Adding More Storage to your PC

The Villages Computer Club
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You just got back from a 14 day cruise. Now you're ready to transfer 2 gigabytes of photos from your new 8 mega pixel camera to your PC. You also have 45 minutes of video taken with your camcorder that needs to be transferred so you can create that Great American Movie that is a must see for all family members. The only problem is, you have 2500 music files stored for your MP3 player and your hard drive is just about maxed out. You need more storage space.
Your first thought is to clean up your hard drive. You know, get rid of all those files you don't really need to save. But, after an hour, you still haven't found anything you really don't need to keep. After all, you still have that bumper jack in the garage for a 1951 Studebaker. Hey, you never know when you might need it and it's probably worth a fortune on e-bay. Okay, plan B, add more storage.

There are a number of ways to add more storage space. We'll review the most common.

- Add a second internal hard drive
- Add an external hard drive
- Add a drive to your network
- Use a flash drive

Adding a second internal hard drive

This is a most cost effective way to add more storage. You can purchase a SATA or PATA 250GB-320GB drive for under $80.00. This is probably more than twice the size of your existing hard drive.

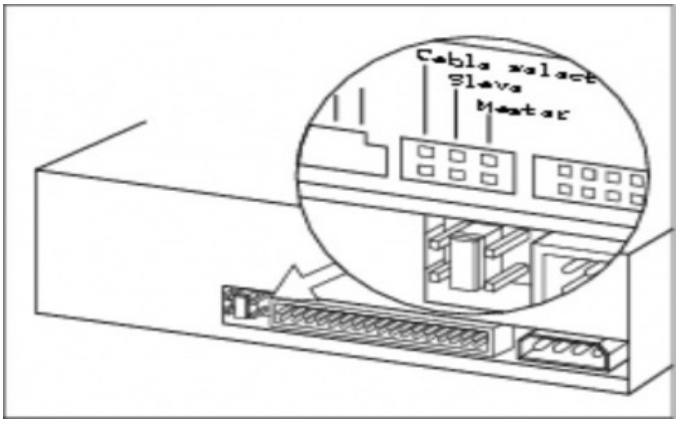
Installing a SATA (Serial Advanced Technology Attachment) drive

If your motherboard supports SATA drives, use this option. A SATA drive uses a separate data cable for each drive. Your motherboard will have at least two SATA connectors (headers) on it labeled SATA1 and SATA2. First, unplug the power cable from your PC and then remove the case. Touch any bare metal surface to discharge any static electricity before you start working in the case. Next, mount the drive in an open drive bay and then plug the cable that comes with the drive into the open header on the motherboard and the other end into the drive. Find an unused power connector and connect that to the drive. Close the case and you're almost done. Plug the power cable back in and power up your PC. When you click on My Computer, you should be able to see the new drive. It will probably be listed as the D: drive. It should have been formatted with the NTSF file system by the manufacturer. Your can check this by right clicking on the drive and selecting properties. This will show you the drive size, free space and the file system (FAT32 or NTSF). It the

drive isn't formatted or is FAT32, you can reformat it by right clicking on the drive again and selecting format. You now have the option to format the drive.
If for some reason, you can't see the drive in MY Computer, check to see if the drive manufacture provided a utility with the drive to install and format it. If not, Windows XP comes with a tool called Disk Management to perform this task. Click on the Start button and then right click My Computer. Click on Manage and then select Disk Management from the menu. In the right hand pane you will see all the drives in your system. The drive you just installed should appear as Drive 1. Your primary drive (C:) should be listed as Drive 0. Right click on the new drive (Drive 1) to select it and choose create a new partition. In the Partition Wizard tell it to create a primary partition, to use the full size of the drive and to format it using the NTSF file system. You can also give it a new label like "My New drive" if you want. Then click finish. Your new drive will be ready to use. To test it, copy a few files from your C; drive to it. It doesn't matter what you choose. After they are copied to the drive, delete them.

Installing a PATA (Parallel ATA or IDE) drive

Installing a PATA (IDE) drive is the same as a SATA drive with the exception of the cabling. An IDE drive connects to the motherboard using an 80 wire flat cable that has three connectors on it. One connector is plugged into the mother board. The connector at the other end is plugged into your existing hard drive. You will use the connector in the middle to install your new drive. You will also have to set the jumpers on your existing and new drive for proper operation.
Follow the steps of unplugging your computer and grounding yourself before working inside your system.
Before installing the new drive, set the jumper on your existing drive to the Master position. Now set the jumper on your new drive to the Slave position. You can also set both drives to CS (Cable Select) but if you do, make sure that the original drive is at the end of the cable and the new drive is in the center. Both options work, but there is less chance of a problem if you use the Master/Slave method.



You can now install the new drive, connect the data and power cables and close up your system. Note: before closing the system, check that you haven't accidentally loosened any other cables in the process.
You can now use the procedures for checking and formatting your drive described above in installing a SATA drive.

Adding an External Hard Drive

Adding an external hard drive is easier than an internal drive, but in most cases, it will be more expensive and performance will be slower. The most common external drives use a USB or FireWire interface cable from your PC to the drive. Before using this option, make sure your computer supports USB 2.0 or FireWire 800. If your system is old and only supports USB 1.1, the performance will be extremely slow.
New newest interface is called eSATA. This interface is available on newer computers and is as fast as an internal hard drive. If your computer doesn't support it, you can purchase an expansion card for your computer to accommodate this new interface. Most eSATA drives sold at retail come bundled with the card.
In most cases, adding an external drive is a simple plug and play operation. Your computer will recognize the drive as a USB/Firewire attached device and load the appropriate drivers. Check the instructions that come with the drive to determine if any additional software needs to be installed. Many of these drives come with optional backup software. You can use this software to backup data from your main drive.

Network Attached Storage (NAS)

NAS drives attach to your home network just like any other network device. They contain the drive itself plus an imbedded operating system to communicate with other network devices. The benefits of NAS drives are that that can be shared by all computers on the network. However, their speed is limited by the speed of your network. Even in a wired 100 Mbps network, this is considerably slower than an internal or external drive solution. To install a NAS drive, you will need to plug a network cable (Cat5) from the drive into an open port on your router. You will use a browsers interface on your main system to manage the drives operating system and features. This is similar to the configuration of the router. Follow the instructions that come with the unit to set up the drive and sharing.

USB Flash Drives

Flash drives are a good option for adding limited additional storage to your system. An additional benefit is that they can be used to transfer relatively large amounts of data between your systems if you don't have a home network set up. The current cost effective limit is around 4GB at an average cost of $40.00. An 8GB flash drive averages $60. For an

additional $40, you can purchase a 250GB external USB drive. That's thirty times the storage for very little extra money.

Summary

- If you need to add additional storage to your existing PC and you feel comfortable with opening your PC case, an internal hard drive is the best option.
- If you are going to be using the additional storage for video editing or saving very large files, choose an internal or external eSATA solution.
- For General storage of files, music and pictures, an external USB/Firewire will meet your needs.
- If you will be sharing a lot of data over your home network, select a NAS drive.
- For limit temporary storage, a USB flash drive will meet your need.