

Unfortunately, we've all seen the premature demise of a laptop battery. A battery that would last two hours a year ago suddenly only lasts 30 minutes (or less!). There are some simple guidelines you can follow to maximize battery life in day-to-day use as well as keep it healthy and useful.

Battery life is governed by the power drain placed on the battery during day-to-day use and the environmental conditions under which the battery is used and stored. **Here are a few tips you can use to keep the battery running as long as possible between charges.**

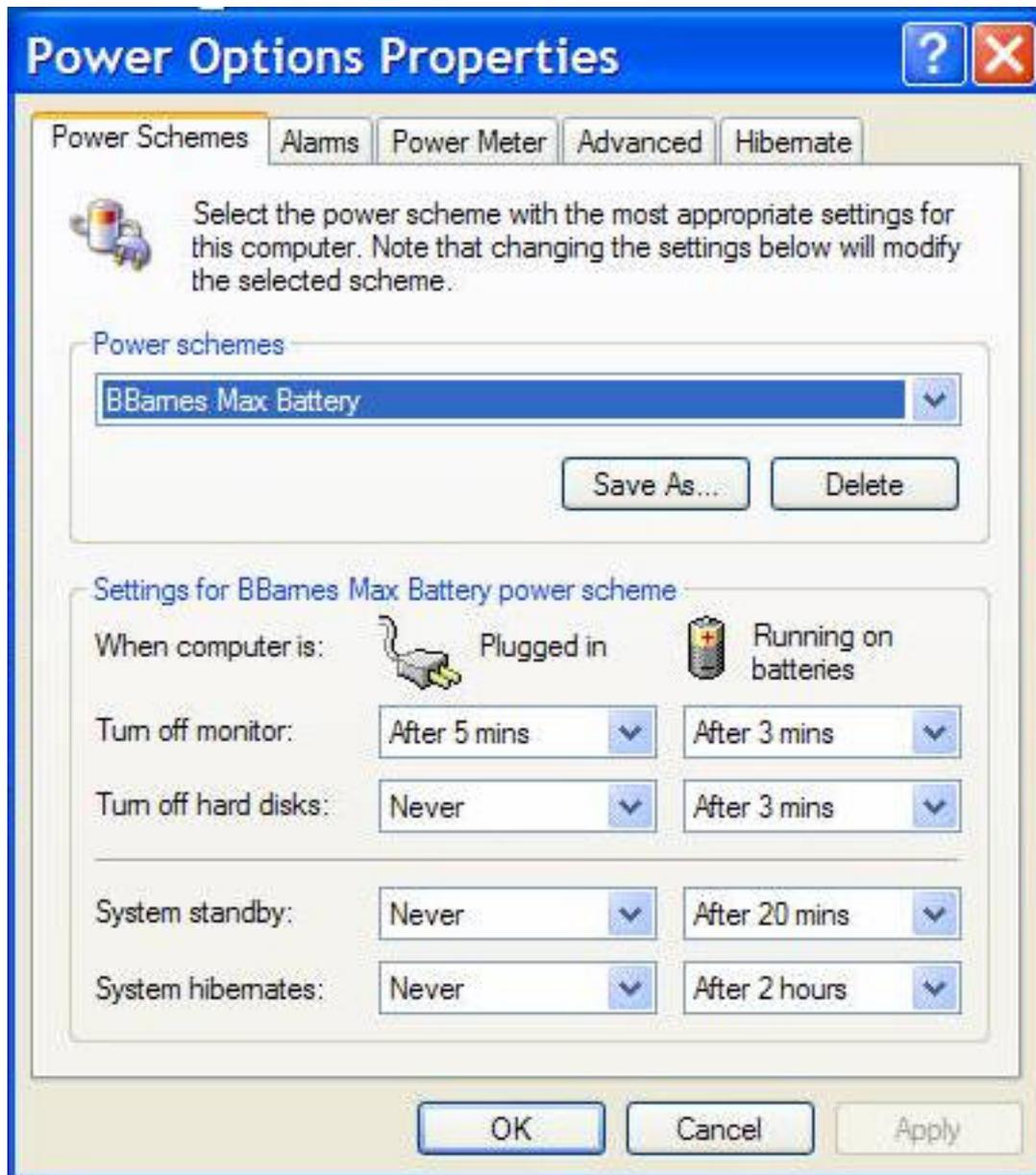
- Dim the display as low as comfortable. The brighter the screen, the higher the power drain. On many laptops you can adjust the brightness from the keyboard. Generally, you can increase the brightness by pressing `Fn ↑` or decrease the brightness by pressing `Fn ↓` but it may be different on your model.
- Avoid using your wireless connection (WiFi) unless you need to. On most laptops there is a hardware switch or a keystroke sequence that will turn on or off the radio transmitter for your WiFi card. This is usually accomplished by pressing the `Fn` and one of the function keys. Look for a blue symbol on your keyboard that resembles a radio tower.
- Change your power management settings for maximum power savings. A good first choice would be *Max Battery*

Use the following steps to change the power scheme on a Windows computer.

- From the Start menu, tap Control Panel. The Control Panel window opens. If your Control Panel is in category view, tap Performance and Maintenance.
- In Control Panel, double-tap the Power Options icon.
- In the Power Options Properties dialog box, in the Power Scheme list, tap the power scheme you want. Another option is to set the timers, and then save your custom power scheme by tapping Save As, and then typing a name for the scheme.
- Click OK.

On my laptop I have developed a custom power management scheme that I use. See the

following illustration for my settings:



- Avoid using the DVD/CD player. While it is fun to listen to music or watch movies, it really chews up your battery power. Try storing your music on the hard drive or on a flash drive both of which use less power than the DVD/CD player.
- Avoid extremes of temperature as this can also have a significant effect on battery life.

A lithium-ion battery provides 300-500 discharge/charge cycles. The battery prefers a partial

rather than a full discharge. Frequent full discharges should be avoided when possible. Instead, charge the battery more often or use a larger battery. There is no concern of memory when applying unscheduled charges.

Simple guidelines to keep your battery running at peak efficiency:

- Avoid frequent full discharges because this puts additional strain on the battery. Several partial discharges with frequent recharges are better for lithium-ion than one deep one. Recharging a partially charged lithium-ion does not cause harm because there is no memory. (In this respect, lithium-ion differs from nickel-based batteries.) Short battery life in a laptop is mainly caused by heat rather than charge / discharge patterns.

- Batteries with fuel gauge (laptops) should be calibrated by applying a deliberate full discharge once every 30 charges. Running the pack down in the equipment does this. If ignored, the fuel gauge will become increasingly less accurate and in some cases cut off the device prematurely.

- Keep the lithium-ion battery cool. Avoid a hot car. For prolonged storage, keep the battery at a 40% charge level.

- Consider removing the battery from a laptop when running on fixed power. (Some laptop manufacturers are concerned about dust and moisture accumulating inside the battery casing.)

- Avoid purchasing spare lithium-ion batteries for later use. Observe manufacturing date. Do not buy old stock, even if sold at clearance prices.

- If you have a spare lithium-ion battery, use one to the fullest and keep the other cool by placing it in the refrigerator. Do not freeze the battery. For best results, store the battery at 40% state-of-charge.

From: <http://www.batteryuniversity.com/>

About the Author

Isidor Buchmann is the founder and CEO of Cadex Electronics Inc., in Vancouver BC. Mr. Buchmann has a background in radio communications and has studied the behavior of rechargeable batteries in practical, everyday applications for two decades. Award winning author of many articles and books on batteries, Mr. Buchmann has delivered technical papers around the world.

Cadex Electronics is a manufacturer of advanced battery chargers, battery analyzers and PC software. For product information please visit www.cadex.com.