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maintenance & service guide

Presario 1800/1800T Series
Models: XL280, XL380, XL381,
and XL390

Battery and Power Management

This chapter describes power management and proper battery operating practices for Presario 1800XL Series Notebooks. These practices include conservation of AC power and extending the operating life of the battery. The following sections also outline proper methods to start and shut down the Notebook in various situations.


Power Modes


Presario 1800XL Series Notebooks have three levels of low power: *Hibernation*, *Standby*, and *Off*.

Hibernation

Hibernation mode helps conserve battery life and protect data. The Notebook automatically enters Hibernation mode when the battery has little power left or when the Notebook (operating on battery power) is in Standby mode for more than one hour. As the Notebook enters Hibernation, it automatically stores the contents of its memory to the hard drive before shutdown. When the Notebook wakes from Hibernation, it returns to its former state.


Note: When the Notebook enters or wakes from Hibernation mode, a Progress window is displayed.

To activate Hibernation mode, press the **Power**  button once.

To resume from Hibernation mode, press the **Power**  button once.

Standby

Standby is a low-power mode, also referred to as *Sleep* mode. The Notebook maintains system information and open files while in Standby mode. Selecting Standby instead of turning off the Notebook when you have finished working has two advantages: 1. It allows the Notebook to wake up faster; 2. It saves more power than the Active-On mode.

 **CAUTION:** Unsaved information is lost if the Notebook is turned off prior to system wake-up, or if a power loss occurs while using the AC adapter.

To activate Standby/Sleep mode, press **Fn+F4** or click **Start**, click **Shut Down**, and then select **Standby** from the options.

To resume from Standby/Sleep mode, press any key.

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Full Off

Off mode consumes no power. However, the battery charges while the Notebook is in Off mode if the battery is installed and the Notebook remains plugged into external AC power.

Note: Unsaved information is lost if the Notebook is shut down without saving the data.

To activate Off mode, click the **Start** button on the Windows taskbar, click **Shut Down**, and then select **Shut down** from the options.








To restart the Notebook from Off mode, press the **Power**  button once.



CAUTION: The Notebook must be in Off mode (completely shut down) when installing or replacing components. Follow the instructions for putting the Notebook into Off mode, unplug it from the outlet, and [remove the battery pack](#) before servicing any parts.

Summary of Power Modes

The following table outlines the procedures for entering and exiting the various power modes and the external indicators for each mode.

	Standby Mode	Hibernation Mode	Off Mode
Automatic Activation	15 minutes if using battery power* (preset default)	When battery is low or after 1 hour of Standby* (preset default)	Standard Shutdown: click Start on the Windows taskbar, Shut Down , and then select shut down .
Manual Activation	Press Fn+F4 key combination or click Start on the Windows taskbar, Shut Down , and then Standby .	Press the Power  button once.	Manual Shutdown**: Press and hold down the Power  button for 4 sec. OR Press Fn+Power (press and hold the Fn key then press the Power button).
Resume/Exit	Press any key.	Press the Power  button once.	Press the Power  button once.
Indicators	Power light flashes and Moon  icon appears on status display.	Power light is off, screen is blank, and Power  icon does not appear on status display.	Power light is off, screen is blank, and Power  icon does not appear on status display.

*The Notebook will not automatically enter Standby or Hibernation mode if using AC power.

****Important:** The Manual Shutdown procedures are not recommended unless the Standard Shutdown is unsuccessful.

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Power Settings

Power management modes can be initiated based on the amount of time passed since the last system activity. System activity includes keyboard strokes, mouse movement, CD/DVD playback, or modem use.

Power Schemes

Different patterns of Notebook use determine the level of power management needed. Power management settings can be selected using several predefined *Power Schemes*. To access these options, select **Power Management** on the **Control Panel**, then click the **Power Schemes** tab. The default Power Schemes are *Home/Office Desk*, *Portable/Laptop*, and *Always On*. Power Schemes can also be customized by changing the following options:

- **System Standby:** length of inactivity before the Notebook goes into Standby mode.
- **Turn Off Monitor:** length of inactivity before the screen times out and goes blank.
- **Turn Off Hard Disks:** length of inactivity before the hard drive goes into low-power mode.
- **Hibernate:** length of inactivity before the Notebook goes into Hibernation mode.

Important: The setting for the Hard Disk must be less than or equal to the setting for the System. If the Notebook is on a network, Compaq recommends that System Standby be set to Never.

The following table shows the default settings for each Power Scheme.


Power Scheme	Always On	Portable/ Laptop	Home/ Office Desk
AC Power			
System Standby	Never	Never	Never
Turn OFF Monitor	20 minutes	3 hours	20 minutes
Turn OFF Hard Disks	Never	15 minutes	Never
Hibernate	Never	Never	Never
Battery Power			
System Standby	Never	15 minutes	5 minutes
Turn OFF Monitor	15 minutes	Never	5 minutes
Turn OFF Hard Disks	30 minutes	10 minutes	10 minutes
Hibernate	Never	1 hour	20 minutes

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Alarms

The Notebook can be set to alarm when the battery power level is reduced or when it reaches a critically low level. The Notebook can also be set to enter a low-power mode when the battery reaches a specific power level.

 **CAUTION:** The settings on the Alarms tab are preset for the Notebook to run at optimum efficiency. Changing any of these settings may cause the Notebook to function improperly. It is recommended that these settings be left at their default values.

Default Alarm Settings		
Setting	Low Battery	Critical Battery
Alarm power level	10%	0%
Notification	Sound	No Action
Power Mode	No Action	Hibernation
Active	Enabled	Enabled

SpeedStep Technology

SpeedStep Technology features several options for processor response to low-power conditions. These include the following settings:



- **Maximum Performance:** always at high speed
- **Battery Optimized:** always at low speed
- **Reversed:** opposite recommended
- **Recommended:** performance on AC, Battery-Optimized on Battery
- **Disabled:** no run-time support, high speed



SpeedStep options can be accessed in three ways:

- Access **F10** Setup during startup and select the **Advanced** screen.
- Click the **Start>Settings>Control Panel>Power Options>Intel(R) SpeedStepTM technology** tab.
- Double-click the Flag icon on the Windows taskbar to open the **Intel(R) SpeedStepTM technology** dialog box.

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Rebooting After a Lockup

To reboot the Notebook when the keyboard is frozen or the screen is locked, press and hold down the **Power**  button for at least four seconds; this causes the Notebook to shutdown. Then, restart the Notebook with a single press of the **Power**  button.

If the Notebook still does not recover, press the **Power**  button and hold for four seconds to shut it down, then remove the battery and unplug the AC power for at least 30 seconds. Reinsert the battery or reconnect AC power and press the **Power**  button once to reboot.

Recovering From a Loss of Electrical Power

Loss of electrical power causes the Notebook to turn off automatically. This may cause loss of data because the Microsoft Windows operating system is not able to close all files and programs properly.

Loss of power may be caused by one of the following:

- Electrical power service is interrupted.
- The power cord is accidentally disconnected.

If power surges or sags, the display and status lights may flicker, and the Notebook may automatically restart. If an improper shutdown occurs, the Microsoft Windows utility program, ScanDisk, runs automatically once power is restored. ScanDisk determines whether the improper shutdown caused any errors on the hard disk. These errors may occur if the Microsoft Windows operating system is not able to close all files properly before the shutdown. If no errors are found, the restart process continues. If ScanDisk does detect errors, follow the instructions on the screen to continue the restart process. Work that was not saved before the loss of power or shutdown may be lost.

If a power failure occurs, or the power cord disconnects while the Notebook is turned on, turn it off until normal service is restored. The next time the Notebook is turned on, ScanDisk may run to check the hard disk for errors caused by improper shutdown.

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Increasing Battery Pack Operating Time

Battery pack operating life is affected by several variables. To avoid unnecessary replacement, consider the following when determining how long a charged battery pack should last:

- Power conservation settings
- Hardware configuration
- Software applications
- Installed options
- Display brightness
- Hard drive usage
- Changes in operating temperatures
- Type and number of installed PC Cards

Note: Power consumption requirements for PC cards vary widely. Some cards drain the battery pack very rapidly.

Battery pack operating life can be increased by as much as 50 percent by controlling the energy required by the Notebook and the energy stored in the battery pack.

Minimizing the Energy Required

To minimize the energy required by the Notebook, follow these guidelines:

- Set the power conservation levels in the Power Management utility to **Maximum**.
- Customize the time-out value to work more efficiently with the applications. The length of battery life depends on the values selected.

Maximizing the Energy Stored


To maximize the energy stored in the battery pack, follow these guidelines:

- [Condition the battery pack](#) at least every 30 days to improve overall battery performance.
- Keep a battery pack in the Notebook when using it with AC power to supply the battery pack with a constant trickle charge.
- Store the battery pack in a cool, dry place when not in use.

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Conditioning a Battery Pack

 **CAUTION:** To avoid losing data, Make sure that all information is saved before completely discharging a battery pack.

To condition a battery pack, complete the following steps:

1. Plug in the AC adapter and allow the battery to charge until the fast charge arrow on the status display disappears. The battery gauge may read 100% for a period of time before the arrow disappears.

Note: Do not unplug the AC adapter until the arrow disappears.

2. Unplug the AC adapter and allow the battery to drain until the Notebook enters Hibernation mode. The Notebook can be used normally during this process.

Note: If the AC adapter is connected while the battery is draining, the process must be repeated beginning with step 1.


The battery is now reconditioned. Plug in the AC adapter and begin using the Notebook.

The table below shows typical battery charging times.

Li-ion Enhanced Battery Pack	Charge Time
Computer On Line	4.75 hours
Computer Off Line	3.00 hours

Disposing of a Used Battery Pack

In the interests of safeguarding our environment, Compaq Computer Corporation recommends that nickel metal hydride (NiMH) and lithium-ion (Li-ion) battery packs be recycled. Battery packs should be handled in accordance with country, state, province, or local regulations.

 **CAUTION:** Never attempt to open or service a battery pack. Opening a battery pack not only damages the pack and makes it unusable, it also exposes potentially harmful battery components.