

Memory speeds and compatability

Memory is designed to be backward-compatible, so generally speaking, you can safely add faster memory to a computer that was designed to run slower memory. However, your system will operate at the speed of the slowest memory module.

One thing to keep in mind is that the memory does need to be the same type - for example, SDRAM cannot be mixed with DDR, and DDR cannot be mixed with DDR2 and DDR2 cannot work in a DDR3 system.

We recommend that you use the Crucial Memory Advisor™ or System Scanner tools to find the right memory for your computer. Rather than give memory modules catchy names, the industry refers to modules by their specifications. But if you don't know a lot about memory, the numbers can be confusing. Here's a short summary of the most popular types of memory and what the numbers refer to.

DDR3

DDR3 memory is the latest generation of memory for computing applications and offers many benefits over DDR2 including lower latencies, higher speeds, and more.

DDR3 is not backward-compatible with DDR2.

For this type of memory, a higher number represents faster memory, or more bandwidth. Occasionally DDR3 is referred to by a "friendly name" like "DDR3-1066" or "DDR3-1333". When written this way, the numbers after "DDR3" refer to the data transfer rate per second (/s) of the components.

Friendly name Industry name Peak Transfer Rate Data transfers/second (in millions)

DDR3-800	PC3-6400	6400 MB/s	800
DDR3-1066	PC3-8500	8533 MB/s	1066
DDR3-1333	PC3-10600	10667 MB/s	1333
DDR3-1600	PC3-12800	12800 MB/s	1600

DDR2 PC2-4200

In DDR2 modules, the numbers that come after the "PC2" refer to the total bandwidth of the module. For this type of memory, a higher number represents faster memory, or more bandwidth. Occasionally DDR2 is referred to as a "Friendly name" like "DDR2-533" or "DDR2-667". When written this way, the numbers after "DDR2" refer to the data transfer rate per second (/s) of the components. DDR2 is not backward-compatible with DDR.

Friendly name Industry name Peak Transfer Rate Data transfers/second (in millions)

DDR2-400	PC2-3200	3200 MB/s	400
DDR2-533	PC2-4200	4266 MB/s	533
DDR2-667	PC2-5300	5333 MB/s	667
DDR2-800	PC2-6400	6400 MB/s	800
DDR2-1066	PC2-8500	8533 MB/s	1066

DDR2 PC2-4200 (commonly referred to as DDR2-533) memory is DDR2 designed for use in systems with a 266MHz front-side bus (providing a 533MT/s data transfer rate). The "4200" refers to the module's bandwidth (the maximum amount of data it can transfer each second), which is 4200MB/s, or 4.2GB/s.

DDR2 PC2-5300 (commonly referred to as DDR2-667) memory is DDR2 designed for use in systems with a 333MHz front-side bus (providing a 667MT/s data transfer rate). The "5300" refers to the module's bandwidth (the maximum amount of data it can transfer each second), which is 5300MB/s, or 5.3GB/s. **PC2-5300 is backward-compatible for PC2-4200.**

DDR2 PC2-6400 (commonly referred to as DDR2-800) memory is DDR2 designed for use in systems with a 400MHz front-side bus (providing an 800MT/s data transfer rate). The "6400" refers to the module's bandwidth (the maximum amount of data it can transfer each second), which is 6400MB/s, or 6.4GB/s. **PC2-6400 is backward-compatible for PC2-4200 and PC2-5300.**

DDR2 PC2-8000 (commonly referred to as DDR2-1000) memory is DDR2 providing a 1,000MT/s data transfer rate). The "8000" refers to the module's bandwidth (the maximum amount of data it can transfer each second), which is 8000MB/s, or 8GB/s. **PC2-8000 is backward-compatible for PC2-4200, PC2-5300, and PC2-6400.**

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DDR PC1600

Like DDR2 modules, in DDR modules the numbers that come after the "PC" refer to the total bandwidth of the module. For this type of memory, a higher number represents faster memory, or more bandwidth. Occasionally DDR is referred to as "DDR400" or "DDR333," for example. When written this way, the numbers after "DDR" refer to the data transfer rate per second (/s) of the components.

Friendly name Industry name Peak Transfer Rate Data transfers/second (in millions)

DDR-200	PC-1600	1600 MB/s	200
DDR-266	PC-2100	2100 MB/s	266
DDR-300	PC-2400	2400 MB/s	300
DDR-333	PC-2700	2700 MB/s	333
DDR-400	PC-3200	3200 MB/s	400

PC1600 memory — which Crucial no longer carries - is DDR designed for use in systems with a 100MHz front-side bus, (providing a 200 mega transfers per second [MT/s] data transfer rate). The "1600" refers to the module's bandwidth (the maximum amount of data it can transfer each second), which is 1600MB/s, or 1.6GB/s. **PC1600 has been replaced by PC2700, which is backward-compatible.**

PC2100 memory — which Crucial no longer carries - is DDR designed for use in systems with a 133MHz front-side bus (providing a 266 MT/s data transfer rate). The "2100" refers to the module's bandwidth (the maximum amount of data it can transfer each second), which is 2100MB/s, or 2.1GB/s. PC2100 is used primarily in AMD® Athlon® systems, Pentium® III systems, and Pentium IV systems. **PC2100 has been replaced by PC2700, which is backward-compatible.**

PC2700 memory — the slowest DDR memory speed that Crucial now carries - is DDR designed for use in systems with a 166MHz front-side bus (providing a 333 MT/s data transfer rate). The "2700" refers to the module's bandwidth (the maximum amount of data it can transfer each second), which is 2700MB/s, or 2.7GB/s. **PC2700 is backward-compatible for PC1600 and PC2100.**

PC3200 (commonly referred to as DDR400) memory is DDR designed for use in systems with a 200MHz front-side bus (providing a 400 MT/s data transfer rate). The "3200" refers to the module's bandwidth (the maximum amount of data it can transfer each second), which is 3200MB/s, or 3.2GB/s. **PC3200 is backward-compatible for PC1600, PC2100, and PC2700.**

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SDRAM PC100 125 MHz PC133

In SDRAM modules, the numbers that come after the "PC" refer to the speed of the system's front-side bus.

PC100 memory — which Crucial no longer carries - is SDRAM designed for use in systems with a 100MHz front-side bus. It is used in many Pentium II, Pentium III, AMD K6-III, AMD Athlon, AMD Duron, and Power Mac G4 systems. **PC100 has been replaced by PC133, which is backward-compatible.**

125MHz memory is SDRAM designed for use in systems with a 125MHz front-side bus. **125MHz has been replaced by PC133, which is backward-compatible.**

PC133 memory is SDRAM designed for use in systems with a 133MHz front-side bus. It is used in many Pentium III B, AMD Athlon, and Power Mac G4 systems. **PC133 is backward-compatible for PC100 and 125MHz.**

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PC66 memory is SDRAM designed for use in systems with a 66MHz front-side bus. It is used in the Pentium 133MHz systems and Power Macintosh G3 systems. FPM and EDO speeds are written in nanoseconds (ns), which indicates their access time; the lower the number, the faster the memory (it takes fewer nanoseconds to process data).

[About adding faster memory ...](#)

It may seem confusing, but faster memory will not necessarily make your system faster. You can't speed up your computer by adding faster memory if any of the other components in your computer (your processor or other memory modules) operate at a slower speed.

Keep in mind, that the right memory for your computer is the kind of memory it was designed to take. Check your system manual or look up your system in the Crucial Memory Advisor or System Scanner tools to find the memory guaranteed to be 100 percent compatible or your money back!

Why doesn't my Windows® PC recognize the whole 4GB of memory I installed?

Not only is there a maximum amount of memory that your system's motherboard can accept, there is also a maximum amount of memory that your operating system (OS) can accept. For instance, when you install 4GB of memory in a 32-bit Microsoft® Windows® OS, your system may report only 3GB or 3.5GB of available memory. If this occurs, don't worry. The memory you purchased and installed is fine. The problem revolves around how much memory the OS can address.

While the Windows OS allows for a maximum 4GB of installed *physical* memory, this does not equate to 4GB of *available* memory. The reason? A portion of your system's memory (regardless of how much you have installed) is reserved to run devices, such as any graphics cards, PCI cards, integrated network connections, etc., meaning that certain amounts of installed memory may be unavailable for use as available memory.

Upon startup, your system calculates the amount of memory needed to run devices. If you've maxed out the amount of physically installed memory in your system, the amount of memory necessary to run devices will be deducted from your system's available memory, meaning that you won't be able to use all of your physical memory. However, if you haven't maxed out your physical memory, all of it will be available for use.

The maximum amount of memory that an OS will recognize varies by type and version of the operating system. In terms of differentiating between OS types, 32-bit operating systems are typically the lower-end consumer versions, while 64-bit operating systems are designed for high-use consumers and business users. Here's [how to determine whether a computer is running a 32-bit version or 64-bit version of the Windows operating system](#).

Physical memory limits for recent Windows versions are as follows.

Windows 8 (32-bit)

- Standard: 4GB
- Pro: 4GB
- Enterprise: 4GB

Windows 8 (64-bit)

- Standard: 128GB
- Pro: 512GB
- Enterprise: 512GB

Windows Server 2012
(64-bit)

- Storage Server Workgroup: 32GB
- Foundation: 32GB
- Essentials: 64GB
- Standard: 4TB
- Storage Server Standard: 4TB
- Datacenter: 4TB
- Hyper-V: 4TB

Windows Server 2008
(32-bit)

- Standard: 4 GB
- Web Server: 4 GB
- Enterprise: 64 GB
- Datacenter: 64 GB

Windows Server 2008
(64-bit)

- Standard: 32 GB
- Web Server: 32 GB
- Small Business Server: 32GB
- Enterprise: 1 TB
- Datacenter: 1 TB

Note to Windows Server Users: Certain 32-bit Microsoft server operating systems can support over 4GB of memory via Physical Address Extension (PAE). Please refer to a [Microsoft knowledge base article](#) located here for more information.

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Windows 7 (32-bit)

- Starter: 2GB
- Home Basic: 4GB
- Home Premium: 4GB
- Professional: 4GB
- Ultimate: 4GB
- Enterprise: 4GB

Windows 7 (64-bit)

- Home Basic: 8GB
- Home Premium: 16GB
- Professional: 192GB
- Ultimate: 192GB
- Enterprise: 192GB

Windows Vista (32-bit)

- Starter: 1 GB
- Home Basic: 4 GB
- Home Premium: 4 GB
- Business: 4 GB
- Enterprise: 4 GB
- Ultimate: 4 GB

Windows Vista (64-bit)

- Home Basic: 8 GB
- Home Premium: 16 GB
- Business: 128 GB
- Enterprise: 128 GB
- Ultimate: 128 GB

Note to Windows Vista users: Microsoft addressed the installed memory limitation problem in Service Pack 1. If you have a system board that can handle more than 4GB of memory and a processor capable of handling x64 instructions and memory remapping, Vista SP1 can help. Because of Windows and the driver stacks, Windows loaded them into 'high' memory locations to avoid potential driver compatibility issues. (Meanwhile, the 32-bit versions of Windows Vista limit the total available memory to 3.12 GB.) VistaSP1 has other features to enhance your computing, so we recommend you add it, if you haven't done so already.

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Windows XP (32-bit)

- Starter Edition: 512 MB
- Home: 4 GB
- Professional: 4 GB

Windows XP (64-bit)

- Home: 128GB
- Professional: 128GB

Optimize your computer

Like changing the oil in your car, routine maintenance plays a key role in terms of how your system is able to function. While a memory or SSD upgrade is the best way to improve your system's overall performance, you can further optimize its capabilities through routine maintenance. Here are nine general maintenance tips that can help improve the functionality of your system.

How to defragment your hard drive

Unless you're using an SSD, your system will eventually suffer from performance loss when the data stored on your hard drive becomes fragmented. There's no reason to worry when this happens – it just requires a simple fix.

Hard disk drives fragment data because they are "random" by nature. Consisting of an actuator, platter, spindle, actuator arm, and read/write head (among other parts), hard drives work by storing and seeking out information on a rotating disk. When data is written (stored), it's written to the first empty portion of the drive that the write head is able to access. When a hard disk drive has written a significant amount of data, it becomes harder and harder for the drive to find all of the information or programs you want it to access in a timely manner. By defragmenting your hard drive, you can help it run more efficiently and enable faster access to data.

The best way to "defrag" your hard drive is to use the Microsoft Windows® **Disk Defragmenter utility**. Follow these quick steps to defrag your hard drive.

[Windows 8/7/Vista](#)

Method 1: Allow Disk Defragmenter to run automatically.

Windows 8, Windows 7, and Windows Vista are built with an updated Disk Defragmenter utility, which automatically performs periodic defrags. Unless you need to perform a manual defrag, you don't have to do anything – just let it run!

Method 2: Manually run Disk Defragmenter.

Click the Start button >> All Programs >> Accessories >> System Tools >> Disk Defragmenter. When you try to access Disk Defragmenter, you may be prompted for an administrator password or confirmation. Enter your password or provide confirmation, then click Defragment Now. Depending on the size of the drive and the level of fragmentation, it may take several minutes to several hours to complete the defrag process.

[Windows XP](#)

Method 1: Use the Properties of your local disk.

Click the Start button >> My Computer >> right click the local disk volume that you want to defragment, then click Properties. On the Tools tab, click Defragment Now, then click Defragment.

Method 2: Use Computer Management MMC.

Click Start >> Run >> then type Compmgmt.msc in the open field. Click Disk Defragmenter, then select the volume that you want to defragment. Click Defragment to begin.

Method 3: Use Disk Defragmenter MMC.

Click Start >> Run >> then type Dfrg.msc in the open field. Select the volume that you want to defragment, then click Defragment.

The role of browser plug-ins

A browser plug-in expands a web browser's functionality by installing specific toolbars, adding buttons, links or other useful functions (like pop-up blocking). Legitimate browser plug-ins are not only harmless, but also very handy. Popular plug-ins include the Google Toolbar, MSN Search Toolbar, Macromedia Flash or Adobe Acrobat Reader. However, not all plug-ins are created equal.

About malicious plug-ins

Some plug-ins are malicious and will slow your system to a halt. Similar to spyware, adware and browser hijackers, these types of plug-ins are often installed without explicit user consent and usually do not allow you to manually uninstall them. Some malicious plug-ins even have integrated, innocent-looking toolbars that trick users into leaving parasites on their system. Malicious plug-ins can, among other things:

- Change your browser's default home and search pages to predetermined web sites without your permission
- Redirect your browser to a site whenever you type in an email address or perform an Internet search — for no obvious reason
- Modify browser settings to add insecure resources to the trusted sites list
- Degrade overall browser stability and performance
- Offer no functional uninstall feature

Malicious plug-ins predominantly affect Internet Explorer, though less prevalent threats are designed to subterfuge other popular browsers.

How to remove a browser plug-in

Unfortunately, most browser plug-ins cannot be removed using antivirus software. In order to remove malicious browser plug-ins, you'll need to utilize special spyware removal tools. These products will scan your systems and detect and eliminate most privacy risks. Powerful spyware

removers include real-time monitors that prevent the installation of known risks and unauthorized system modification.

Always run antivirus software

While a memory upgrade is the best way to improve the performance of your system, sometimes sluggish performance is due to a virus or malicious spyware. If you've already tried a memory upgrade and your system remains slow, or if you believe your system may be infected, a good antivirus program can help purge your system and set it on a path to better performance.

[Get the Right Antivirus Protection for Your System](#)

If you're using Windows® 8, Windows 7, or Windows Vista, your operating system uses an automated system to remind you if your system becomes vulnerable to spyware and malware.

If you're using Windows XP, you will need to install an antivirus program. When evaluating different antivirus programs, it's rarely necessary to get all the additional features offered by antivirus software suppliers — most users simply need antivirus protection. Look for antivirus programs that update themselves regularly and that constantly scan your system. At a minimum, plan on running a full antivirus system scan every three to six months.

How to fix hard disk errors

If you've defragmented your hard drive and are still seeing subpar performance, you may need to fix disk errors on your hard drive. Hard disk errors are typically caused by power outages, hardware failures, poor system maintenance, viruses, or human error. To fix disk errors, you can use the Chkdsk tool found in Windows operating systems. Chkdsk (Chkdsk.exe) is a command-line tool that creates and displays a status report for the disk by checking volumes for problems. The tool then lists and corrects errors on the disk, such as bad sectors, lost clusters, cross-linked files, and directory errors. Here's how to use Chkdsk.

How to Use Chkdsk to Fix Hard Disk Errors

- Double-click My Computer (known simply as "Computer" in Windows® 7 and 8), then click once on the hard disk that you want to check, which will highlight it and allow you to select the drive. Right click on the drive and a window will appear.
- On the window that appears, click Properties, then Tools.
- Under Error-checking, click Check Now. A dialog box that shows the Check Disk Options is displayed.
- Use one of the following procedures:
 - To run Chkdsk in read-only mode, click Start.
 - To repair errors without scanning the volume for bad sectors, select the Automatically fix file system errors check box, then click Start.

- To repair errors, locate bad sectors, and recover readable information, select the Scan for and attempt recovery of bad sectors checkbox, then click Start.

Note on all versions of Windows prior to Windows 8: If one or more files are open on the hard disk that you want to fix, you will receive the following message:

"The disk check could not be performed because the disk check utility needs exclusive access to some Windows files on the disk. These files can be accessed by restarting Windows. Do you want to schedule the disk check to occur the next time you restart the computer?"

If the above text appears, click "Yes" to schedule the disk check, then restart your computer to begin the disk check.

For more information about Chkdsk, visit the following Microsoft Web sites:

Chkdsk: <http://technet.microsoft.com/en-us/library/bb491051.aspx>

Running Chkdsk to repair file systems: <http://technet.microsoft.com/en-us/library/bb457122.aspx>

How to delete temporary Internet files

When you visit a website, your browser automatically saves (or "caches") temporary Internet files on your storage drive. These files are cached when you first visit a page so that when you visit it for a second time, you'll be able to access it faster. Although temporary Internet files can help you access websites faster, they take up a significant amount of storage. By deleting these files, you can reclaim valuable storage capacity.

Since most people visit multiple websites every day, we recommend deleting temporary Internet files once per week. Here's how to do it.

Windows® 10 and Windows® 8

- Right-click the Start button, click Control Panel, click Network and Internet, click Delete browsing history and cookies
- When the property sheet opens, click the Delete... button
- A selection window will appear, then click the types of files you want to delete, click Delete
- The files will begin to be removed

Windows® 7 and Windows® Vista

- Click the Start button, click Control Panel, and under Internet Options, then click Delete browsing history and cookies
- Click the Delete files button and a confirmation window will appear
- Click Yes, and the files will begin to be removed

Windows® XP

- Click the Start button, click Control Panel, then click Internet Options
- Click the Delete Temporary Internet Files button and the files will begin to be removed

Note: You will also have the ability to delete cookies, history, form data, and passwords from this window in each version of Windows.

System cooling 101: Ten easy ways to keep your system cool

Whether you're a gamer or mainstream computer user, your system's components are at risk of overheating if temperatures aren't kept in check. Here are ten cost-effective ways to keep your system cool.

1. [Keep your system away from vents and windows.](#)

Consider where your computer is situated — is it in a particularly warm place? Make sure your system isn't near a heat vent or in a temperature-sensitive area (i.e. near a window). Often simply changing the location of your system can help keep it cool.

2. [Give your system some breathing room.](#)

Take a look at where your computer is positioned and remove any obstacles that restrict airflow. For best performance, you'll want to leave two to three inches of space on all sides of your computer. Also, take a look at your computer desk – does it relegate your system to an enclosed cabinet or drawer? If your system is in an enclosed space, it faces an increased risk of overheating.

3. [Close your system's case.](#)

While it may seem counterintuitive, an open case doesn't help regulate internal temperatures – it actually does the opposite and restricts them. A closed case helps your system remain cool because it reduces the impact of dust and debris on the cooling fans. Too much dirt can make your fans slow down or quit working altogether. Cases are

designed for effective air handling, and with fans and proper intake, you can maintain the reliability of your system's components.

4. Clean your fans.

Dust and dirt can wreak havoc on your first line of temperature defense: your fans. When you open your case, you should be able to find several fans: one on top of the CPU, one inside the power supply, and perhaps one or more on the front or back of the case. Simply power down your computer and use a canned air duster to remove the dirt from each fan. You'll want to avoid using vacuums when cleaning because the static they produce often does more damage than heat.

5. Upgrade your CPU fan.

Your CPU is arguably one of the most sensitive (and expensive) components inside your computer, and it has the highest potential to overheat. Most CPUs come preinstalled with lower-end fans that are engineered to cool your processor just enough to keep it running—and nothing more. For this reason, you'll want to consider upgrading to a better CPU fan, which can help keep CPU temperatures down. Keep in mind, however, that your CPU fan can only cool to the lowest temperature in your case, regardless of how well-designed your CPU fan is.

6. Add a case fan.

Upgrading your CPU fan is a start, but adding case fans can also be a big help. Since performance-enhancing memory and graphic cards generate a lot of heat, case fans can help increase airflow to your components by attaching to the front and back of your system. Many of our Ballistix customers opt to install two case fans: one to move cool air into the PC and another to move warm air out of the PC. If you decide to add case fans, make sure that the intake and exhaust levels match. Why? If you install an 80mm fan in the front of your case and a 120mm fan in the back, the differential will create dead air and negative pressure, leading to an increased potential to overheat.

7. Add a memory cooling fan.

Memory is one of the components in your system that's most likely to overheat. To help keep temperatures down (especially when overclocking), we recommend the [Ballistix Active Cooling Fan](#), which helps eliminate dead spots of airflow within your system's memory area.

8. Check your system's power supply fan.

A PC's power supply has an integrated fan, and if you don't have a case fan, the power supply fan is the only thing pushing hot air out of your system. If it's not working properly, your system will heat up quickly. If your power supply fan isn't working, replace it as soon as possible.

9. [Get a water cooling kit.](#)

For gaming systems with high-end CPUs and overclocked components, often the fastest fans can't keep up with the increased temperatures. To solve this problem, many gamers opt for water cooling kits as a way to cool the CPU. In a water cooling kit, a pump cycles cold water down to the CPU in self-contained tubes, then pumps the water out of the system where it can be cooled before returning to the CPU for additional cooling. If you're comfortable performing a technical installation, water cooling kits are safe and relatively affordable.

10. [Take extra precautions when overclocking.](#)

While overclocking can maximize the performance of your components, it also pushes your system's capabilities to the limit, which almost always results in higher temperatures. If you're overclocking with [Ballistix Tactical Tracer](#) or [Ballistix Elite](#) modules, you can use our custom [Ballistix M.O.D. utility](#) to monitor temperatures in real-time. Regardless of how you're overclocking, make sure you take additional precautions to improve your system's cooling ability.

It's not hard to keep your system cool, and with a few simple steps you can quickly have your system running at a more sustainable level than it was before. By taking action now to cool your system, you'll save money and increase the longevity of your system.

How to increase your storage space on a PC

Running out of storage space on your PC? Here are three ways to create space on your system and make it easier to find the programs and files you actually use.

1. **Delete programs you never use**

On **Windows® 10 and Windows® 8**, right-click the Start button (or press Windows key+X), select Control Panel, then under Programs, select Uninstall a program. From this list, you can delete programs you no longer need – select the program you want to uninstall and click Uninstall.

On **Windows® 7, Windows® Vista, or Windows® XP**, click the Start button, click Control Panel, then click Add/Remove Programs. From this list, delete the programs you no longer need by selecting the program and clicking Uninstall.

2. **Back up rarely used data on an external hard drive**

It's often said in tech circles that your data is only as safe as your last backup, and this adage is true for almost every user. To back-up your files, get an external hard drive and designate it as your backup drive. By moving rarely used files to an external hard drive, then deleting them from your system, you'll free up valuable storage space.

3. **Run the Disk Cleanup utility**

Disk Cleanup removes temporary files, clears the cache, empties your Recycle Bin, and removes a variety of other files and items you no longer need. Here's how to use Disk Cleanup.

Windows 10 and Windows 8

- Right-click the Start button, click Control Panel, click System and Security, click Administrative Tools, and click Disk Cleanup
- If the Disk Cleanup: Drive Selection dialog box appears, click the hard disk drive you want to clean up, then click OK
- Click the Disk Cleanup tab, then select the check boxes for the files you want to delete
- When you finish selecting the files you want to delete, click OK, then click Delete files to confirm the operation
- Disk Cleanup will then begin to remove the files

Windows 7

- Click the Start button, click All Programs, click Accessories, click System Tools, and click Disk Cleanup
- If the Disk Cleanup: Drive Selection dialog box appears, click the hard disk drive you want to clean up, then click OK
- Click the Disk Cleanup tab, then select the check boxes for the files you want to delete
- When you finish selecting the files you want to delete, click OK, then click Delete files to confirm the operation
- Disk Cleanup will then begin to remove the files

Windows Vista

- Click the Start button, click All Programs, click Accessories, click System Tools, and click Disk Cleanup
- In the Disk Cleanup Options dialog box, choose whether you want to clean up your own files or all of the files on the computer
 - If you are prompted for an administrator password or confirmation, enter the password or provide confirmation
- If the Disk Cleanup: Drive Selection dialog box appears, select the hard disk drive that you want to clean up, then click OK
- Click the Disk Cleanup tab, then select the check boxes for the files you want to delete
- When you finish selecting the files you want to delete, click OK, then click Delete files to confirm the operation
- Disk Cleanup will then begin to remove the files

Note: Be sure to keep Windows up-to-date with regular Windows Updates.