

# Tech Spotlight: Flash Drives & Memory Cards

## What is a flash drive?

A flash drive (also known as a USB flash drive, thumb drive, travel drive, pen drive, or memory stick) is a portable media device that allows a user to download files to it instead of a computer's hard drive.

Flash drives are typically removable and rewritable, much smaller than a floppy disk, and most flash drives weigh less than an ounce. Storage capacities typically range from 64 MB to 128 GB (and growing as technology advances). Some allow 1 million write or erase cycles and have 10-year data retention. In the simplest of terms, think of a flash drive as a small portable hard drive.



A flash drive

## Why use a flash drive?

Flash drives are essential tools for anyone who will be using more than one computer or users hoping to save their work from computer to computer. For example, you may download a picture to your flash drive from your home computer. You can then take the flash drive and plug it into a computer at your mother-in-law's house – and then retrieve the picture!

## Flash drives vs. CD's vs. floppy disks

Flash drives offer potential advantages over other portable storage devices, particularly the floppy disk. They have a more compact shape, operate faster, hold much more data, have a more durable design, and operate more reliably due to their lack of moving parts. Additionally, it has become increasingly common for computers to be sold without floppy disk drives. USB ports, on the other hand, appear on almost every current mainstream PC and laptop. USB drives with USB 2.0 support can also operate faster than an optical disc drive, while storing a larger amount of data in a much smaller space.

<b>Differences between portable storage options</b>	<b>Storage Size</b>	<b>Reusable?</b>	<b>Approximate Price*</b> <small>*source: Amazon.com 7/09</small>
<b>Flash Drive</b>	Currently, up to 128GB	Yes, up to 1 million times	8GB Drive is approximately \$15-\$20, although 1GB models can be found for \$5 or less
<b>CD-R or CD-RW</b>	700 MB	CD-R: No CD-RW: Yes, up to 1000 times	50 Pack is approximately \$17-\$18 (or about \$.30 each)
<b>Floppy Disk</b>	1.44 MB	Yes, up to 100 times	10 Pack is approximate \$7-\$8 (or about \$.75 each)

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## How many files can I store on a flash drive?

If we use the simple formulas 1,024 kilobytes (KB) = 1 megabyte (MB), and 1,024 MB = 1 gigabyte (GB), you can get a general idea of how much you can fit on a flash drive. The bullet points below show the size of some common files, and how that relates to how much space is taken up on a 1 GB flash drive.

- The average Microsoft Word document is between 25-50KB (or 0.00002 - 0.00005 GB)
- The average picture taken on a 5 megapixel camera is approximately 1.5 MB (or 0.00146 GB)
- The average MP3 audio file is three and a half minutes long and approximately 3.5 MB (or 0.00342 GB)
- The average YouTube video file is 8MB for approximately 5 minutes of video (or 0.00488 GB)

The bottom line is, you can fit a LOT of files on even a 1 GB flash drive.

## What is a memory card?

A memory card is a data storage device capable of storing digital contents. Memory cards are mainly used with digital cameras, handheld and mobile computers, mobile phones, music players, video game consoles, and other electronics. They offer high re-record-ability, power-free storage, small size, and rugged durability. There are several different types of memory cards, the most common being:

- **Smart Media/xD** Used primarily in Olympus and Fujifilm digital cameras.
- **CompactFlash I/II** Popular in the early days of digital cameras; more reliable than SD technology but also bulkier and more expensive; surpassed by SD as the market leader.
- **SD (and mini-SD)** The most popular and common memory card, the standard version is found in many digital cameras while the miniSD version is common in many mobile phones.
- **MS PRO** Popular in many Sony digital cameras and other Sony products.



An SD memory card

Nowadays, most new PCs have built-in slots for a variety of memory cards; some digital gadgets such as photo printers support more than one memory card type to ensure compatibility.

## Why use a memory card?

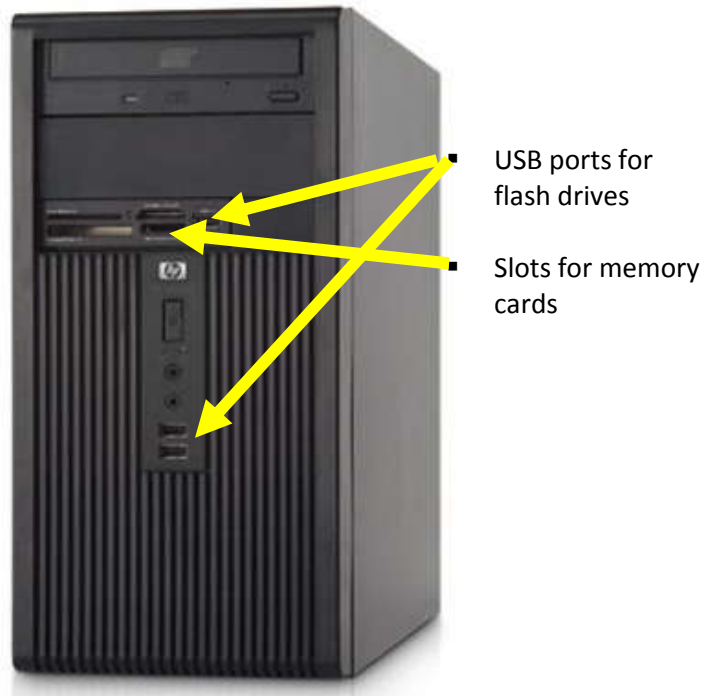
Memory cards are very similar to flash drives in that they are a great way to move digital files from one place to another. The main difference is, memory cards are more likely to be used for things like digital cameras and cell phones and typically are used for storing pictures and videos. Some memory cards in fact will not allow you to save certain files types, such as Word documents, on them. Memory cards are typically used for device → computer transferring, while flash drives are generally used for computer → computer transfers.

**Tip:** Check to see if the small green LED light is lit up when you plug in your memory card or flash drive in the top slots. If the light is not lit, this may mean the computer is not recognizing your device. Similarly, if your flash drive has a built in LED light on it, it should light up when it is plugged in to the computer and the light should flash when data is being transferred to or from the drive.

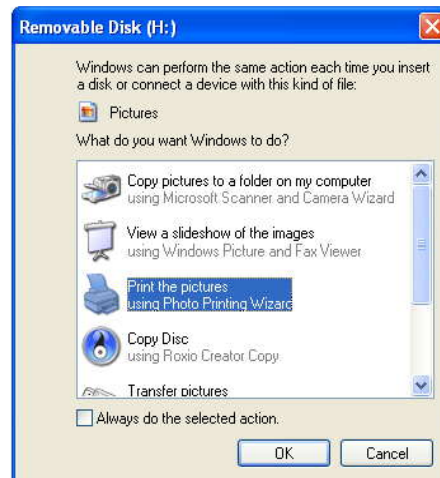
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## Plugging in

On all computers in the TechCenter and in the training room, there are USB ports on the front of the PC tower where you can plug in a flash drive. There are also memory card slots for the most common memory card formats available on the front of the PCs as well. Simply stick your device into the appropriate slot and wait. The computer should automatically recognize your drive/card after a few seconds (you may get a message bubble in the lower right hand part of the screen near the clock that says “new hardware found” or something similar). You will be presented with a list of options and the drive location [in example 1 below, the flash drive is “Lexar” (K:) while the memory card in example 2 is Removable Disk (H:)] for your memory device once your plug in is recognized by the computer.



Example 1: Flash drive menu showing location as (K:)



Example 2: Memory card menu showing location as (H:)

**Tip:** Be sure to read all of your options on the menu. Often there will be multiple ways of doing the same thing, such as opening picture files in Windows Picture Viewer or opening pictures in Photoshop, for example. You also don't have to do anything at all when you first plug in your portable storage device – hit cancel on the menu that appears or scroll down to the “take no action” option.

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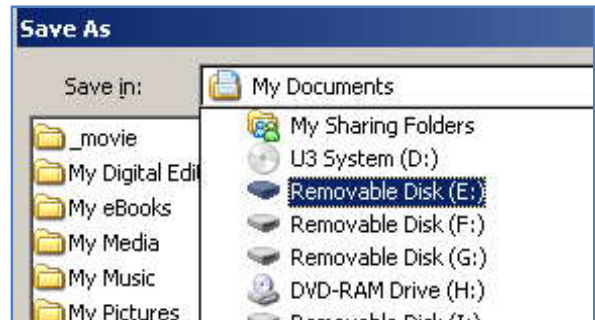
## Saving to a flash drive or memory card

Once you have your drive or card plugged into the computer, you can now save files to it. The three main scenarios you may be saving under are:

- From a software program already on the computer
- Downloading an attachment sent to your email
- Downloading something from the internet

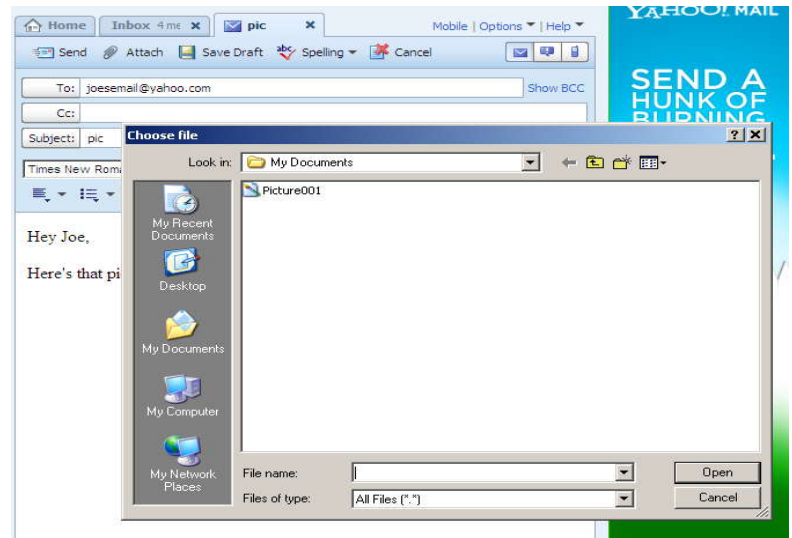
## Saving from a software program

If you are in a program such as Microsoft Word, go to the file menu (typically located on the upper left hand part of the screen) and click "Save As." A new window will open up, labeled "Save As." At the top of the Save As window, you will see a box labeled "Save In". Change this from My Documents to the letter of your flash drive by clicking on the drop down menu. Once you've chosen the right drive you can rename the document if you want to, then click the Save button to save it! It's that simple!



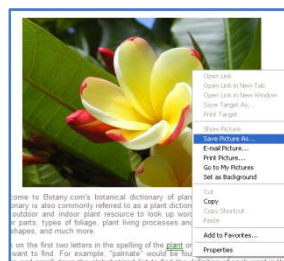
## Saving from your email

When you receive an email message with an attachment, click on the message to open it. At the top of the message, below the subject line, you'll see the name of the attached file right next to a paper clip. Click on the file name. If no virus is detected, click the **Download Attachment** button. At this point, another dialog box will open asking if you would like to open or save the file. Choose save, and then follow the same steps as above to find your flash drive location on the computer. Rename the file if necessary and click the save button. That's it!

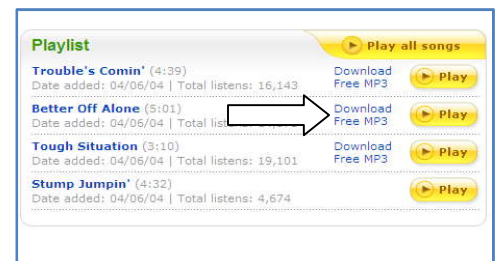


## Saving from the internet

You will likely be presented with one of two scenarios when you want to download something from the 'net. If the file is an image, find the pic you want to download and put the mouse cursor over the image and click the right mouse button. This will display a menu; select "Save Picture As." Follow the same steps as above.



Saving a picture



Saving an MP3 file

You may also come across files with a direct download link. MP3's, for example, will usually have a link that says "Click here to download" or something similar. Select your flash drive as the "save" point and click save!

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## Other things you can install on your flash drive

### U3

U3 is a method of auto-launching applications from specially formatted USB flash drives (in this case, often referred to as USB “smart” drives). U3 smart drives come preinstalled with the U3 Launchpad, which looks similar to the Windows operating system start menu and controls program installation. The method works with recent Microsoft Windows systems only. Applications which comply with U3 specifications are allowed to write files or registry information to the host computer, but they must remove this information when the flash drive is ejected. Customizations and settings are instead stored with the application on the flash drive.

Some of the more common things you might store on a U3 system include different internet browsers (such as Mozilla Firefox), chat or instant messaging programs, games, audio players, and so forth.

### Portable Apps

Portable Apps (short for applications) is a program that can be downloaded to ANY flash drive, iPod, portable hard drive, etc. PortableApps.com Suite™ is a complete collection of portable apps including a web browser, email client, office suite, calendar/scheduler, instant messaging client, antivirus, audio player, Sudoku game, password manager, PDF reader, minesweeper clone, backup utility and integrated menu, all preconfigured to work portably. Just drop it on your portable device and you're ready to go!

#### Portable App Guidelines

- A portable app works from any device (USB flash drive, portable hard drive, iPod, etc)
- A portable app works as you move computers and your drive letter changes
- A portable app's features continue working as you move computers
- A portable app doesn't leave files or folders behind on the PC
- A portable app doesn't leave registry entries behind except those automatically generated by Windows
- A portable app is optimized for use on removable drives
- A portable app doesn't require additional software on the PC
- A portable app doesn't interfere with software installed on the PC

#### Meaning you can...

- Carry your web browser with all your favorite bookmarks
- Carry your calendar with all your appointments
- Carry your email client with all your contacts and settings
- Carry your instant messenger and your buddy list
- Carry your whole office suite along with your documents and presentations
- Carry your antivirus program and other computer utilities
- Carry all your important passwords and account information securely
- Have your favorite websites handy to recommend to a friend or colleague
- Have your presentation AND the required software ready to go for that big meeting
- Have your password with you if you want to bank online while traveling
- Have utilities handy when visiting family or friends that are having PC problems

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## Removing your flash drive or memory card from the computer

When your work is done and it's time to move on, many people often worry about losing valuable information if the flash drive or memory card is not properly disconnected from the computer.

GENERALLY speaking, it is perfectly OK to simply unplug the device from the port. However, if you want to be extra cautious you can also go to the task bar on the lower right hand part of the screen and select the "safely remove hardware" option. Choose the letter that your device is showing up under and simply click on it. The computer will then tell you that it is "safe to remove hardware."



## Terms associated with flash drives and memory cards

**Directory/Drive:** the location on a computer in which a file or device is located. For example a C drive is typically the drive most home users will store files on because it is the hard drive for the computer. A floppy drive may show up as an A drive, a CD or DVD drive as a D or E drive, and so forth.

**Flash drive:** also known as a USB flash drive, thumb drive, travel drive, pen drive, or memory stick, it is a portable media device that allows a user to download files to it instead of a computer's hard drive.

**Gigabyte:** A unit of computer memory or data storage capacity equal to 1,024 (210) megabytes. Abbreviated as GB.

**Kilobyte:** A unit of computer memory or data storage capacity equal to 1,024 (210) bytes. Abbreviated as KB.

**Megabyte:** A unit of computer memory or data storage capacity equal to 1,048,576 bytes or 1,024 kilobytes. Abbreviated as MB.

**Memory card:** a data storage device capable of storing digital contents. Memory cards are mainly used with digital cameras, handheld and mobile computers, mobile phones, music players, video game consoles, and other electronics.

**Port/Slot:** a data connection in a computer to which a device can be attached.

**Portable Apps:** a collection of portable software applications that can be downloaded to any flash drive and used on any computer running Microsoft Windows.

**Removable Disk:** A term used to identify a device such as a memory card or flash drive and differentiate such a disk from a permanent (aka "hard") drive or disk.

**U3:** a method of auto-launching applications from specially formatted USB flash drives

**USB:** short for Universal Serial Bus it is a way to connect devices to a computer.