

# Maintaining and Troubleshooting Your Laptop Battery

By Bill Platt

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The actual life of a laptop battery will vary with computer usage habits. For most users, it is not uncommon to experience differences in battery life, of anywhere from just under one hour to over two hours in each sitting. If you are experiencing shorter battery life cycles, say 10 to 15 minutes, it may not yet be time to order that new battery.

There are several factors to take into consideration when determining if the time has come to replace your battery. This information may also apply to that new battery that you have recently purchased, that has been giving you fits. The two primary things to consider when troubleshooting battery problems is Usage Habits and Battery Memory. We will cover both in their complexities in just a moment, but first, let us take a look at what you should expect from your battery's life cycle.

NiMH batteries usually last 1.5 to 2.5 hours.

LiION batteries usually last 2.0 to 3.0 hours.

These are average results and the results will vary greatly depending on your system's conservation settings, the temperature of the room and the climate that you are operating your computer in. As a general rule, your Lithium Ion battery will last much longer than your standard Nickel Metal Hydride battery.

Now let's take a look at the various usage habits to consider when troubleshooting your laptop's battery. These processes are very similar to the way that your portable stereo uses batteries .. just think how much faster your stereo eats batteries when you are playing the CD or the tape deck, as opposed to when you are just playing the radio.

The more you use physical devices --- which require more electricity to operate --- the more of the battery's power you can expect to consume. The devices that create a larger power drain are the hard drive, the floppy drive and the CD-ROM.

When the computer is able to use its physical memory resources to store information, the computer will use less of the battery's power, since the process is mostly electrical in nature. However, when the processes you are using exhaust the physical memory resources available to your system, the system will turn to virtual memory to continue the process at hand. Virtual Memory is designed to extend system memory resources by building a memory swap file on the hard drive, and then transfer needed information between the hard drive and the physical memory as required. Since the hard drive is a electricity hog, the use of virtual memory becomes an electricity hog by proxy.

Two other processes that engage virtual memory on your computer are computational programs and the calculation processes used by spreadsheet applications and database programs. Both of these items engage the processor to a greater degree as well, which in itself is a consumer of electricity. Because they both compute and calculate large quantities of information, they will also increase the amount of electricity that your laptop will consume.

Other physical devices that cannot be left out of this discussion are audio and display devices. As far as audio devices are concerned, speakers require electricity to run and the software that is responsible for producing the sound does so by processing information. The display panel consumes electricity as well. In fact, the brighter the screen appears, the more electricity that it is consuming. You may turn down the brightness on the screen, thereby conserving more electricity than you may have considered possible. And when considering the battery drain caused by video devices, don't forget the effect that graphics programs will have on your system. Video applications can have an intense effect on your electrical needs, due to its usage of computation, calculations and virtual memory.

Battery Memory is an odd little creature. The concept of battery memory is reminiscent of Pavlovian Conditioning. Do you remember the story about Pavlov and his dogs? Pavlov would serve his dogs food and when they realized it was dinner time, he would ring a bell. After some time of conditioning his dogs, all he would have to do to get the dogs to salivate, was to ring the bell. Battery Memory is a lot like that.

Battery memory is where the battery becomes conditioned to run for less time than it is designed to run. Say for example, you run your computer on battery for an hour and then you plug it back in to let it recharge. The battery will become conditioned to run only an hour before it runs out of juice.

To correct Battery Memory problems, you must completely drain the battery and recharge it. To completely drain your battery, you must go into your Windows Control Panel and select Power. Then you must turn Power Management Off. Next, you must go into

your BIOS and make sure that if there is a power management setting there, that you turn it off as well. In most cases, once you are inside the BIOS, you will highlight Power Management and press Enter. Then locate the item Hibernation at Critical Battery, and by using the Minus sign, change the setting to Off. Once these steps have been completed, then use your Escape key to return to the top level menu, and select Save Settings and Exit.

Once you have completed turning off the power management in both the BIOS and the Operating System, you must unplug the computer, turn the computer on and let it run until it completely runs out of electricity. Then you should charge the battery for 12 hours. At the end of the charging cycle, then run the computer again until the battery is dead, and then charge the battery for 12 more hours. You should repeat this process four times, before returning the computer to its original power management settings.

As far as battery usage goes, it is recommended that you should use the battery once every two weeks, and keep the battery in the system so that the AC adapter can keep the battery charged at all times. It is also recommended that if you don't use the battery for more than two weeks, you should completely discharge the battery and store it at room temperature.

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