPS
                     will be initiated"
                   ::= { upsConfigScheduleEntry 3 }
          upsConfigScheduleRestartDay
                                           OBJECT-TYPE
                   SYNTAX INTEGER {
                           sunday(1),
                           monday(2),
                           tuesday(3),
                           wednesday(4),
                           thursday(5),
                           fridav(6),
                           saturday(7),
                           none(8)
                           }
                   ACCESS read-write
                   STATUS mandatory
                   DESCRIPTION
                     "The weekday on which the UPS should restart"
                   ::= { upsConfigScheduleEntry 4 }
```

```
upsConfigScheduleRestartTime OBJECT-TYPE
        SYNTAX DisplayString
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "The time the UPS will restart in hh:mm:ss format."
        ::= { upsConfigScheduleEntry 5 }
upsConfigpowerTrust2LR OBJECT IDENTIFIER ::= { upsConfig 8
1
powerTrust2LRHistoryLogFrequency OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "The frequency of updating the history log in minutes."
        ::= { upsConfigpowerTrust2LR 1 }
powerTrust2LRNetId
                     OBJECT-TYPE
        SYNTAX IpAddress
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "The IP address of the device. Setting this parameter
          causes PowerTrust II SNMP/WEB Card to reboot."
        ::= { upsConfigpowerTrust2LR 3 }
powerTrust2LRGateway OBJECT-TYPE
        SYNTAX IpAddress
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "The gateway address for the network the SNMP/WEB Card
          is connected to."
        ::= { upsConfigpowerTrust2LR 4 }
powerTrust2LRNetMask OBJECT-TYPE
        SYNTAX IpAddress
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "The net mask of the device."
        ::= { upsConfigpowerTrust2LR 5 }
```

```
powerTrust2LRSysDate OBJECT-TYPE
       SYNTAX DisplayString (SIZE(6..10))
       ACCESS read-write
       STATUS mandatory
       DESCRIPTION
          "The system date of the device. The date is in
         mm/dd/yyyy format. The range of system date is from
          1/1/1980 to 12/31/2037."
        ::= { upsConfigpowerTrust2LR 6 }
powerTrust2LRSysTime OBJECT-TYPE
       SYNTAX DisplayString (SIZE(5..8))
       ACCESS read-write
       STATUS mandatory
       DESCRIPTION
          "The system time of the device. The time is in hh:mm:ss
          format."
        ::= { upsConfigpowerTrust2LR 7 }
powerTrust2LRPrimaryTimeServer OBJECT-TYPE
       SYNTAX IpAddress
       ACCESS read-write
       STATUS mandatory
       DESCRIPTION
          "The primary time server is responsible for sending the
          correct time to the SNMP/WEB Card."
        ::= { upsConfigpowerTrust2LR 11 }
powerTrust2LRSecondaryTimeServer OBJECT-TYPE
       SYNTAX IpAddress
       ACCESS read-write
       STATUS mandatory
       DESCRIPTION
          "The secondary time server responsible for sending the
         correct time to the SNMP/WEB Card."
        ::= { upsConfigpowerTrust2LR 12 }
powerTrust2LRSoftwareVersion OBJECT-TYPE
       SYNTAX DisplayString
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
          "The version of SNMP/WEB Card software."
    ::= { upsConfigpowerTrust2LR 13 }
```

```
powerTrust2LRMIBVersion OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The version of MIB implemented in SNMP/WEB Card
          software."
    ::= { upsConfigpowerTrust2LR 14 }
powerTrust2LRDHCPControl OBJECT-TYPE
        SYNTAX INTEGER {
               enabled(1),
               disabled(2)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "Enable/Disable DHCP function of SNMP/WEB Card."
    ::= { upsConfigpowerTrust2LR 15 }
powerTrust2LRTelnetControl OBJECT-TYPE
        SYNTAX INTEGER {
               enabled(1),
               disabled(2)
               1
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "Enable/Disable Telnet function of SNMP/WEB Card."
    ::= { upsConfigpowerTrust2LR 16 }
powerTrust2LRTftpControl OBJECT-TYPE
        SYNTAX INTEGER {
               enabled(1),
               disabled(2)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "Enable/Disable TFTP function of SNMP/WEB Card."
    ::= { upsConfigpowerTrust2LR 17 }
```

```
powerTrust2LRResetToDefault OBJECT-TYPE
        SYNTAX INTEGER {
               reset(1),
               nothing(2)
               1
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "Reset all parameters of SNMP/WEB Card to default
          setting."
    ::= { upsConfigpowerTrust2LR 18 }
powerTrust2LRRestartAgent OBJECT-TYPE
        SYNTAX INTEGER {
               restart(1),
               nothing(2)
               }
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "Restart of SNMP/WEB Card."
    ::= { upsConfigpowerTrust2LR 19 }
upsConfigTrapsReceivers OBJECT IDENTIFIER ::= { upsConfig 9 }
upsConfigTrapsReceiversTable OBJECT-TYPE
        SYNTAX SEQUENCE OF UpsConfigTrapsReceiversEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
          "A list of managers to send traps to."
        ::= { upsConfigTrapsReceivers 1 }
upsConfigTrapsReceiversEntry OBJECT-TYPE
        SYNTAX UpsConfigTrapsReceiversEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
          "The managers to send traps to."
        INDEX { trapsIndex}
        ::= { upsConfigTrapsReceiversTable 1 }
```

```
UpsConfigTrapsReceiversEntry ::= SEQUENCE {
                trapsIndex INTEGER,
                trapsReceiverAddr IpAddress,
                receiverCommunityString DisplayString,
                severityLevel INTEGER,
                receiverAccept INTEGER
                }
trapsIndex OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The index to a trap receiver entry."
        ::= { upsConfigTrapsReceiversEntry 1 }
trapsReceiverAddr OBJECT-TYPE
        SYNTAX IpAddress
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "The IP address of the manager to send a trap to."
        ::= { upsConfigTrapsReceiversEntry 2 }
receiverCommunityString OBJECT-TYPE
        SYNTAX DisplayString (SIZE(0..19))
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "The community name to use in the trap when sent to
          the manager."
        ::= { upsConfigTrapsReceiversEntry 3 }
```

```
severityLevel OBJECT-TYPE
        SYNTAX INTEGER {
               information(1),
               warning(2),
               severe(3)
               }
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "The severity threshold of traps to send to the
          manager. Traps are labeled by severity as
          informational(1), warning(2), severe(3). Only traps
          of equal or greater severity than this value are sent
          to the manager."
        ::= { upsConfigTrapsReceiversEntry 4 }
receiverAccept OBJECT-TYPE
        SYNTAX INTEGER
                        {
               ves (1),
               no (2)
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "An entry will become active if yes, otherwise it will
          be disabled."
        ::= { upsConfigTrapsReceiversEntry 5 }
upsConfigRegisteredShutdownClients OBJECT IDENTIFIER ::= {
upsConfig 10 }
upsRegisteredShutdownClientsTable OBJECT-TYPE
        SYNTAX SEQUENCE OF UpsRegisteredShutdownClientsEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
          "A list of registered shutdown client table entries.
          The table contains zero, one, or many rows at any
          moment, depending upon the number of Power Trust II
          shutdown clients registered with the SNMP/WEB Card"
        ::= { upsConfigRegisteredShutdownClients 1 }
```

```
upsRegisteredShutdownClientsEntry OBJECT-TYPE
       SYNTAX UpsRegisteredShutdownClientsEntry
       ACCESS not-accessible
       STATUS mandatory
       DESCRIPTION
          "An entry containing information applicable to a
          particular registered shutdown client."
       INDEX { upsRegisteredShutdownClientsIndex }
        ::= { upsRegisteredShutdownClientsTable 1 }
UpsRegisteredShutdownClientsEntry ::= SEQUENCE {
       upsRegisteredShutdownClientsIndex PositiveInteger,
       upsRegisteredShutdownClientsIPAddress IpAddress
        }
upsRegisteredShutdownClientsIndex OBJECT-TYPE
       SYNTAX PositiveInteger
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
          "An index of alarm entries in the
          RegisteredShutdownClientsTable."
        ::= { upsRegisteredShutdownClientsEntry 1 }
upsRegisteredShutdownClientsIPAddress OBJECT-TYPE
       SYNTAX IpAddress
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
          "The IP Address of the registered shutdown client"
        ::= { upsRegisteredShutdownClientsEntry 2 }
upsRegisteredShutdownClientsTotalNumberOf OBJECT-TYPE
       SYNTAX INTEGER
       ACCESS read-only
       STATUS mandatory
       DESCRIPTION
          "The total number of registered shutdown clients."
        ::= { upsConfigRegisteredShutdownClients 2 }
```

```
upsConfigTurnOffUPSAfterShutdown OBJECT-TYPE
        SYNTAX INTEGER {
               yes(1),
               no(2),
               1
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "Select whether or not the UPS will turn off following
          a PowerTrust II UPS client-directed OS shutdown."
        ::= { upsConfig 11 }
upsConfigRestartUPSOnceAcPowerReturn OBJECT-TYPE
        SYNTAX INTEGER {
               yes(1),
               no(2),
               }
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "Select whether or not the UPS will automatically
         restart once AC power returns."
        ::= { upsConfig 12 }
-- the upsControl group
upsControlTurnOffUPS OBJECT-TYPE
        SYNTAX INTEGER {
                cancelUpsOff(1),
                upsOff(2),
                rebootUps(3),
                cancelrebootUps(7)
                }
        ACCESS read-write
        STATUS mandatory
        DESCRIPTION
          "Setting this variable to UpsOff(2) causes the UPS to
          shut off. When the UPS is in the off state, the UPS
          will remain off until the ON/OFF switch is manually
          toggled.
          Setting this variable to cancelUpsOff(1) allows for a
          method to cancel the upsOff(2) command to the UPS that
          is still pending, or will make an attempt to restart a
          UPS that has been shutdown, provided that the
          SNMP/WEB Card is powered by some other means.
```

```
Setting this variable to rebootUps(3) causes the UPS to
          shut off and turn back on.
          Setting this variable to cancelrebootUps(4) allows for
          a method to cancel the rebootUps(3) command to the UPS
          that is still pending, or will make an attempt to
          restart a UPS that has been shutdown, provided that
          SNMP/WEB Card is powered by some other means."
        ::= { upsControl 1 }
upsControlActivateUpsScheduling OBJECT-TYPE
       SYNTAX INTEGER {
               off(1),
               on(2)
               }
       ACCESS read-write
       STATUS mandatory
       DESCRIPTION
          "Setting this variable to On(2) causes the UPS to
          activate the scheduling parameters that have been
          previously configured within the
         upsConfigDailyShutdownScheduleTable and the
          upsConfigWeeklyShutdownScheduleTable. Setting this
          variable to Off(1) suspends all currently configured
          schedules."
        ::= { upsControl 4 }
-- the upsTest group
upsManualTests OBJECT-TYPE
       SYNTAX INTEGER {
              noTestInitiated(1),
               initiateManualBatteryTest(2),
               abortManualBatteryTest(3)
               }
       ACCESS read-write
       STATUS mandatory
       DESCRIPTION
          "Setting this variable to any value other than (1)
         causes the UPS to perform a manual test or abort a
          particular test in progress."
        ::= { upsTest 1 }
```

```
-- the upsAlarm group
upsAlarmsPresent OBJECT-TYPE
        SYNTAX Gauge
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
                "The present number of active alarm conditions."
        ::= { upsAlarm 1 }
upsLastKnownAlarm OBJECT-TYPE
        SYNTAX INTEGER {
               onBattery(1),
               lowRuntime(2),
               nearLowBattery(3),
               upsFailed(30),
               testInProgress(32),
               upsOff(35),
               communicationsLost(36),
                      noAlarm(37)
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "A unique identifier for an alarm condition.
                                                        This
          value must remain constant. Value 'noAlarm(37)'
          will be returned if no Alarm has occured till the
         point of GET operation."
        ::= { upsAlarm 2 }
upsAlarmTable OBJECT-TYPE
        SYNTAX SEQUENCE OF UpsAlarmEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
          "A list of alarm table entries. The table contains
          zero, one, or many rows at any moment, depending upon
          the number of alarm conditions in effect. The table
          is initially empty at agent startup. The agent creates
          a row in the table each time a condition is detected
          and deletes that row when that condition no longer
         pertains. The agent creates the first row with
         upsAlarmIndex equal to 1, and increments the value of
          upsAlarmIndex each time a new row is created."
        ::= { upsAlarm 3 }
```

```
upsAlarmEntry OBJECT-TYPE
        SYNTAX UpsAlarmEntry
        ACCESS not-accessible
        STATUS mandatory
        DESCRIPTION
          "An entry containing information applicable to a
          particular alarm."
        INDEX
              { upsAlarmIndex }
        ::= { upsAlarmTable 1 }
UpsAlarmEntry ::= SEQUENCE {
        upsAlarmIndex PositiveInteger,
        upsAlarmName INTEGER,
        upsAlarmTime DisplayString
        }
upsAlarmIndex OBJECT-TYPE
        SYNTAX PositiveInteger
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "An index of alarm entries in the alarm log."
        ::= { upsAlarmEntry 1 }
upsAlarmName OBJECT-TYPE
        SYNTAX INTEGER {
               onBattery(1),
               lowRuntime(2),
               nearLowBattery(3),
               upsFailed(30),
               testInProgress(32),
               upsOff(35),
               communicationsLost(36),
                       noAlarm(37)
                }
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "A unique identifier for an alarm condition. This
          value must remain constant."
        ::= { upsAlarmEntry 2 }
```

```
upsAlarmTime OBJECT-TYPE
        SYNTAX DisplayString
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The time that the alarm occurred in hh:mm:ss format."
        ::= { upsAlarmEntry 3 }
upsWellKnownAlarms OBJECT IDENTIFIER ::= { upsAlarm 4 }
upsAlarmOnBattery OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The UPS is drawing power from the batteries."
        ::= { upsWellKnownAlarms 1 }
upsAlarmLowRuntime OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The remaining battery runtime is less than or equal
          to the upsConfigLowRuntimeSetpoint."
        ::= { upsWellKnownAlarms 2 }
upsAlarmNearLowBattery OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The battery voltage on the UPS has reached a value
          where the inverter will not be able to function very
          much longer."
        ::= { upsWellKnownAlarms 3 }
upsAlarmupsFailed OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "A general fault in the UPS has been detected."
        ::= { upsWellKnownAlarms 30 }
```

```
upsAlarmTestInProgress OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "A test is in progress."
        ::= { upsWellKnownAlarms 32 }
upsAlarmUpsOff OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "The output of the UPS is in the off state."
        ::= { upsWellKnownAlarms 35 }
upsAlarmCommunicationsLost OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
          "A problem has been encountered in the communications
         between the agent and the UPS."
        ::= { upsWellKnownAlarms 36 }
-- Traps
upsTrapPowerFail TRAP-TYPE
        ENTERPRISE ptii mib
        DESCRIPTION
          "WARNING: Utility power not available."
        ::= 1
upsTrapPowerRestored TRAP-TYPE
        ENTERPRISE ptii mib
        DESCRIPTION
          "INFORMATION: Utility power has been restored."
        ::= 2
```

```
upsTrapUPSOnBattery TRAP-TYPE
        ENTERPRISE ptii mib
        VARIABLES {
        upsBatteryTimeOnBattery,
        upsBatteryRuntimeRemaining,
        upsConfigLowRuntimeSetpoint,
        upsBatteryVoltage
        }
        DESCRIPTION
          "WARNING: The UPS has switched to battery backup
          power."
        ::= 3
upsTrapUPSNotOnBattery TRAP-TYPE
        ENTERPRISE ptii mib
        DESCRIPTION
          "INFORMATION: The UPS is not on battery power."
        ::= 4
upsTrapLowRuntime TRAP-TYPE
        ENTERPRISE ptii mib
        DESCRIPTION
          "SEVERE: The runtime remaining on battery power is very
          short, and the UPS will soon shut down."
        ::= 5
upsTrapUPSCanRunOnBattery TRAP-TYPE
        ENTERPRISE ptii mib
        DESCRIPTION
          "INFORMATION: The UPS has returned from a low runtime
          condition."
        ::= 6
upsTrapNearLowBattery TRAP-TYPE
        ENTERPRISE ptii mib
        VARIABLES {upsBatteryVoltage }
        DESCRIPTION
          "SEVERE: The UPS batteries are low and will soon be
          exhausted. If utility power is not restored the UPS
          will put itself to 'sleep' and immediately cut power to
          the load."
        ::= 7
```

```
upsTrapBatteryOK TRAP-TYPE
        ENTERPRISE ptii mib
        DESCRIPTION
          "INFORMATION: The UPS has returned from a near low or
          high battery condition."
        ::= 9
upsTrapScheduledTestInProgress TRAP-TYPE
        ENTERPRISE ptii mib
        DESCRIPTION
          "INFORMATION: A test is in progress."
        ::= 42
upsTrapScheduledTestFailed TRAP-TYPE
        ENTERPRISE ptii mib
        DESCRIPTION
          "SEVERE: The last test performed failed."
        ::= 43
upsTrapCommunicationLost TRAP-TYPE
        ENTERPRISE ptii mib
        DESCRIPTION
          "SEVERE: Communication to the UPS has been lost.
                                                             Steps
          to reestablish communication are in progress."
        ::= 44
upsTrapCommunicationRestored TRAP-TYPE
        ENTERPRISE ptii mib
        DESCRIPTION
          "INFORMATION: Communication with the UPS has been
          restored."
        ::= 45
upsTrapUPSGoingDown TRAP-TYPE
        ENTERPRISE ptii mib
        DESCRIPTION
          "WARNING: The UPS has been given a shutdown command
          by the management station."
        ::= 46
upsTrapUPSTurnedOff TRAP-TYPE
        ENTERPRISE ptii mib
        DESCRIPTION
          "INFORMATION: The ups has been turned off by the
          management station."
        ::= 47
```

```
upsTrapUPSSleeping TRAP-TYPE
        ENTERPRISE ptii mib
        DESCRIPTION
          "INFORMATION: The UPS has entered into 'sleep' mode.
          Power to the load has been cut off."
        ::= 48
upsTrapUPSWokeUp TRAP-TYPE
        ENTERPRISE ptii mib
        DESCRIPTION
          "INFORMATION: The UPS woke up from 'sleep' mode. Power
          to the load has been restored."
        ::= 49
upsTrapUPSRebooted TRAP-TYPE
        ENTERPRISE ptii mib
        DESCRIPTION
          "INFORMATION: The UPS has rebooted."
        ::= 50
upsTrapHistLogWarn TRAP-TYPE
        ENTERPRISE ptii mib
        DESCRIPTION
          "WARNING: The UPS history log buffer is almost full."
        ::= 52
upsTrapEventLogWarn TRAP-TYPE
        ENTERPRISE ptii mib
        DESCRIPTION
          "WARNING: The UPS event log buffer is almost full."
        ::= 53
upsTrapUPSFail TRAP-TYPE
        ENTERPRISE ptii mib
        DESCRIPTION
          "SEVERE: A critical fault has been detected inside the
         UPS. Power to the load has been shut off."
        ::= 54
```

END

This Page Intentionally Blank

Appendix A – Features and Technical Specifications

Features

- Configuration from serial port and HTTP web browser.
- Management from SNMP manager and HTTP web browser.
- Supports MIB_II and PowerTrust II-LR MIB (hppt2lr.mib)
- Firmware upgradeable from a TFTP server or serial port.
- Scheduling function to control UPS shutdowns and startups.
- History log file for further tracing of power events.

Technical Specifications

CPU	AMD Am188ES - 20MHz		
Memory	512K x 8 Static RAM		
	512K x 8 Flash ROM		
Serial Communication	Two asynchronous serial ports		
LAN Controller	DAVICOM		
Network Connection	10BaseT RJ-45 jack connector		
UPS Protocol	HP supplied UPS communication device driver		
Network Protocol	SNMP over UDP/IP		
	HTTP over TCP/IP		
	ARP, RARP and TFTP		
Supported MIB	MIB_II		
	PowerTrust II-LR_MIB (hppt2lr.mib)		
OS Supported for	Microsoft Windows NT 4.0 Service Pack 3 or Later		
Shutdown	HP-UX 10.2/11.0		
Operating	$0 \sim 40^{\circ} \text{ C}$		
Temperature			
Operating Humidity	10 ~ 80 %		
Power Input	9V DC unregulated		
Power Consumption	1.5 Watts Maximum		
Size	130 mm x 60 mm (L x W)		
Weight	80 grams		
Regulatory	FCC class A		
	CE class A		

A-2

Appendix B – Board Layout and Description Board Layout and Pin Assignment

Board layout



Figure B-1. The board layout of the PowerTrust II-LR SNMP/WEB Adapter Card.

Pin assignments

Bottom Side		Component Side	
Pin1	GND	Pin2	9V DC
Pin3	Txd_UPS	Pin4	Rxd_UPS
Pin5	Txd_PC	Pin6	Rxd_PC
Pin7	NC	Pin8	Short to pin 10
Pin9	GND	Pin10	Short to pin 8
Pin11~25	NC	Pin12~26	NC

Switch Description

The component layout of the panel



Figure B-2. The back panel of the PowerTrust II-LR SNMP/WEB Adapter Card.

DIP Switch Definition

No.	SW1	SW2	Function Mode
1	0	0	Operation mode
2	0	1	Manufacturing diagnostic mode
3	1	0	Manufacturing diagnostic mode
4	1	1	Manufacturing diagnostic mode

LED Indicators

LED Definitions

No.	Green LED	Red LED	Function Mode
1	Solid ON	Solid OFF	Normal operation
2	Flashing	Solid OFF	Ethernet traffic
3	Solid OFF	Flashing	IP address is the default value
4	Solid ON	Solid ON	PowerTrust II-LR Card error
5	Solid OFF	Solid OFF	UPS power low
6	Flashing	Flashing	No connection to UPS
7	Flashing	Solid ON	Setup mode

This Page Intentionally Blank

Appendix C – EIA-232 Cables

Wiring Diagrams











Order Part Number A1359-90001 E0200 Printed in USA

Manufacturing Part Number A1359-96001