

User's Guide

APC Power Management Extensions for Windows 98

Version 1.0

User's Guide: APC Power Management Extensions for Windows 98

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APC Power Management Extensions for Windows 98

What is APC Power Management Extensions?

APC Power Management Extensions for Windows 98 is power management software that supplements the functionality provided by Windows 98.

Specifically it does the following.

- In the event of an **electrical power blackout**:
 - It can save open files for some MS Office applications
 - It shuts down the Windows 98 operating system
 - It shuts down your Uninterruptible Power Supply (UPS) machine
- It provides a **user interface** that displays UPS status data, and allows the user to set a low battery capacity for the UPS (below which the UPS actually shuts down).

The user interface is integrated with the Windows 98 power management functionality. It displays as an extra “page” on the **Power Management Properties** tabbed dialog (launched through both the Control Panel and the Windows 98 system tray—or systray—usually on the lower right of the screen).

Note:

a) Windows uses the following nomenclature for the dialog boxes that have several tabs: the dialog box is known as a tabbed dialog box, while the related group of fields that display when you click on an individual tab is called a page.

b) The monitoring of the UPS by the Power Management Extensions software is done in the background.

Notes on the Operation of Power Management Extensions

Bear these points in mind on the Power Management Extensions software operation:

- This software is designed to operate only under Windows 98.
- The software only interacts with the APC UPS that is physically attached—via the USB port—to the machine running the software.
- It is intended to run with Back-UPS Pro 350U and 500U machines, manufactured by APC.
- You can stop the background Power Management Extensions monitoring of the UPS and remove the icon from the system tray by uninstalling the software.
- The application is Y2K (Year 2000) compliant.

How to Install and Uninstall the Software

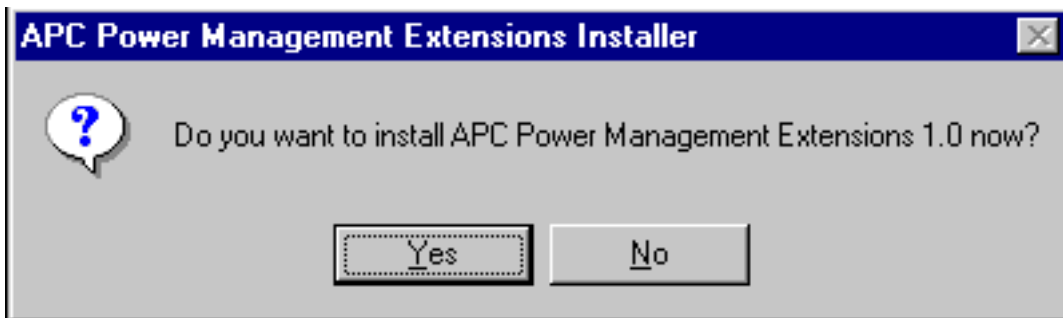
How to Install

Follow these steps to install the Power Management Extensions for Windows 98 software. Note that the software will only work with the Windows 98 operating system.

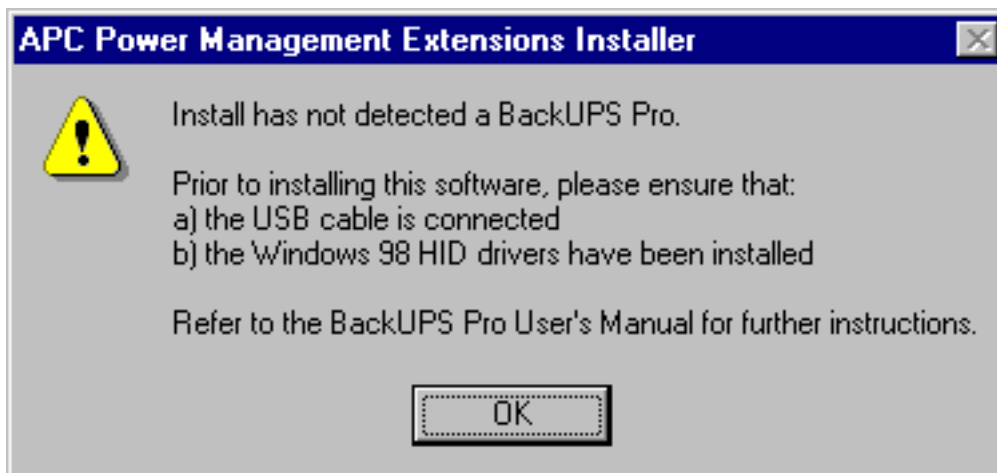
You should have already connected the Back-UPS Pro device to your computer before commencing to install the software. The *Back-UPS Pro 350/500 User's Manual* gives you details on how to do this. If you have trouble following the instructions there relating to the Add New Hardware Wizard dialog, please refer to [Appendix A: Installing the HID Drivers](#).

Note that if a previous version of the software resides on your system the install program will ask you to allow it to uninstall. This is detailed in the steps below.

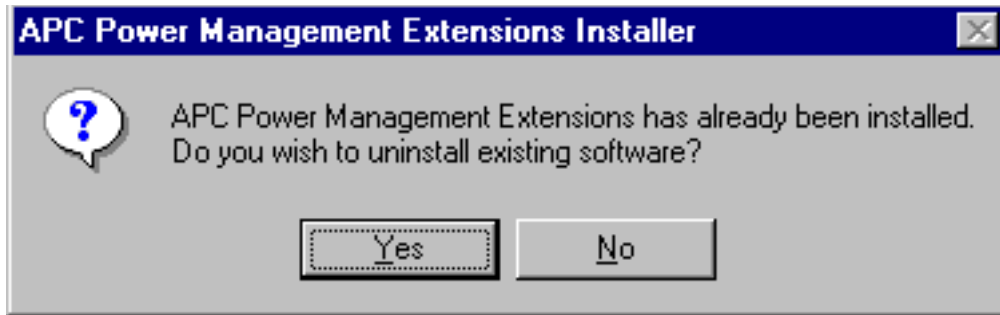
1. Place the Power Management Extensions for Windows 98 CD-ROM in the CD drive, usually d:\.
If your Windows 98 operating system has the "AutoRun" option switched on, the first install dialog displays automatically. Skip to step 3 if the dialog does display.
2. If the install dialog doesn't display, open Windows Explorer, right-click on the CD-ROM drive, and choose **AutoRun** from the options listed.
Alternatively, choose the Windows **Start** button, then the **Run** option, and type `d:\setup.exe` and press Enter (this assumes that d:\ is your CD-ROM drive).
3. The install program displays the dialog shown below. Choose **Yes** to continue.



4. If you see the message box below at this point, choose OK to exit the install and either refer to the *Back-UPS Pro 350/500 User's Manual* or [Appendix A: Installing the HID Drivers](#) in this guide.



5. If at this point you see this dialog below, you should choose Yes. Choosing No will abort the install (i.e. you can't install without removing a previous installation). You can uninstall manually as detailed in [How to Uninstall](#) below.



If you subsequently see a message box saying “Setup was unable to uninstall the existing version of APC Power Management Extension. Please restart Windows and try again.”, it means that the existing software could not be removed. Select the only button on the message box—the OK button—and then reboot your computer. Power Management Extensions will not start when the operating system comes back. You should then run the install software again: you will again be asked to uninstall but this time it will work as the software will not be running.

6. At the software license agreement dialog, read the text and choose the **Yes** button if you accept the agreement.
7. At the following dialog, you can specify an install directory or accept the default of **C:\Program Files\APC Applications\Power Management Extensions**.
To change the default directory, choose **Browse** and specify a directory in the displayed dialog box.
Choose **Next** to proceed.
8. The message “Copying program files...”, is displayed until setup finishes the installation.
Click the **Finish** button when it subsequently displays on another message box.

How to Uninstall

You manually uninstall Power Management Extensions for Windows 98 using Add/Remove Programs in the Control Panel. (The install program can do an uninstall automatically). Follow these steps to uninstall manually:

1. Choose **Start/Settings/Control Panel**, and double click on the **Add/Remove Programs** icon.
2. Highlight **APC Power Management Extensions 1.0** in the list of programs, and click on the **Add/Remove** button.
3. Confirm the uninstall at another dialog to proceed, and respond to other dialogs as appropriate.

If you see a message box saying “Setup was unable to uninstall the existing version of APC Power Management Extension. Please restart Windows and try again.”, it means that the existing software could not be removed. Select the only button on the message box—the OK button—and then reboot your computer. Power Management Extensions will not start when the operating system comes back. You should then run the install software again: you will again be asked to uninstall but this time it will work as the software will not be running.

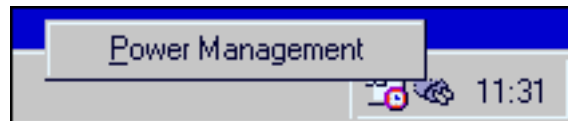
Uninstalling the software deletes registry entries.

Suspension of the Windows 98 Power Icon

Windows 98 has a power icon which it automatically displays in the system tray, usually located at the lower right of the screen beside the clock. On installation, APC Power Management Extensions replaces it with a similar icon, also in the system tray. The reason it does this is to avoid confusion.

You can “turn on” the Windows 98 power icon using these steps:

1. Display the **Power Management Properties** tabbed dialog in one of these ways:
 - By choosing **Start/Settings/Control Panel** and double clicking the **Power Management** icon.
 - Through the **system tray icon** provided by Power Management Extensions (shown at left below), displaying on the far right of the Windows taskbar. Either double click on this icon using the left mouse button OR right click on the icon and then left click on the **Power Management** menu option (shown at right below).



2. Click on the **Advanced** tab to display that “page”.
3. If it’s not checked, click the **Show power meter on taskbar** check box.
4. Choose either the **Apply** or **OK** button to display the Windows 98 power icon.

You can subsequently “turn off” the Windows 98 power icon using these steps:

1. Display the **Power Management Properties** tabbed dialog (see the steps above).
2. Click on the **Advanced** tab to display that page.
3. If it’s checked, click the **Show power meter on taskbar** check box to uncheck it.
4. Choose either the **Apply** or **OK** button to hide the Windows 98 power icon.

See [How to Access the User Interface](#) for more details.

Please see [APC System Tray Icon](#) for details on the Power Management Extensions software icon.

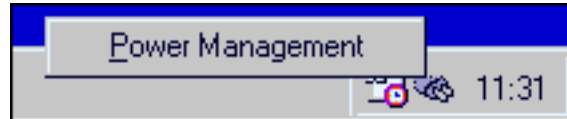
Note:

*The unchecking of this field is the only change that the install of Power Management Extensions makes to the **Advanced** page: the actual fields available on that page do not change.*

How to Access the User Interface

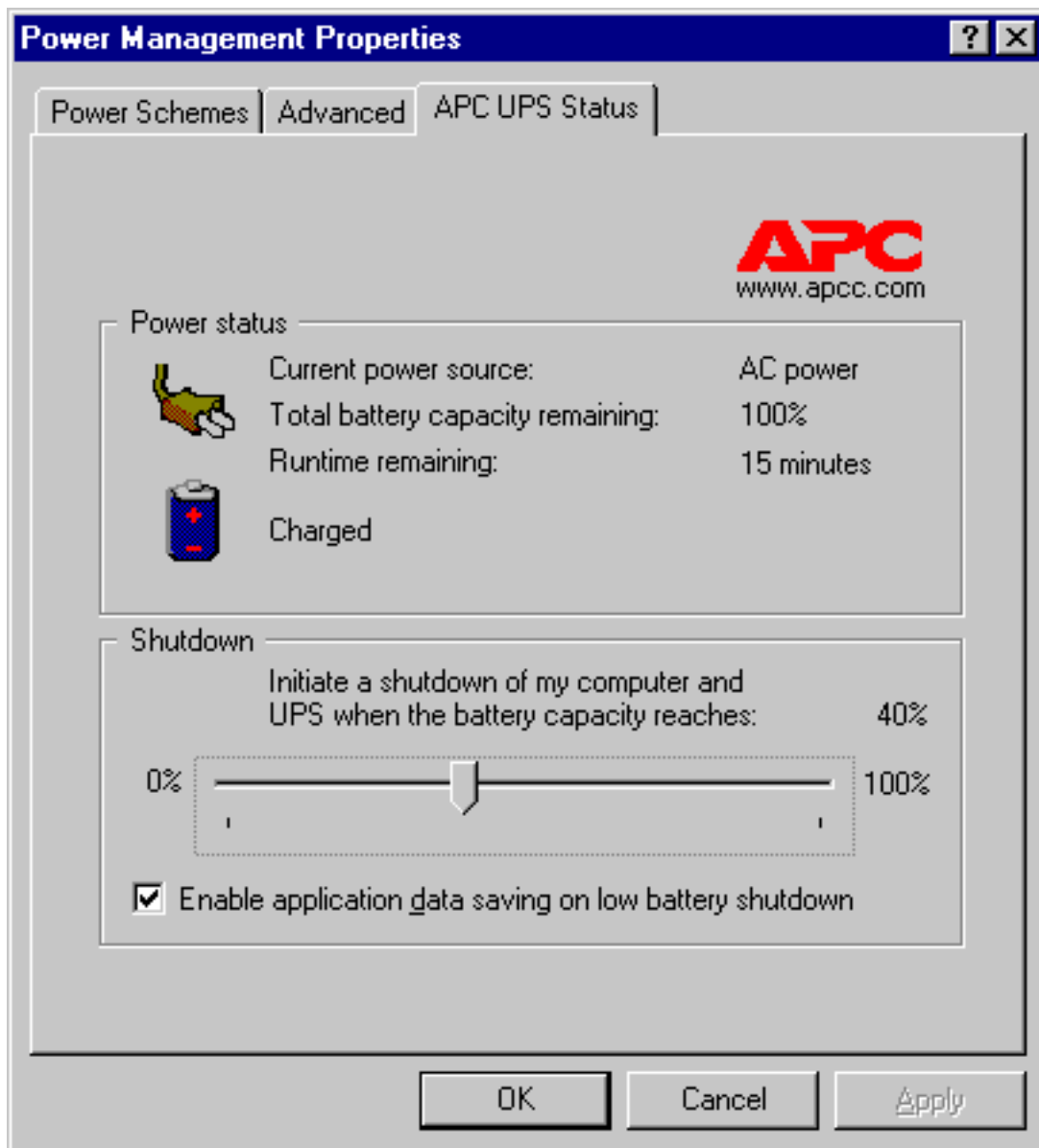
The APC Power Management Extensions for Windows 98 user interface displays as a page accessed through an extra tab—**APC UPS Status**—on the **Power Management Properties** tabbed dialog. This tabbed dialog handles power management functionality for Windows 98. Please access the user interface in these ways:

- Through the **system tray icon** provided by Power Management Extensions (shown at left below), displaying on the far right of the Windows taskbar. Either double click on this icon using the left mouse button OR right click on the icon and then left click on the **Power Management** menu option (shown at right below).



- By choosing **Start/Settings/Control Panel** and double clicking the **Power Management** icon.

Click on the **APC UPS Status** tab to see the Power Management Extensions software user interface, shown below.



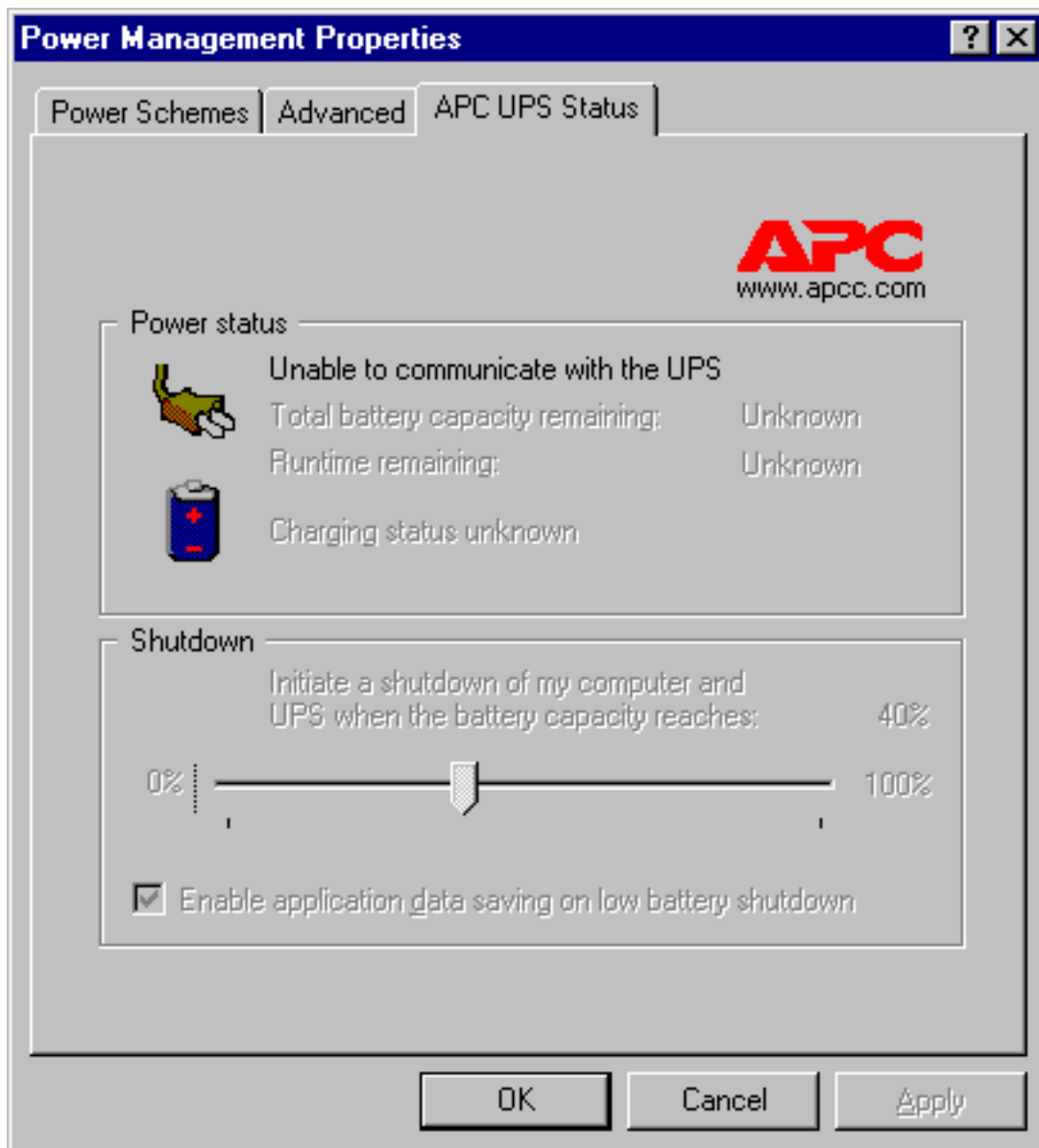
Power Management Extensions for Windows How to Access the User Interface

Note that the **Power Schemes** and **Advanced** tabs open Windows 98 pages: the look of these pages is not changed by the installation of Power Management Extensions. However one of the fields in the **Advanced** page—Show power meter on taskbar—is unchecked by the installation (see [Suspension of the Windows 98 Power Icon](#)).

The **APC UPS Status** tab *only* displays when Power Management Extensions is installed: its fields are discussed in [Settings in the APC UPS Status page](#).

Note:

If communication with the UPS is lost, the message “Unable to communicate with the UPS” displays on this page. In addition, all other fields are disabled (grayed out), as shown in the figure below.

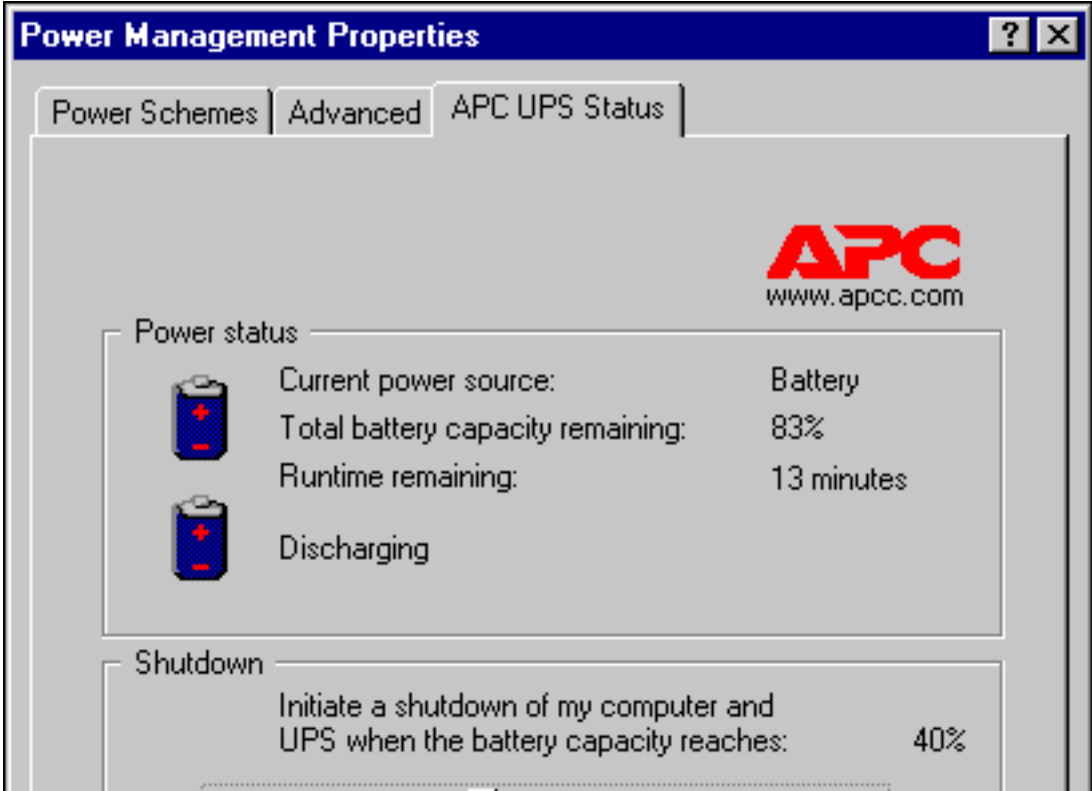


Settings in the APC UPS Status page

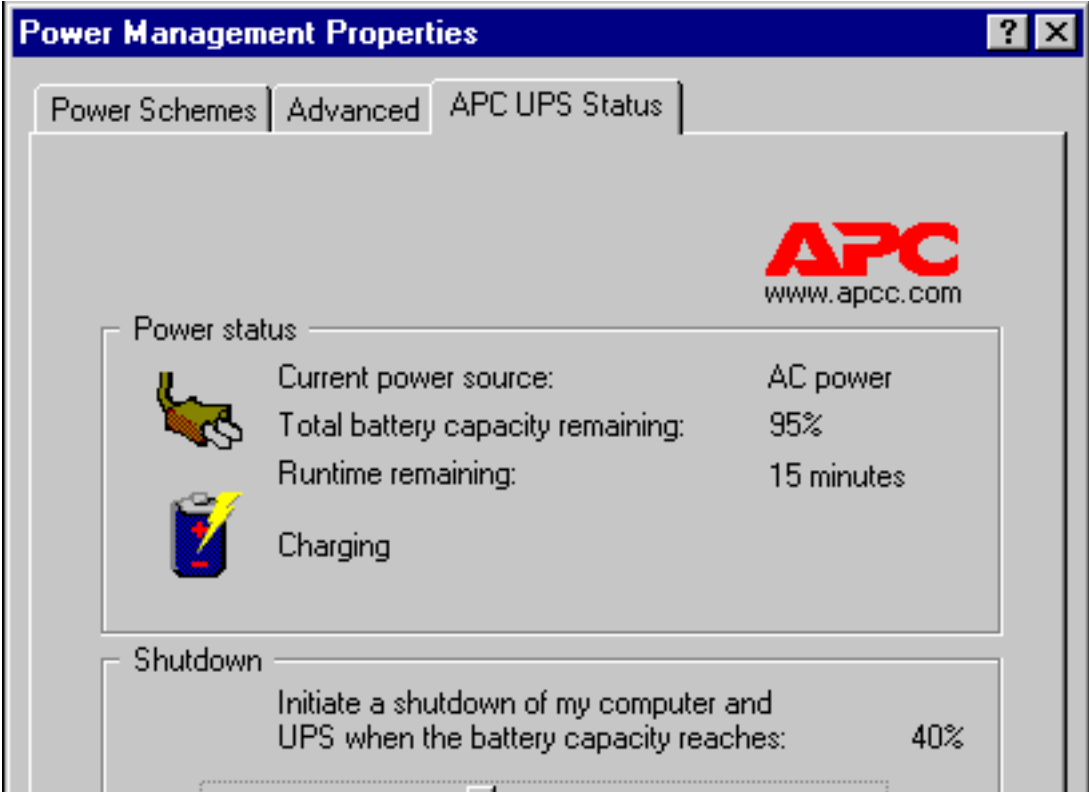
The Power Status section of the **APC UPS Status** page (shown in the previous two figures) on the **Power Management Properties** tabbed dialog displays information concerning the current state of your UPS operation. The Shutdown options at the bottom of the page enable you to configure the running of Power Management Extensions. The table below explains the options.

Label or Text	Description
APC www.apcc.com	The APC graphic at top right provides a quick way to access the APC web site at www.apcc.com . Just click on the graphic and then click on yes to continue with launching the web browser and displaying the site.
Current Power Source	This field displays either of two text descriptions: <ul style="list-style-type: none"> AC Power, when the UPS is on-line, receiving AC electrical current Battery, when the UPS is supplying power. When this displays, the icon to the left of the text changes from a plug to a battery.
Unable to communicate with the UPS	This label replaces Current Power Source if the application cannot communicate with the UPS device. (In addition, all other fields on the page are gray and inaccessible.)
Total battery capacity remaining	The value displayed to the right of this text represents the current battery capacity as a percentage of the total possible capacity.
Run time remaining	The number of minutes that the UPS battery can supply power to your computer system.
Charging OR Discharging OR Charged	This display field, to the right of the lower battery symbol icon, displays one of the following: <ul style="list-style-type: none"> Charging when the UPS battery is recharging. When it displays, the battery icon has a yellow lightening bolt through it. Discharging when the UPS is supplying battery power to the computer system. Charged when the battery is fully charged
Initiate a shutdown of my computer and UPS when the battery capacity reaches:	This Low Battery Capacity is set using the slider control displaying below the text. Values between 0–100% are valid with a default of 40%. At regular intervals, the software checks the actual battery capacity percentage in the UPS against this low battery percentage setting. Values right down to 0% can be entered here, but if you set it to a very low value and click OK or Apply, you get a message: Application data saving will not be performed because you have selected a very low battery capacity limit. For an explanation, see Application Data Saving . Please see also What happens when the UPS Battery is too Low?
Enable application data saving on low battery shutdown	When checked, Power Management Extensions performs data saving for some applications when an operating system shutdown occurs. Note that this text is grayed out when you set the Low Battery Capacity too low (see the text directly above this for more details). Please see also Application Data Saving .

The figures below show examples of the **APC UPS Status** page reacting to possible power states.



UPS supplying power: The battery discharges as it's being used.



AC supplying power with UPS battery recharging

APC System Tray Icon





The Power Management Extensions for Windows 98 system tray icon is located on the Windows taskbar beside the clock, usually along the bottom of your screen. As well as providing a way to launch your interface (see [How to Access the User Interface](#)), this system tray icon provides a quick way to observe the current status of power management on the system:

- The icon itself changes to reflect the status of the UPS.
- A ToolTip, displaying status information, appears when you position the cursor over the icon.

Note:

The APC system tray icon is invoked when you start your computer or when you install the software.

The table below describes the possible display states of the icon:

Icon	Description
	Signifies that the computer is on-line, receiving AC electrical power.
	Signifies that the computer lost communications with the UPS while on-line, or simply never established communications. The background is red for easy identification.
	Signifies that the UPS is supplying battery power to the computer system.
	Signifies that the computer lost communications with the UPS while the UPS was supplying battery power. The background is red for easy identification.

The ToolTip text displayed when the mouse pointer moves over the system tray icon gives information on the state of the UPS or the communications status between the UPS and the computer. The text displayed and the associated status conditions are defined in the following table:

ToolTip Text	Description
On AC power	The UPS is on-line, receiving power from your utility electrical power source.
On AC power (charging)	The UPS is on-line and the battery is charging.
On Battery, <number> runtime remaining Example: On Battery, 26 minutes runtime remaining	The UPS is on battery with a specified number of minutes remaining.
Unable to communicate with the UPS	Lost OR never established communications.

What happens when the UPS Battery is too Low?

When the capacity of a battery is so low that the battery cannot perform its functions properly during an AC power blackout, then we say that the battery is too low.

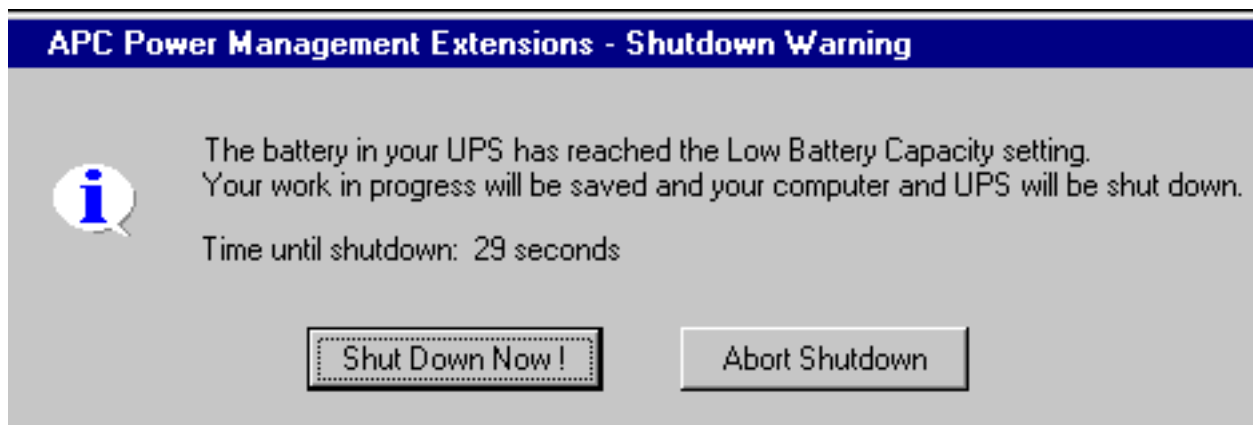
The Power Management Extensions software continually monitors your UPS. A critical piece of information is this UPS battery capacity—displaying as a percentage of the total capacity possible in the `Total battery capacity remaining` field. If this percentage drops too low, then the UPS can't do its job.

For this reason, the software actually shuts down your computer if the battery capacity falls below specified levels, as discussed in the [Battery falls below Low Battery Capacity](#) and [Battery falls below Shutdown Imminent Capacity](#) sections below.

Battery falls below Low Battery Capacity

The Low Battery Capacity has a default of 40% of total capacity possible but it can be changed by the user, as discussed in [Settings in the APC UPS Status page](#). If the `Total battery capacity remaining` field falls below the Low Battery Capacity, the shutdown process begins.

When that happens, the following message displays:



(If you have disabled the `Enable application data saving on low battery shutdown` field, the dialog box will *not* display the “Your work in progress will be saved” text above).

When you get this message box, you have these options:

- Selecting the **Shut Down Now !** button starts the shutdown process.
- Selecting the **Abort Shutdown** button clears the message box and stops the shutdown process. (However, if AC power is absent then the battery will obviously continue to run down; see [Battery falls below Shutdown Imminent Capacity](#)).
- Ignoring the message box causes the application to wait 30 seconds after which the shutdown process starts automatically.

The actual shutdown process consists of three steps:

1. Saves open application data, if you enabled this option (see [Application Data Saving](#) and [Settings in the APC UPS Status page](#)).
2. Shuts down the Windows 98 operating system.
3. Initiates the shutdown of the UPS. The actual UPS shutdown occurs after a short delay and the UPS goes into sleep mode.

Please see [UPS Sleep Mode and Powering Off and On](#).

Battery falls below Shutdown Imminent Capacity

In addition to the Low Battery Capacity—configurable through the slider control in the APC UPS Status dialog—the Back-UPS Pro device has an embedded low value. It's called the Shutdown Imminent Capacity.

This value is a check on the battery reaching an extremely low capacity. It cannot be changed by the user. Unless you've set the configurable Low Battery Capacity to a very low setting, this Shutdown Imminent Capacity should never be reached.

However, if the battery capacity percentage ever *does* fall below the Shutdown Imminent Capacity, then you will see a message box telling you that the system is shutting down immediately. No file saving operation is performed: only the operating system is shut down (please see [Application Data Saving](#)).

UPS Sleep Mode and Powering Off and On

When a UPS is in sleep mode, it's not in operation but it will start operating automatically when the AC power returns. In a sense the UPS is waiting for AC power to return. In contrast, when the UPS is off, it won't start operating unless you switch it back on again manually.

On the UPS, the green light indicates that it's on-line, receiving power from an AC source. The yellow-orange light indicates that the UPS battery is supplying power to the computer system. The third possible light is red, signifying overload: this means that the UPS cannot supply the necessary power to the attached equipment.

When a UPS powers off during a forced shutdown, it flashes alternately between the green and red lights, about 8–10 times in all. At the end of this, the UPS power sockets have no power, then the UPS emits a click and goes into sleep mode.

When power returns, even though the UPS starts normal operation, most computers will not power on automatically. Normal operation for a UPS means that it goes on-line, operating under AC power, as indicated by the green light.

Standby Mode and Power Management Extensions

Most personal computers now have a Standby mode where all open applications freeze or hibernate without actually closing down. (You can go into Standby mode by choosing **Start** and then **Shut Down** and, if it's available, **Stand by**: some older computers do not support the feature and it can also be turned off. Also, some computers have a special hardware control button for it).

In common with other applications, Power Management Extensions ceases functioning in Standby mode. Similarly, it also wakes up and recommences functioning when the user hits a key on the keyboard or moves the mouse.

Please note that for a brief instant on waking up from Standby mode, the application loses communications with the UPS. You might notice that the system tray icon and the Power Management Properties both register this very quickly before returning to the correct status.

Application Data Saving

The term **Application Data Saving** refers to the saving of open files, specifically some Microsoft Office ones, when Windows 98 closes down in a power outage. A fuller description follows.

If the AC power fails, the UPS starts supplying battery power to the computer and attached equipment. Obviously, the battery lasts for a limited amount of time. When it runs low, the operating system gives the order to shut down.

At this stage—assuming the Enable application data saving on low battery shutdown field is enabled (see [Settings in the APC UPS Status page](#))—Power Management Extensions saves open files for some applications. The list includes some **Microsoft Office** files—those from Word, Excel, and PowerPoint—that have been given a name. A file needs a name to be saved, and Power Management Extensions does *not* attempt to name unnamed files. (Files with “Untitled” in the title bar along the top of the window are not named).

Power Management Extensions tries to save all open files from applications other than the three MS Office ones mentioned as well, but it’s not guaranteed to work for them.

This file saving functionality of APC Power Management Extensions is called Application Data Saving or unattended file saving.

Application Data Saving *does not try* to terminate the applications: this is done by the operating system. Also note that you are given an opportunity to cancel Application Data Saving before it commences.

Some **limitations** of Application Data Saving:

- A maximum of three minutes is allocated for the saving of open files. The file saving aborts after this time, even it hasn’t finished its job. The reason is that the UPS is losing power during the saving and to continue beyond three minutes might be unsafe in that the UPS could cease functioning before it carried out its other operations.
- It does not support data saving of MS PowerPoint files that contain embedded objects, like an MS Excel worksheet.
- An open file created with an previous version of an application—e.g. an MS Word 95 document opened in MS Word 97—will not be saved with this functionality.
- If an application has a dialog box open this might cause problems.

Note:

a) Please read [Battery falls below Shutdown Imminent Capacity](#) for a situation where Application Data Saving does not apply.

b) To switch off Application Data Saving, please see [Settings in the APC UPS Status page](#).

Troubleshooting

Check this section when the software indicates that something has gone wrong.

Possible Causes	Solutions
Problem: Software indicates lost communications (comms)	
The Back-UPS Pro device might not be switched on	Verify that the Back-UPS Pro device is on and functioning correctly. (Refer to the <i>Back-UPS Pro 350/500 User's Manual</i>).
The Back-UPS Pro device might not be connected to the computer via the supplied USB cable.	Verify that the Back-UPS Pro device is connected via the supplied USB cable. (Refer to the <i>Back-UPS Pro 350/500 User's Manual</i>).
Windows 98 is unable to detect the Back-UPS Pro device.	Windows 98 might not have detected the UPS and assimilated it correctly. Check that the two verifications directly above have taken place. There is an utility "Detect.exe" located in the Power Management Extensions software application folder. Run this executable to determine whether or not Windows 98 can communicate with the Back-UPS Pro.
The Windows 98 HID drivers are missing or corrupt.	Refer to Appendix A: Installing the HID Drivers in this guide.
Other issues with the USB port or USB cable.	Please refer to Troubleshooting Lost Communication with the UPS .
Problem: On resuming from Standby mode, the software indicates lost communications	
Windows has failed to resume correctly	Restart your computer.
Problem: Open files were not saved on Windows 98 shutdown following an extended power outage	
Open files might not have been saved before this. (Typically these documents have "Untitled" in the title bar until they have been saved at least once).	Ensure that you save your files at least once. Subsequent changes will then be saved by the software during an unattended system shutdown. See Application Data Saving .
The open file was created with a previous version of the application, e.g. an MS Word 95 document was opened in MS Word 97.	Update documents to the later format and save them.
Your MS PowerPoint files contained embedded objects, e.g. an MS Excel worksheet.	Application data saving does not support data saving of MS PowerPoint documents that contain embedded objects.
If an application has a dialog open before data saving commences, the file will not be saved.	Try to ensure that applications do not have an open dialog box.

Possible Causes	Solutions
Problem: Windows 98 does not shut down correctly following an extended power outage OR a blank screen displays on shutdown OR Windows 98 freezes on the first shutdown screen	
Insufficient power remaining to complete the shutdown process	Set the Low Battery Capacity to a higher value. See Settings in the APC UPS Status page .
Some third-party memory resident programs or device drivers might have hung during a forced shutdown, preventing Windows 98 from shutting down correctly.	Try experimenting with killing resident programs or drivers with Ctrl+Alt+Delete to see if this helps with the problem. Alternatively, contact APC; see Technical Support .
Symantec's Norton AntiVirus v5.0 is installed on your system.	Please see Troubleshooting the Norton AntiVirus software .
Problem : Unable to view the User Manual	
Adobe Acrobat Reader is not installed on the host machine.	A self-extracting program for Adobe Acrobat Reader is available on the root drive of the APC Power Management Extensions installation CD. It's called <code>ar32e301.exe</code> . Simply double click to install it. You can install the software free of charge. See Adobe's web site www.adobe.com for more information.
User's Guide.pdf is not available in the installation directory. Windows 98 can delete the file if it is left open in Acrobat Reader before a shutdown, whether a) a standard Windows shutdown or b) an APC Power Management Extensions shutdown.	A copy of the User's Guide is available on the root directory of the Power Management Extensions' CD in both PDF (Portable Document Format, readable by Acrobat Reader) or RTF (Rich Text Format). Any word processor can view the latter. You can copy either of these files onto your Power Management Extensions installation directory.

Troubleshooting Lost Communication with the UPS

If your Power Management Extensions software indicates that it has lost communications with the UPS then the problem might be with either the USB port or cable connection. If the possible causes mentioned in [Problem: Software indicates lost communications \(comms\)](#) are not relevant, try the steps below to resolve the issue.

1. Ensure that the USB cable is connected: a) to the UPS and b) to the computer's USB port.

If your computer uses a USB hub instead of a USB computer port, ensure that the USB cable is making that connection.
2. Try disconnecting the USB cable from the host, whether directly to the computer or to a hub, and reconnect to see if you can re-establish the connection.

If the computer is powered on before the UPS, communication will not happen until you disconnect and reconnect the USB cable to the host.
3. If connected to a USB hub, ensure that the hub has power.

Some hubs are self-powered through an AC/DC adapter, while others are "bus-powered" drawing their power from the computer's power supply.
4. Be sure that the USB cable used is *not longer than 3 meters*, otherwise the signal will not be strong enough.

APC ships a two-meter cable which is a standard USB cable.

5. If connected to a USB hub, ensure that the USB cable connected to the UPS is the last cable in the chain (downstream).
6. When connected to a USB hub, make sure that all other USB devices upstream from APC do have communication.

Devices connected through a USB hub are connected in series. Therefore, if an upstream device is not communicating, any device downstream will not communicate either.

7. Make sure that there is enough power available:

Standard computer busses supply 500mAmps of power to their USB ports. APC's USB device is classified as a "low speed" device and requires 100 mAmps of power. "High speed" devices draw 300 mAmps of power.

Therefore, if you have three USB devices that have a total power requirement of 700 mAmps, a bus-powered hub will not be capable of supplying the necessary amount of power. This results in one or more devices not communicating with its host. The solution is to use a hub that uses an AC/DC adapter so that each device has the power it needs.

8. Try a different USB port. Or try using the same port with a different USB device to verify that the port is working properly.
9. Try a different USB cable and/or a different UPS.
10. Please refer to [Technical Support](#) for other possible solutions.

Troubleshooting the Norton AntiVirus software

Symantec's Norton AntiVirus v5.0 has a device driver component and an application level component. The device driver component can cause problems on a shutdown initiated by APC Power Management Extensions. These problems might include Windows 98 not shutting down correctly, a blank screen, or Windows 98 freezing on the first shutdown screen.

If you find this happening, on rebooting your machine after power returns, please try the following steps in turn to help resolve the problem:

1. Check if you can do a standard Windows 98 shutdown on your system by choosing **Start/Shut Down/Restart**.

If your system does not shut down successfully then the problem could be with Norton AntiVirus itself. Power Management Extensions might not be involved. Please refer to the troubleshooting notes with Norton AntiVirus or consult their web site at <http://www.symantec.com>.

2. Uninstall Norton AntiVirus from your system and re-install it.

Again, check if you can successfully shut down by choosing **Start/Shut Down/Restart**. and also check if Power Management Extensions can shut down your system correctly (by setting the Low Battery Capacity to 100% and unplugging the AC cable connected to your UPS; see [Settings in the APC UPS Status page](#)).

3. Remove the command that automatically runs the Norton AntiVirus device driver component on operating system startup. This component of AntiVirus checks that boot-up disks do not have viruses. It performs this check at operating system startup and shutdown. Be warned that the steps below remove these checks.
 - a. Choose **Start/Run...** and type `msconfig` and press Enter.
 - b. Click on the *Autoexec.bat* tab of the System Configuration Utility. There may be a line of text listed requesting that NAVDX.EXE should run on startup, e.g.
`@C:\PROGRA~1\NORTON~1\NAVDX.EXE /Startup`
 - c. If the text exists, uncheck the check box at the left of the text.

- d. Click **OK** and reboot your system to make the changes effective.
4. Disable the fast shutdown feature of Windows 98. Carry out the following steps:
 - a. Choose **Start/Run** and type `msconfig` and press Enter.
 - b. Click on the *General* tab of the System Configuration Utility.
 - c. Click on the **Advanced** button giving you Advanced Troubleshooting Settings.
 - d. Check the **Disable fast shutdown** check box.
 - e. Click **OK** and **OK** again to exit the tabbed dialog box.
 - f. Reboot your system for the changes to take effect as instructed.
5. Please refer to [Technical Support](#) for other possible solutions.

Appendix A: Installing the HID Drivers

The Windows 98 HID (Human Interface Device) drivers are required by the Back-UPS Pro device in order to communicate with Windows 98 and the APC Power Management Extensions software.

If you try to install Power Management Extensions and the HID drivers are not present, then you will get an error message and that install will terminate. Please refer to the *Back-UPS Pro 350/500 User's Manual* in this case or simply refer to the steps below.

It is also possible that something could happen to the drivers *after* installation; in this case, Power Management Extensions will signal that it lost communications. You can reinstall the drivers manually by following the steps below.

1. When the USB cable that comes with the Back-UPS Pro is first connected to a USB port on your computer, the Windows 98 dialog called **Add New Hardware Wizard** should appear automatically.

(To display this dialog manually, you can choose the **Start** button and then **Settings** to access the Control Panel and then double click on **Add New Hardware**. The USB cable should be connected already.)

2. The Add New Hardware Wizard dialog box guides you through the installation process. Click on **Next**.
3. A dialog states "Windows will now search for any new Plug and Play devices on your system". Click **Next**.
4. A subsequent dialog gives you these options:
 - Search for the best driver for your device (Recommended)
 - Display a list of all drivers in a specific location, so you can select the driver you want.

Please accept the recommended choice by clicking on **Next**.

5. The Wizard will then search your hard drive for a file called\\INF\\hiddev.inf. This file contains all the information that Windows 98 needs to install the correct device drivers.
6. At this point the Wizard might ask for the Windows 98 CD-ROM.

Note: Please see [Installing the HID driver without the Windows 98 CD-ROM](#) below if you do not have the Windows 98 CD.

If a dialog asks for the Windows 98 CD, place the CD in the CD-ROM drive and select **OK**.

7. The installation process will continue automatically until a dialog displays indicating that the drivers have been installed. Select the **Finish** button and your drivers are installed.

The Back-UPS Pro installation process is now complete.

Installing the HID driver without the Windows 98 CD-ROM

If the Windows 98 CD is not available but you have previously installed a USB Human Interface Device you might still be able to complete the installation process. Your Back-UPS Pro requires the following files in order to function correctly.

- hidclass.sys
- hidparse.sys
- hidusb.sys

These files would be found in your Windows\System32\Drivers directory, if they have been previously been installed as part of another installation process. Simply do the following:

1. When asked for the Windows 98 CD, select **OK**.
2. Windows will prompt you with a dialog looking for hidclass.sys. Select **Browse**, and enter the following directory: Windows\System32\drivers.

The installation process will continue automatically until a dialog indicating that the drivers have been installed appears. Select the **Finish** button and the drivers are installed.

Technical Support

If you have any questions concerning this or other APC products, contact the technical support center for your area. APC technical support is provided at no charge.

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