Installation Guide

PowerChute® *plus*

Version 4.2.2/4.2.3/4.2.4

for UNIX

APC®

www.apcc.com

Installation Guide: PowerChute® *plus* 4.2.2/4.2.3/4.2.4 for UNIX™

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Package Contents

PowerChute *plus* comes in distinct packages on three different CD-ROMs. Which one you get depends on which version of UNIX you run. The three sections below specify the contents of the packages:

- **Generic Package**
- **HP-UX Package**
- **SGI UNIX Package**

Note:
For all packages, ¼" tapes are an alternative to the CD-ROM medium and must be specifically requested. See the Technical Support section of the User's Guide for telephone numbers.

Generic Package

Table 1: Generic Package AP9004 (versions 4.2.2, 4.2.3, and 4.2.4)

Item	Usage	APC Part Number
CD-ROM	Contains installation programs for the following UNIX platforms and version numbers: SCO UNIX .....3.2.2, 3.2.4 SCO Open Server.....5.0–5.05 Solaris for SPARC .....2.2, 2.3, 2.4, ...2.5, 2.5.1, 2.6, 2.7 Solaris x86 for Intel.....2.1, 2.4, 2.5, 2.6 SunOS.....4.1.3, 4.1.4 IBM AIX RS/6000 .....3.2.4, 3.2.5, 4.1, ...4.1.1–4.2.1, 4.3 UnixWare .....2.1, 2.3 SCO UnixWare .....7.0, 7.01 NCR UNIX (AT&T UNIX) .....2.02, 3.0, 3.0.2 Olivetti UNIX SVR4.....2.3, 2.4.1 SINIX/RM.....5.41, 5.42 Unisys UNIX.....1.2, 1.3 Digital UNIX (DEC OSF/1).....4.0D	991-9051E
¼" **tape** format available on request	Covers all PowerChute *plus* UNIX code, including the platforms listed in this table plus HP-UX and SGI Irix.	AP9004-T
Two 9-pin **serial interface cables**	One black cable for **smart signaling** UPSs One gray cable for **simple signaling** UPSs	940-0024C 940-0023B
2 **serial port adapters**	Grey 9-pin male to 25-pin female Black 9-pin male to 25-pin male	940-00117A 940-0029A
Installation Guide, User's Guide, Release Notes	All in PDF format on the CD-ROM.	-
Instruction Sheet	2-page hardcopy included with CD-ROM	990-0313B

Please see also **Further Information on the Generic Package**.

HP-UX Package

Table 2: HP-UX package AP9005 (version 4.2.3)

Item	Usage	APC Part Number
CD-ROM named "v4.2.3 for HP-UX"	For the Series 700/800 HP-UX for versions: 10.0, 10.01, 10,10, 10.20, 10.30, 11.0	
Null modem adaptor	When using an MUX board, the null modem adapter may be needed to establish UPS communications.	940-0048A
MUX cable	Connects an MUX serial port box to the UPS.	940-0052A
¼" **tape** format available on request	An alternative to the CD-ROM, it covers all PowerChute *plus* UNIX code, including HP-UX.	AP9004-T
Two 9-pin **serial interface cables**	One black cable for **smart signaling** UPSs One gray cable for **simple signaling** UPSs	940-0024C 940-0023B
2 **serial port adapters**	Grey 9-pin male to 25-pin female Black 9-pin male to 25-pin male	940-00117A 940-0029A
Installation Guide, User's Guide, Release Notes	All in PDF format on the CD-ROM. The User's Guide is also available in HTML format.	-

Please see also **HP-UX** for notes on installing.

SGI UNIX Package

Table 3: SGI UNIX package AP9008 (version 4.2.3)

Item	Usage	APC Part Number
CD-ROM named "v4.2.3 for SGI Irix"	This installs *smart signalling only* for the following Irix versions: 6.0, 6.01, 6.1, 6.2, 6.3, 6.4, 6.5	
¼" **tape** format available on request	An alternative to the CD-ROM, it covers all PowerChute *plus* UNIX code, including SGI Irix.	AP9004-T
Serial interface cable	Used for smart signalling only	940-0049A
Serial port adapter	9- to 8-pin Mini-DIN	-
Installation Guide, User's Guide, Release Notes	All in PDF format on the CD-ROM. The User's Guide is also available in HTML format.	-

Further Information on the Generic Package

Two subsections below discuss further relevant information on the generic package, AP9004: namely the different versions of PowerChute *plus* available and a guide to the directories on the CD-ROM.

Versions of PowerChute *plus* for UNIX Operating Systems

On the generic package only, AP9004, different flavors of UNIX are catered for by three different versions of PowerChute *plus* available. The table below specifies which version will be installed for the respective UNIX operating systems.

PowerChute *plus* Version Number	UNIX Operating System
4.2.2	SCO UNIX SCO Open Server Solaris x86 for Intel SunOS UnixWare NCR UNIX (AT&T UNIX) Olivetti UNIX SINIX R/M Unisys UNIX
4.2.2.1	Digital UNIX
*4.2.3	Solaris for SPARC AIX 3.x–4.x
*4.2.4	SCO UnixWare 7

*4.2.3 and 4.2.4 incorporates Year 2000 fixes and Symmetra *Power Array* support.

Directories on the Generic CD-ROM

The CD-ROM for the generic package, AP9004, has different directories set up for the different UNIX operating systems: Solaris, SCO, etc. You *must* install from the directory specific to your own UNIX system. Please see **Step-by-Step Installation for All UNIX Operating Systems** for full instructions on installing.

The full list of directories for the AP9004 CD-ROM is contained in the table below:

Directory	Contents
Documents	User's Guide, Installation Guide, Release Notes in both PDF and PostScript formats
SCO	PowerChute *plus* for SCO Unix/Open Server
SCO UNIXWARE 7	" SCO UnixWare 7.0.0–7.0.1
SOLARIS	" Solaris for SPARC
SOLARIS X86	" Solaris x86 for Intel
SUNOS	" SunOS

AIX3	"	IBM AIX RS/6000 3.x
AIX4	"	IBM AIX RS/6000 4.x
UNIXWARE 2x	"	UnixWare 2.x
NCR	"	NCR UNIX (AT&T UNIX)
OLIVETTI	"	Olivetti UNIX SVR4
SINIX	"	SINIX/RM
UNISYS	"	Unisys UNIX
DIGITAL	"	Digital UNIX (DEC OSF/1)

Tips for Installing PowerChute *plus*

- PowerChute *plus* must be installed by the system administrator or someone with root privileges.
- If /usr is a mounted file system, a different directory — such as /etc — must be specified for installation.
- If you are upgrading from a previous version of PowerChute *plus*, it is necessary *to remove the previous version* from your system completely. See the **Removing PowerChute plus** section at the end of this guide for more details.

Terminology Used in this Guide

For help on understanding the terms and jargon used in this manual please refer to the **Glossary** at the end of this guide.

Online Help

PowerChute *plus* does not currently provide on-line help with these UNIX platforms: SCO UNIX, SCO Open Server, UnixWare, SCO UnixWare 7, IBM AIX 3.2.x, and Digital UNIX.

System Requirements of PowerChute *plus*

- An RS-232 serial port dedicated to the UPS.
- A UPS manufactured by American Power Conversion. (PowerChute *plus* cannot communicate with a UPS not manufactured by APC).
- One of the operating systems and version numbers mentioned in any of the **Generic Package**, **HP-UX Package**, or **SGI UNIX Package** sections of this guide.

Notes:
PowerChute plus supports, but does not require, a mouse.

Only users with Smart-UPS, Matrix-UPS, or Symmetra Power Array systems are able to access the full functionality of PowerChute plus through smart signalling.

TCP/IP and PowerChute *plus*

For all supported UNIX platforms, except SunOS version 4.1.3 or 4.1.4, PowerChute *plus* versions 4.2.2 and 4.2.3 remove the requirement that TCP/IP be installed on your system. However, if you want to monitor other workstations, you still need TCP/IP installed.

If you do use TCP/IP, you must create a user account called **pwrchute**. (PowerChute *plus* requires no special location for the home directory of the pwrchute user account.) PowerChute *plus* then requires you to use the password of the pwrchute user account to access the Main Screen of the user interface module.

Installation Notes on different UNIX Operating Systems

Please see **Directories on the Generic CD-ROM** for information relevant to many operating systems.

HP-UX

On the installation CD-ROM for PowerChute *plus* for HP-UX, you must use the files designed for the version of HP-UX you are running. If you are running HP-UX version 10.x or 11.0, install PowerChute *plus* from the directory HPUX10, and if you are running HP-UX 9.x, install PowerChute *plus* from the directory HPUX9.

On the **series 700** workstation, PowerChute *plus* supports both smart and simple signaling. On the **series 800** workstation, it only supports smart signaling, as found in the Smart-UPS and Matrix series UPSs. Note that PowerChute *plus* 4.2.x does not support the Hewlett-Packard 300/400 series.

PowerChute *plus* supports the **X-Window** graphic user interface up to version 10.20.

You can use an external **multiplexed serial port box** to provide serial ports on the series 800 workstations. You should connect this directly to an internal system serial card using the MUX (multiplexed) cable provided. The device names of these serial ports usually depends on the MUX box to which the UPS is connected. Please see your HP-UX manual for the correct names.

For example: On MUX0, the device name to use with a Smart-UPS would be "/dev/tty0px" where "x" is the actual port on the MUX box.

When using an MUX board, the supplied **null modem adapter** may be needed. If you cannot establish UPS communications, use the adapter to connect the 940-0024C cable to your MUX board.

SGI Irix

For SGI Irix, PowerChute *plus* only supports the smart signaling found in the Smart-UPS, Matrix-UPS, and Symmetra *Power Array*.

Sun E10000

In order to ensure that a Sun E10000 machine is powered down after PowerChute *plus* has shutdown the system, it is necessary to run a command file script which executes the **power** command.

SunOS

On SunOS Version 4.1.3, PowerChute requires that the **vmunix** kernel has **IPC** installed to work properly. Many of the desktop SPARC systems are shipped from the factory with a smaller default kernel that does not include IPC. In this case, you must install IPC and rebuild your kernel.

There is no OpenWindows support for SunOS 4.x.

SunOS version 4.1.3 or 4.1.4 require that TCP/IP be installed. Please see **TCP/IP and PowerChute plus**.

Solaris x86

On Solaris x86 v2.x, **COM2** does not come installed by default. To activate it, the COM2 port driver /kernel/drv/asy.conf must be modified at IRQ3. Follow these steps:

1. Since the default IRQ of the ethernet port is IRQ3, the ethernet driver (/kernel/drv/smc.conf) must be moved from IRQ3 to an unused IRQ.

   Do this by commenting out the lines marked default.

2. Choose one of the provided alternative ethernet drivers that does not use interrupt=0x2f80.

3. Run drvconfig to configure the devices and then run devlinks to create the links in the /dev directory.

Note: There is no OpenWindows support for Solaris x86. However, it is available for Solaris 2.x for SPARC.

Unisys, NCR, Olivetti, SINIX

A shared library, "/opt/LPI/liblpi.so.2", is installed during the PowerChute *plus* installation. This file is used by the PowerChute *plus* program and must be present for the PowerChute *plus* character-based application to work properly.

NCR (AT&T UNIX)

PowerChute *plus* asks the following question during PowerChute *plus* installation:

> Do you wish support for run level 1? [y, n]

If you answer "y" (yes), your UPS provides protection in single-user mode, but you cannot monitor other workstations running PowerChute *plus* via TCP/IP. If you answer "n" (no), you are then asked the following question:

> Do you currently have TCP/IP installed? [y,n,q]

Answering "y" (yes) to the TCP/IP question enables PowerChute *plus* to monitor other hosts.

Please see **Unisys, NCR, Olivetti, SINIX** also.

Digital Unix (DEC OSF/1)

This only supports smart signalling. Also, PowerChute *plus* does not support character mode.

Step-by-Step Installation for All UNIX Operating Systems

Follow these steps to install PowerChute *plus*:

1. If the UPS hardware is not already set up, connect the power cable from the UPS to the computer (and the monitor if relevant), and then connect the UPS to the AC power source.
2. Turn on the UPS, boot-up the computer and UNIX system, and log into the UNIX system as the root user.
3. Note the type of UPS.

   The next few pages sometimes specify different instructions for **smart and simple signalling** UPSs. For a Smart-UPS, Matrix-UPS, or Symmetra *Power Array*, follow the instructions for smart signalling. For a Back-UPS, follow the instructions for simple signalling.
4. Select and configure the serial port to which the UPS will be connected, as detailed below.

   Note: PowerChute plus communicates with the UPS through a serial port on the UNIX workstation. In UNIX, each serial port device has a corresponding filename, called the device name. The device name of the serial port you intend to use with the UPS must exist and be configured before starting the UPS daemon.

   a. From the following table, **Serial Ports and Cables**, select the serial port that you intend to use to communicate with the UPS.

      Keep in mind that, with a **smart signaling UPS**, the serial port must be local, i.e., attached to the machine the UPS is servicing. Simply specifying the port name listed in the table should ensure that the port is correctly configured, except on an IBM AIX system, discussed below.

      On IBM AIX systems, with a smart signaling UPS, use the "SMIT" utility and make sure that under the "Stty runtime" and "Stty login" parameters, "clocal" appears in the list for the selected device name. Use cursor keys to scroll through the list. Make sure that the - (hyphen) is *not* present before the word "clocal".

      With a **simple signaling UPS**, the serial port must support full modem control, i.e., it must be set up as a modem port. Again, specifying the port name listed in the table should ensure that the port is correctly configured, except on an IBM AIX system.

      On IBM AIX Systems, with a simple signaling UPS, use the "SMIT" utility and make sure that under "Stty runtime" and "Stty login" parameters, "-clocal" appears in the list for the selected device name (use cursor keys to scroll through list). Make sure that the - (hyphen) is present before the word "clocal".

Serial Ports and Cables

UPS Type	Smart Signalling UPS Black Cable - #940-0024C		Simple Signalling UPS Gray Cable - #940-0023A	
	Local Control		Modem Control	
	Port #1	Port #2	Port #1	Port #2
HP-UX	/dev/tty00	/dev/tty01	/dev/ttyd00	/dev/ttyd01
Interactive	/dev/tty00	/dev/tty01	/dev/ttyd0	/dev/ttyd1
IBM AIX	/dev/tty0	/dev/tty1	/dev/tty0	/dev/tty1
NCR	/dev/term/00	/dev/term/01	/dev/term/00	/dev/term/01
SCO UNIX/Open Server	/dev/tty1a	/dev/tty2a	/dev/tty1A	/dev/tty2A
SunOS and Solaris for SPARC	/dev/ttya	/dev/ttyb	/dev/ttya	/dev/ttyb
Solaris for Intel x86	/dev/tty00	/dev/tty01	/dev/tty00	/dev/tty01
UnixWare	/dev/tty00s	/dev/tty01s	/dev/tty00	/dev/tty01
SCO UnixWare 7	/dev/term/00t	/dev/term/01t	/dev/term/00m	/dev/term/01m
Olivetti	/dev/tty00s	/dev/tty01s	/dev/tty00h	/dev/tty01h
Unisys	/dev/tty00s	/dev/tty01s	/dev/tty00h	/dev/tty01h
SINIX/RM	/dev/term/ser0	/dev/term/ser1	/dev/term/ser0	/dev/term/ser1
DEC OSF/1	/dev/tty00	/dev/tty01	Not supported	Not supported
	Smart Signalling UPS Cable - #940-0049A		Simple Signalling UPS Not Supported	
SGI Irix	/dev/ttyd1	/dev/ttyd2	Not supported	Not supported

b. Disable the serial port for logins.

PowerChute *plus* requires complete control of the serial port. No processes, including gettys, are allowed to access the port.

To disable logins, consult the table, Disabling Logins, following:

Disabling Logins

Operating Platform	You must...	Further Notes
IBM AIX	Use SMIT utility	Set Enable Logins to disable
HP-UX SGI Irix OSF/1	Edit the /etc/inittab and /etc/conf/cf.d/init.base files	Use a text editor (such as vi) to edit these files so that the port you wish to use is set to “off” rather than “respawn”. That is, to ensure it stays disabled for logins.
NCR Unisys SINIX/RM Olivetti UnixWare	Use the sysadm utility	Use the utility to verify via “ports” and “quick terminal setup” that the port you wish to use is not among the list of choices in the “remove terminal” menu. If it is, select the port and remove it.
SCO UnixWare 7	use scoadmin	Go to hardware and then serial manager. Double click on the desired port and set the radio button to outgoing only. This sets it to disabled. Choose OK.

SCO UNIX
SCO Open Server
	Use the disable command	Use the command with the following syntax:
		`disable <device name>`
		where devicename is the port you will use for PowerChute *plus*. For example, if your port is tty1a, the command would be:
		`disable tty1a`

SunOS 4.1.3	Edit the /etc/ttytab file	Use a text editor (such as vi) to edit this file so that the port you wish to use is set to “off” rather than “respawn”.
Solaris 2.3 or higher on SPARC	Use admintool utility	Select Serial Port Management and disable the service on the port you wish to use.

Solaris 2.1 or 2.2 on SPARC or Intel	Use pmadm utility	Use the utility with the syntax:
		`pmadm -d -p pmtag -s svctag`
		where pmtag is the name of the port monitor and svctag is the port name associated with the port monitor service. For example, if you have a port monitor named “ttymon_mb” on the first internal serial port (service tag is /dev/term/a) the command would be
		`pmadm -d -p ttymon_mb -s a`
		Consult the “Adding and Maintaining Devices and Drivers Manual for x86” included with the operating system for further information.

5. If using **TCP/IP**, create a user account named `pwrchute` on your system:

   DON’T OMIT THIS STEP! The account is used to validate logins to the PowerChute *plus* User Interface and will be the default password required when you wish to enter the user interface. This user does not require root privileges. (Please see your operating system manual for information on adding users).

6. Select the appropriate cable using the table **Serial Ports and Cables** and install it.

The cable connects directly to the UPS; no adapters should be used between the cable and the connector on the UPS. However, use of a 9 to 25 pin (or 9 Pin-8 Mini-DIN on SGI) adapter may be necessary. *Do not use standard serial cables.*

7. Install the PowerChute *plus* files on your system:

   a. Set up the installation medium.

      Installing from CD-ROM:

      The CD-ROM must be mounted on your UNIX system in order to install PowerChute *plus*. Then change to the directory on which you mounted the CD-ROM. For the generic CD-ROM, you then change to the specific directory for your UNIX operating system (see **Directories on the Generic CD-ROM** and **HP-UX**). Proceed to step 7b below.

      Installing from Tape:

      Please refer to the section **Addendum on Installing from Tape** and then proceed to step 7b directly below.

   b. Execute the INSTALL command by typing ./INSTALL.

      This starts the PowerChute installation script. Through a series of prompts, the installation script enables you to configure PowerChute *plus* for your system. The questions asked are shown below.

      Please note that any references to Symmetra Power Array below actually only display with a version 4.2.3 and 4.2.4 install script, never with a 4.2.2 install script.

   c. Type 1, 2, or 3 to select the correct media type that you are installing from at the following prompt:

      ```
      1) CD-ROM
      2) Floppy
      3) Tape

      Select the media type from which you will install
      ```

      If you are installing from a CD-ROM, you will be further prompted to enter the complete path on which the CD is mounted, with your current working directory as the default.

      If you are installing from either tape or floppy disk, you will be subsequently asked for the raw device name of the drive. Refer to the table **Common Raw Device Names**.

   d. You have a choice of seeing a preview of the installation prompts:

      ```
      Would you like to see an overview of the installation? [y/n,q]
      ```

      If you choose y, pressing the Spacebar will cause the display of prompts to advance a page at a time. Then, at the end of the preview, press the Enter key to continue the installation process.

   e. PowerChute *plus* for UNIX consists of two modules, as discussed in the User's Guide. You could install just the daemon module on many workstations (saving hard drive space) and use a single workstation for the UPS interface monitoring. If you are on a stand-alone workstation, i.e. it's not connected to a network, you need to install both modules of PowerChute *plus*.

      ```
      1) User Interface Module Only
      2) Daemon Module Required for UPS Monitoring Only
      3) Both the User Interface and Daemon Modules

      Which Parts of PowerChute Plus do you wish to install?[?]
      ```

      Type 1, 2, or 3.

   f. Next, you specify the type of UPS by again typing 1, 2, 3, or 4. (Note that 4 only displays for a version 4.2.3 install script, never with a 4.2.4):

```
1) Matrix line of UPS
2) SmartUps line of UPS
3) BackUps line of UPS
4) Symmetra Power Array

Which APC Hardware will PowerChute Plus for UNIX be running with?
```

g. After specifying the hardware, you are asked about a peripheral. This question will appear only if you are using either a Matrix-UPS, a Smart-UPS, or a Symmetra *Power Array*:

```
Do you currently have a Measure-UPS attached to the UPS [y/n,q]
```

The Measure-UPS monitors ambient room conditions.

h. Now you specify your UNIX operating system, again by choosing a number from the following (note that option 6 also covers SCO Open Server):

```
1) Solaris 2.X for SPARC
2) SunOS 4.X (Solaris 1.X) for SPARC
3) Solaris 2.X for Intel
4) AIX for IBM RS6000
5) HP-UX 9.X/10.x (700/800 Series)
6) SCO UNIX/UnixWare 7
7) NCR (AT&T UNIX)
8) SGI Irix
9) UnixWare
10) Olivetti UNIX Sys V Rel.4.0
11) Siemens UNIX (RISC)
12) Unisys UNIX Sys V Rel.4.0
13) DEC OSF/1

On which Operating System are you installing?[?]
```

i. You have to indicate whether you use TCP/IP (used by PowerChute to enable monitoring of other hosts):

```
Do you currently have TCP/IP installed? [y/n,q]
```

All non-network computer users should answer “n” to this question. Answering no will mean that you cannot use your current workstation to monitor other workstations.

j. Next, specify your monitor color setup (f you previously selected "2" at 7e, you will not see this color scheme question):

```
1) Use Default Color Scheme
2) Use Monochrome Color Scheme

Which color scheme do you wish to use [1]?
```

This affects only the X-Window version of PowerChute *plus.*

k. Specify a serial port device:

```
1) /dev/ttyXX
2) /dev/ttyXX
3) Other

Which serial device will be dedicated to PowerChute Plus for UNIX[?]
```

Select the serial port that will be used to communicate with your UPS. (XX is replaced with the standard serial port name for your operating environment). You should have the black or grey cable number attached to ttyXX.

l. If you selected Other at 7k above, you will see the following prompt:

```
Enter the full pathname of serial device [?]
```

You must enter the device name for the serial port, including the path, for the port that you wish to use. See also **Running on Multi-Port Boards** at the end of this guide.

m. If the installation script finds an existing version of PowerChute *plus*, it prompts whether you wish to remove it. It is *required* that any 3.x version and *strongly* recommended that any 4.x version be removed before installing a new copy of the software.

Type y to remove.

n. Next, you specify where you wish to install:

```
Where do you wish to install PowerChute Plus for Unix?

[/usr/lib/powerchute]
```

Press Enter to select the default or type the full path name of the directory.

If /usr is a separately mounted file system, you will need to specify a different directory, such as /etc. Files in the PowerChute *plus* directory need to be available to the operating system after all other file systems have been unmounted.

o. The next two questions, with explanatory text, display only with an installation of SCO UnixWare 7:

```
------------------------------------------------------------------
Command files may be executed with root privileges or with the
privileges you assign to the pwrchute account (allowing you to
customize command file execution according to your system
requirements).
------------------------------------------------------------------

Do you want to execute command files as root [y/n, q]

------------------------------------------------------------------
E-mail may be sent with root privileges or with the privileges you
assign to the pwrchute account
------------------------------------------------------------------

Do you want to execute command files as root [y/n, q]
```

p. The installation script now presents a screen showing the configuration choices you made. Following is an example screen from an HP-UX 9.x installation on the first internal serial port for a Smart-UPS:

```
PRODUCT                          : PowerChute Plus for Unix
INSTALL USER INTERFACE           : TRUE
INSTALL DAEMON                   : TRUE
OPERATING SYSTEM                 : SCO Unixware 7
INSTALL PATH                     : /usr/lib/powerchute
PATH TO MOUNTED CD-ROM           : dev/cdrom/SCO
DEDICATED TTY                    : /dev/term/00t
UPS TYPE                         : Smart-UPS
MEASURE-UPS INSTALLED            : FALSE
PREVIOUS VERSION FOUND           : TRUE
REMOVE PREVIOUS VERSION          : TRUE
INSTALLING AS ROOT               : TRUE
TCP/IP INSTALLED                 : TRUE
RUN COMMAND FILES AS ROOM        : TRUE
SEND EMAIL AS ROOT               : TRUE

Are the above selections correct ? [y/n, q]
```

If the selections shown are incorrect, select n. You will then need to run the install script again to install PowerChute *plus.* If you wish not to install PowerChute *plus*, select q.

If the selections shown are correct, select y. After asking for another confirmation of the removal (if pertinent), the install script then creates the install path, verifies the communications port and that the UPS is communicating, copies the PowerChute *plus* files to the specified path, and updates the appropriate system files.

q. For 4.2.3 and 4.2.4 versions, it prompts:

```
Do you wish to increment the UpsTurnOffDelay to its next highest value
(180) now? [y/n/q]
```

Type y. This allows the operating system to shut down completely.

The installation informs you of any errors. Otherwise it gives a message "`Installation complete`".

8. Reboot your system to start the PowerChute daemon.

   Alternatively, you can start the daemon by typing `./upsd`.

9. To start the User Interface:

   a. Type `powerchute` (for character-based platforms) from the PowerChute *plus* installation directory.

   Type `xpowerchute` (for X Windows-based platforms) from the PowerChute *plus* installation directory and then type the password, default is "pwrchute".

Addendum on Installing from Tape

The following instructions belong at step 7a in the **Step-by-Step Installation for All UNIX Operating Systems** section. They were moved here for simplicity, since most people install from CD-ROM. If you want to install from tape, you should follow steps 1 to 7 in that section, read and follow the instructions below, and then return to step 7b.

The tape has the same directory structure as the CD-ROM (see **Directories on the Generic CD-ROM**). The file named INSTALL in each operating system directory must be copied onto your hard drive. Copy to your current directory by using the "tar" command*:*

```
tar xvf <device name> /X/INSTALL
```

where <device name> is the name of the device in which the PowerChute *plus* media is inserted and X is the operating system directory you want to install from. Note that the specified device name must be the "raw" floppy device name.

For example, if PowerChute plus is being installed for SCO Unix and the PowerChute plus media is inserted in the device named "/dev/rfd0", the command would be

```
tar xvf /dev/rfd0 /SCO/INSTALL
```

Use the following table for common raw device names (NA stands for not applicable):

Common Raw Device Names

Operating System	Floppy	Tape
Solaris 2.x for SPARC	NA	NA
SunOS 4.x (Solaris 1.x for SPARC)	/dev/rfd0	NA
Solaris 2.x for Intel	“	NA
AIX for IBM RS6000	“	NA
HP-UX 9.x/10.x (700/800 series)	/dev/rfloppy/c201d0s0	/dev/rmt/0m
SCO UNIX/Open Server	/dev/rfd0135ds18	NA
NCR (AT&T UNIX)	/dev/fd0135ds18	NA
SGI Irix	NA	/dev/tape
UnixWare	/dev/rfd0135ds18	NA
Olivetti	“	NA
Unisys	“	NA
SINIX R/M	/dev/at/flp/rf0t	NA
Digital UNIX (DEC OSF/1	NA	NA

Changes Made to your System on Installation

PowerChute *plus* makes the following changes to your system during installation:

- Creates the directory to install the PowerChute *plus* files, if it doesn't already exist.
- Copies the Powerchute *plus* files to your system
- Modifies or creates the following start-up and shutdown files:

Operating System	Startup file	Shutdown file
Solaris for SPARC	creates /etc/rc2.d/S98upsd	modifies /sbin/rc0
SunOS	modifies /etc/rc.local creates /etc/rc.APCupsd	copies /etc/halt to /etc/halt.exe creates /etc/halt
Solaris for Intel	creates /etc/rc2.d/S98upsd	modifies /sbin/rc0
IBM AIX	modifies /etc/inittab creates /etc/rc.APCupsd	modifies /etc/shutdown
HP-UX	creates /etc/rc.APCupsd modifies /etc/inittab	copies /etc/reboot to /etc/reboot.bak creates /etc/reboot
SCO UNIX/Open Server	creates /etc/rc.d/7/upsd.boot creates /etc/rc.APCupsd	modifies /etc/rc0
NCR	creates /etc/rc2.d/S98upsd	modifies /etc/rc0.d/rc98upsd
SGI	creates /etc/rc2.d/S93upsd	modifies /sbin/rc0
UnixWare	creates /etc/rc2.d/S98upsd	"
SCO UnixWare 7	"	"
Olivetti	"	"
Siemens Unix	"	"
Unisys	"	"
Digital UNIX (DEC OSF/1)	creates /sbin/rc3.d/S98upsd	"

Removing PowerChute *plus*

If you are upgrading your version of PowerChute *plus*, it is important that you remove your previous installation of PowerChute *plus* completely. You can do this manually as shown below or let the installation script do it automatically as detailed in **Step-by-Step Installation for All UNIX Operating Systems**.

1. Change to the /usr/lib/powerchute directory.
2. Execute the script Remove.sh

This script takes care of:

- removing the PowerChute *plus* files
- stopping the UPS daemon
- removing the changes made to the system startup and shutdown files.

Running on Multi-Port Boards

It is possible to run PowerChute *plus* through a multi-port board with both the smart and simple types of APC UPS systems. Since multi-port boards require specific drivers, the drivers for these boards must be activated prior to the startup of the PowerChute *plus* UPS daemon, `upsd`.

Multi-port boards come in different configurations, as detailed in the sections below:

Boards with DB-25 and DB-9 pin Serial Ports

With these two types of serial ports, you can connect the UPS cable directly to the specified port (using the adapter provided if necessary).

Boards with RJ-45 pin Serial Ports

Because the pins on RJ-45 serial ports differ between manufacturers, a special adapter — DB-9 to RJ-45 — is needed. The table below identifies which pins on the computer end of the DB-9 cable have to be matched up to the RJ-45 multi-port board pin out.

This adapter must be used in conjunction with the custom UPS cable provided!

CPU end of Custom UPS cable	RJ-45 Pin out (Standard DTE device)
connect DCD (pin 1)	to DCD of RJ-45
connect RXD (pin 2)	to RXD of RJ-45
connect TXD (pin 3)	to TXD of RJ-45
connect DTR (pin 4)	to DTR of RJ-45
connect GND (pin 5)	to GND of RJ-45

Notes:
*Some multi-port serial port boards do not support full **modem** control. This means that simple signaling is not supported on these boards.*

If you are having trouble, APC will work you through your installation configuration. However, there is no guarantee that we will be able to make PowerChute plus work on all manufacturers multi-port boards (especially those not supported by your UNIX operating system).

Testing your Installation

To verify that PowerChute *plus* is working correctly, perform the two tests described in the sections named below. Go through the steps when no critical applications are running on your system.

- **Test One**
- **Test Two**

After performing the second test, go to **Resetting to Normal Configuration** to put things back to the default configuration.

Test One

1. Start PowerChute *plus* (see the **PowerChute *plus* User's Guide**).
2. Disconnect the AC power cord from the electrical outlet.

   After a brief delay, i.e. the initial message delay, PowerChute *plus* should notify the host computer and attached workstations that a power failure has occurred.
3. Plug the power cord back into the electrical outlet.

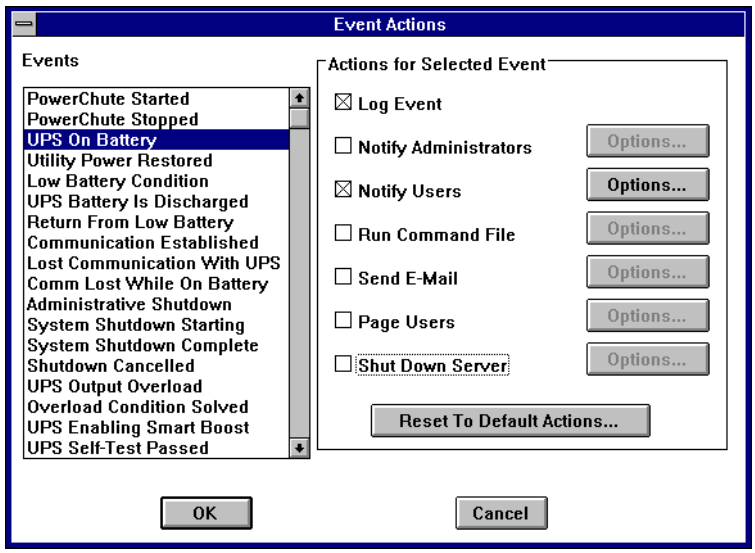
   PowerChute *plus* should notify the host computer and attached workstations that power has been restored to the system.

Test Two

1. On the **Configuration** menu of PowerChute *plus*, select the **Monitoring Preferences...** option. In the dialog box, select `Run Time Remaining` in the Bar Graph Type drop-down list box and then press OK.

   This configuration enables you to monitor the runtime remaining when you perform Step 4 of this procedure.
2. From the **Configuration** menu, select the **Event Actions** option. In the Event list box on the left side of the dialog box, highlight the **UPS on Battery** event. Uncheck the **Shut Down Server** action check box for this event.

   This ensures that the UPS runs on battery until a low battery condition is reached and only then shuts down your system. Your completed configuration should match the following sample dialog box.



Click **OK** to save your changes.

3. Unplug the AC power cord from the electrical outlet again.

   PowerChute *plus* again should notify the host computer and attached workstations that a power failure has been detected.

4. Let the UPS system run on battery until the battery runs low, causing a **Low Battery Condition** event to be generated and logged.

   As the battery discharges, you can use the **Run Time** bar graph on the Main Screen to monitor the remaining UPS on-battery runtime.

   The host computer should send a message to the workstations notifying them of an impending shutdown. After a short delay, PowerChute *plus* should shut down the system and then put the UPS in sleep mode. In sleep mode, the UPS front panel lights blink continuously (Matrix-UPS and Symmetra *Power Array* models do not have front-panel lights).

5. Plug the UPS power cord back into the electrical outlet.

   After a delay, the UPS should turn back on and reboot the system.

6. Check the Event Log file (**powerchute.log**) in the PowerChute *plus* installation directory to ensure that the **UPS on Battery** and **Low Battery Condition** events were recorded.

Now go to **Resetting to Normal Configuration** to put things back to the default configuration.

Resetting to Normal Configuration

After performing **Test Two**, reset your configuration back to normal, as follows:

1. First, reset the **UPS On Battery** event to its default:
   a. From the **Configuration** menu, select the **Event Actions...** option.
   b. In the dialog box, highlight the **UPS On Battery** event.
   c. Click on the **Reset To Default Actions...** button.
   d. In response to the question `Do you want to revert the actions for THIS EVENT or ALL EVENTS?`, click on the **This One** button.
   e. Click **OK** to exit and save your changes.
2. Reset your bar graph preferences:
   a. From the **Configuration** Menu, select the **Monitoring Preferences...** option
   b. In the dialog box, reset your bar graph type in the **Bar Graph Type** drop-down to `Battery Capacity`.

If the installation is not functioning properly, and you have checked your cable connections, contact Technical Support, as listed in the User's Guide.

Glossary

CPIO

Copy in/out: a UNIX utility that copies files in or out of file archives.

Daemon Module

The portion of PowerChute *plus* that runs in the background. See the **User's Guide** for more details.

DB-25 and DB-9

DB-25 is the standard 25-pin "D-type" connector used for RS-232 serial communication. The common alternative used is DB-9, especially on personal computers; it has a standard 9-pin connector.

DIN

DIN is an acronym for **D**eutsche **I**ndustri**n**orm, the standards-setting organization for Germany. A DIN connector is a connector that conforms to one of the many standards defined by DIN.

DTE

Data Terminal Equipment, a device that controls data flowing to or from a computer. It's most often used in reference to serial communications defined by the RS-232C standard.

/etc

Part of the UNIX root file system, holding critical system files.

getty

This UNIX utility sets terminal type, modes, speed and line for a serial port, and is used in the login process.

Hardware Flow Control

A process that ensures that a device does not send data faster than the receiver can process it. Uses the CTS (clear to send) and RTS (request to send) pins to do this.

HP 9000

Generic term covering 700 and 800 series workstations among others.

IPC or Interprocess communication

Exchange of data between one process and another, either within the same computer or over a network. IPC enables one application to control another application, and for several applications to share the same data without interfering with one another. IPC is required in all multi-processing systems.

IRQ

Interrupt request lines: a hardware line over which devices can send interrupt signals to a microprocessor. When you add a new device to a PC, you often need to set its IRQ number in order to specify the particular interrupt line.

Kernel

The central module of an operating system. It is the part of the operating system that loads first, and it remains in main memory. Typically, the kernel is responsible for memory management, process and task management, and disk management.

MUX or multiplexor

A communications device that combines or multiplexes several signals for transmission over a single medium. A demultiplexor in turn separates multiplexed signals from a transmission line.

Motif

The standard graphical user interface and window manager from OSF (Open Software Fundation, created by nine major computer vendors), running on the X-Window System.

Open Windows

A graphical user interface for Sun workstations which handles X Window System protocols.

PDF

Portable Document Format: a file format developed by Adobe Systems that works across different operating systems. To view a file in PDF format, you need Adobe Acrobat Reader, a free application distributed by Adobe Systems.

Pin

A male lead on a connector. The connector of a cable plugs into a port or interface to connect one device to another. Most connectors are either male (containing one or more exposed pins) or female (containing holes in which the male connector can be inserted).

RS-232

A UNIX standard for serial ports, specifying electrical characteristics of each signal wire and pin assignments on the traditional 25-pin serial connector.

RJ-45

Short for Registered Jack-45, an eight-wire connector used commonly to connect computers onto local-area networks (LAN), especially Ethernets. RJ-45 connectors look similar to the ubiquitous RJ-11 connectors used for connecting telephone equipment, but they are somewhat wider.

SCO

Santa Cruz Operation: a supplier of UNIX operating systems for Intel microprocessors, including the Xenix and Open Desktop.

Simple Signalling

PowerChute *plus* can control operation of the UPS used through smart signalling or simple signalling. The simple option gives less functionality and control and is the option available with the Back-UPS produced by APC. Please see the User's Guide for more information.

Smart Signalling

PowerChute *plus* can control operation of the UPS used through smart signalling or simple signalling. The smart option gives more functionality and control but is only available with the Smart-UPS, Matrix-UPS, or Symmetra *Power Array* types of UPS produced by APC. Please see the User's Guide for more information.

Software Flow Control

A process that controls the flow of information between applications.

SPARC

Scalable Processor Architecture, a family of RISC-based microprocessors developed by Sun Microsystems.

Symmetra *Power Array*

The Symmetra *Power Array* from APC is hardware for the mid-sized power protection industry. Working as a single unit composed of modular components, it provides redundancy, scalability, manageability, and serviceability.

TCP/IP

Transmission Control Protocol/Internet Protocol, the communications protocols used on the Internet. TCP/IP is built into the UNIX operating system and is used by the Internet, making it the standard for transmitting data over networks.

/usr

A UNIX file system where most standard programs are kept; it's almost always a separate filesystem.

vmunix

The UNIX kernel.

X-Window

The X-Window source code is the basis for almost all UNIX graphical interfaces, including Motif.

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