

## What is Firmware?

Whether it's a cell phone, remote control, calculator, digital camera, TV, or GPS, the firmware is the brains of the operation. Firmware is software that is loaded at the factory and controls how an electronic device works.

The firmware holds the information that gets things going when a device powers up. It checks the system to ensure that components are working, gets the hardware in gear, and allows other systems to take over if necessary. If there was no firmware, the device wouldn't work. In other words, firmware is much like the operating system on your computer.

### Give me an example.

Okay. You just got a new digital camera and you took lots of photos. Since this is a new camera, you accidentally deleted all of your photos. But, you only deleted photos, not the firmware, so the next time you press the power button, the firmware opens the lens, turns on the flash, displays the menus, and many other things to get you ready to take pictures once again.

### What is upgradable firmware?

Upgradable firmware lets you get the latest and greatest features for your existing product without having to purchase a whole new unit. Some devices have firmware that can be "flashed" or upgraded. When a fabulous, can't-miss-feature is added to your Blu-Ray® player, you may be able to go to a web site and download the new firmware to a USB drive, CD-ROM, or other type of media. Sometimes you need to contact the manufacturer of the device and have the firmware sent to you.

Upgradable firmware is especially helpful if your device has a "bug." Installing new firmware can solve the problem quickly.

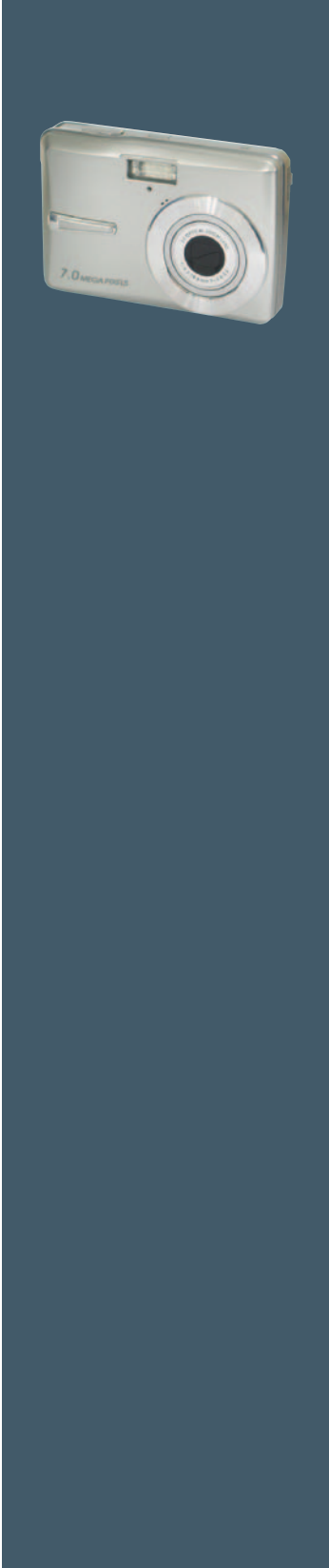
On a GPS, upgrading the firmware keeps you on track (literally) by helping you access the latest maps and navigation tools. Without new firmware, your GPS would quickly become obsolete.

If your device supports firmware upgrades, make sure you carefully follow the upgrading instructions to avoid problems. If you're uncomfortable doing the upgrade yourself, we can help.



# Tech Tutor

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## Frequently Asked Questions

**Q:** How will I know if a new firmware upgrade is available?

**A:** That depends on the product and manufacturer. Sometimes, you will have to check the manufacturer's web site to learn if an upgrade is available. Some manufacturers may send a postcard or e-mail notifying you about the upgrade, while others may e-mail either the upgrade file itself or point you to a web site to download it. Some may mail you a CD or flash drive containing the upgrade, along with instructions on how to load it onto your product.

**Q:** How often will I need to perform a firmware upgrade?

**A:** That depends on the product, manufacturer, and how quickly technology progresses for that product. Some manufacturers may provide upgrades once a year or less, while others might offer them more frequently. Some products may *never* require an upgrade.

**Q:** How long does a typical firmware upgrade take?

**A:** That depends on how the upgrade is provided. If the upgrade file is sent to you via e-mail, CD, or flash drive, loading it might take only five minutes or so. If you have to download the upgrade from a web site or create the upgrade file, it might take much longer. Upgrade time may also depend on the product and how extensive the upgrade is.

**Q:** Are there help resources available?

**A:** Stop into any Best Buy store and talk to the experts there. They'll be able to tell you if upgrades are available for a product and explain the best way to get that upgrade done.

**Q:** Are firmware updates free?

**A:** That depends on the product and manufacturer. Some upgrades may be available at no charge, while others might be available for a small fee.