# Using Shredder

When you save a file in Windows, it is stored in multiple pieces (in clusters made up of multiple sectors) on the disk. Windows also saves a roadmap, or index, that points to these clusters in two copies of the FAT (File Allocation Table). The FAT contains the directions to all the pieces of your files, so that applications can find them again later.

When you delete a file, all the information stored in that file is not actually erased from your disk. Instead, Windows simply frees the clusters where the file was stored, making those locations available in the FAT. Thereafter, applications can write new information to those clusters. This means that all or part of your files can be reconstructed even after you delete them. Undelete programs can reconstruct a deleted file very easily, especially immediately after you delete the file and before you save any new information that might be written over the deleted file's contents.

For privacy and security reasons, you may want to be positive that the information stored in files you delete is permanently erased from your computer. Shredder does this for you by "security wiping" deleted files so they cannot be restored or rebuilt using undelete utilities. Unlike other file security erase programs, Shredder erases even the filename and the compressed data on DriveSpace drives. Note that it is not possible to shred network files, or files compressed with compression other than DriveSpace in an absolutely secure manner.

**Tip**    You can select Shredder properties to specify the shredding level to perform. You can select Quick, which shreds the information once, or U.S. Government Multipass, which makes seven passes of repeatedly erasing the data.

Shredder also lets you completely erase other critical non-file information that might still be accessible on your disk. The non-file data on your disk is the free disk space, file slack, and deleted filenames. When you shred a file, Shredder erases this non-file data for the file you shred. However, this information can still be accessible for other files you've deleted in the past. When you are working with files, Windows creates and deletes temporary copies of your work. To be certain that no left-over, confidential items are hiding in the free space on your drive, you may want to periodically shred the non-file data. When you do this, you can no longer undelete previously deleted files.

Free disk space is the amount of currently available disk space on your hard drive. It can contain information from files you've saved and then deleted in the past.

Windows allocates storage space in clusters of sectors that have a predetermined size. However the files you save rarely use all the storage space reserved for them. The extra, unused storage space reserved for a file, but not used, is called file slack. Like free disk space, the file slack may contain old data from files you've deleted in the past.

In Windows, filenames can be up to 255 characters long. This means you may have entered sensitive information as part of a filename. And just as Windows does not actually erase data in a file when you delete it, it does not erase the filenames of deleted files either. Shredder can erase these deleted filenames for you.

The procedures you can perform in Shredder are described in these help topics:

- Shredding Selected Files
- Shredding Non-file Data
- Selecting Shredder Properties

# Shredding Selected Files

You can shred files using drag and drop, which is a fast way if all the files are centrally located. Or if the files are in several places, you can shred them by starting Shredder and selecting the files to erase.

McAfee Shredder allows you to shred files on your PC's Recycle Bin, Temporary Internet, as well as Web site history folder. You can also specify the number of shredding passes (1-99) and can now have the option to shred an entire drive.

**TIP**: You can select McAfee Shredder properties to specify the shredding level to perform. You can select: Quick to shred the information once; U.S. Government Multipass to make seven passes of repeatedly erasing the data; or Custom to indicate how many passes to make which allows up to 99 passes.

**To shred files using drag and drop:**

**NOTE**: If your computer is running on Windows ME, some files even if shred, may be retained on your PC since these are protected by the Windows ME System Restore.

1. Select files in My Computer or Windows Explorer and drag them onto the File Shredder icon on the desktop.

    • If the Prompt Before Erasing check box is deselected in the Shredder Properties dialog box, Shredder erases the files, closes, and returns to the desktop.

    • If you have selected the Shredder properties option to Prompt Before Shredding, a message appears listing the first file you dragged onto the Shredder icon. It asks you to confirm that you want to shred this file. Go to step 2.

2. Do one of the following:
    ▪ Click OK to shred the listed file. Repeat this step for each file.
    ▪ Click OK to All if you're positive you want to shred all the files you dragged onto the Shredder icon.
    ▪ Click Skip to not shred the listed file and continue selecting whether to shred any other files you dragged onto the Shredder icon.
    ▪ Click Cancel to return to the desktop without shredding the listed file or any others you dragged onto the Shredder icon.

**To shred files in the Shredder:**

1. Start Shredder by doing one of the following:
    ▪ Click the Start button and choose the Program > McAfee Utilities > Shredder command.
    ▪ Open the McAfee Utilities folder and double-click the Shredder icon from the Windows Explorer window.

      The File Shredder dialog box appears.

2. Select the Select a File to Erase radio button and click Next >. The Select a File to Shred dialog box appears.

3. Do one of the following:
    ▪ Enter a path for one or more files to erase, separating each path with a space character.
    ▪ Click the Browse button to locate one or more files to select.

      The Select a File to Erase dialog box appears where you can select one or more files. When you finish, click Open.

**Tip**      To select multiple adjacent files, hold down the **Shift** key while clicking filenames. To select multiple non-adjacent files, hold down **Ctrl** while clicking.

4. Click the Finish button.

    • If the Prompt Before Erasing check box is deselected in the Shredder Properties dialog box, Shredder erases the files, closes, and returns to the desktop.

    • If the Prompt Before Erasing check box is selected, a confirmation message appears. Go to step 5.

5. Do one of the following:
    ▪ Click OK to shred the listed file. Repeat this step for each file.
    ▪ Click OK to All if you're positive you want to shred all the specified files.
    ▪ Click Skip to not shred the listed file and continue selecting whether to shred any of the remaining files you specified.
    ▪ Click Cancel to return to the desktop without shredding the listed file or any others you specified.

# Shredding Non-file Data

You can shred non-file data, which is any combination of free disk space, file slack, or deleted file names, at any time. Most likely, you'll want to do this soon after you install this program. If you always use Shredder instead of deleting files in Windows, this non-file data will be shredded as part of each file you shred. So if you sometimes delete files, you'll want to periodically shred the non-file data again.

**Caution**        After you shred non-file data, you will not be able to undelete any deleted files that utilized this information.

**To shred non-file data:**

1.  Start Shredder by doing one of the following:
    - Click the Start button and choose the Program > McAfee Utilities > Shredder command.
    - Open the McAfee Utilities folder and double-click the Shredder icon from the Windows Explorer window.

    The File Shredder dialog box appears.

2.  Select the Erase Non-File Data radio button and click Next >. The File Shredder (Select What to Erase) dialog box appears.

3.  Select the information to erase (any combination of Free Disk Space, File Slack, and Deleted File Names).

4.  Select the drive where you want to erase the selected non-file data and click Next >. Then click Finish.


A message appears showing you how the non-file data erasure is progressing. When the process is complete, Shredder closes and returns you to the desktop.

## Selecting Shredder Properties

You can select Shredder properties for a shredding level of quick or U.S. Government, to display prompt messages before erasing (which gives you a last chance to cancel the process), and to show the Shredder icon on the desktop.

**To select Shredder properties:**

1. Start Shredder by doing one of the following:
   - Click the Start button and choose the Program > McAfee Utilities > Shredder command.
   - Open the McAfee Utilities folder and double-click the Shredder icon from the Windows Explorer window.

     The File Shredder dialog box appears.

2. Click the Properties button. The Shredder Properties dialog box appears.

3. Select the options you want and click the Apply button.

# File Shredder Dialog Box

This dialog box contains the following options:

- **Select a File to Erase**

  Select this option and click the Next > button to specify one or more paths to locations containing one or more files that you want to erase. The <u>Select a File to Shred dialog box</u> appears.

- **Select a Non-File Data**

  Select this option and click the Next > button to specify the kinds of non-file data (free disk space, file slack, and deleted filenames) you want to erase on the selected drive. The <u>File Shredder (Select What to Erase) dialog box</u> appears.

- **Properties**

  Click the Properties button to select Shredder properties including the shredding level (Quick or U.S. Government Multipass), whether to prompt before shredding, show the Shredder icon on the desktop, and add a Shredder command to the Send To submenu in Windows Explorer and My Computer windows. The <u>Shredder Properties dialog box</u> appears.

- **Cancel**

  Click Cancel to close Shredder and return to the desktop.

## Select a File to Shred Dialog Box

This dialog box contains the following options:

- **File to Shred**
  Enter, or browse to select, the files you want to shred in the File to Shred text box and click the Next > button. You can enter one or more paths to files that you want to erase using a space character to separate each path.

- **Browse**
  Click Browse to locate one or more files you want to shred. The Select a File to Erase dialog box appears.

  After you select files and click Open, Shredder adds the paths to the selected files in the File to Shred text box.

- **< Back**
  Click < Back to go back to the File Shredder dialog box.

- **Finish**
  Click Finish to shred the selected files.

- **Cancel**
  Click Cancel to close Shredder and return to the desktop.

## Select a File to Erase Dialog Box

This dialog box contains standard Windows options for selecting the location where a file resides in a folder and opening a file. You can specify a group of files using the asterisk wildcard character as part of the filename in the File Name text box. Or to select multiple adjacent files, hold down the **Shift** key while clicking filenames. To select multiple non-adjacent files, hold down the **Ctrl** key while clicking.

After you select the files to shred, click the Open button. You can repeat this process to select other files to shred.

You can also click Cancel to go back to the Select a File to Shred dialog box.

# Shredder Properties Dialog Box

This dialog box contains the following options:

- **Shredding Level**

  Select the Quick or U.S. Gov't (Government) shredding level.

  *Quick*-shreds the information once by writing zeros to the selected areas.

  *U.S. Government Multipass*-makes seven passes of repeatedly erasing the data. U.S. Government Multipass shredding is a method of declassifying data in a magnetic media based on a government standard where the area to be declassified is overwritten at least three times by writing any character, then its complement alternately.

- **Prompt Before Erasing**

  Select this option and Shredder displays a confirmation message before it erases the selected files or the kinds of non-file data you specify on a drive.

- **Show Icon on Desktop**

  Select this option if you want the Shredder icon to appear on your desktop.

- **Add to Send Menu**

  Select this option if you want the Shredder to be added to the File > Send To menu that is available in Windows Explorer or My Computer, or in the menu that appears when you Right-click icons.

# File Shredder (Select What to Erase) Dialog Box

This dialog box contains the following options:

- **What to Erase**

    Select the kinds of non-file data you want Shredder to erase. Your options are free disk space, the file stack, and deleted filenames.

    *Free disk space*-the amount of currently available disk space on the hard drive. It can contain information from files you've saved and deleted in the past.

    *File slack*-the unused storage space reserved for a file that has not been used. Like free disk space, file slack can contain information from files you've deleted in the past.

    *Deleted filenames*-the filenames associated with files you've deleted in the past. Like deleted files, deleted filenames are not erased and can contain old data. Shredder deletes the directory data for the selected files when shredding filenames.

**Warning**     Once you shred non-file data, you will not be able to undelete any previously deleted files.

- **Selected Drive**

    Select the drive letter for the drive containing non-file data you want to erase.

- **< Back**

    Click < Back to go back to the File Shredder dialog box.

- **Next >**

    Click Next > to erase the selected kinds of non-file data on the specified drive.

- **Cancel**

    Click Cancel to close Shredder and return to the desktop.

## Address Space

The sum total of all possible memory addresses available at a given time. This is 4 GB (gigabytes) on a 386 or later PC in protected mode.

# Benchmarks

A benchmark is a standardized task that tests various devices for measurements, such as speed.

## BIOS

The BIOS (or Basic Input/Output System) contains buffers for sending information from an application to the hardware device, such as a printer, where the information should go.

# Buffers

A buffer is a temporary storage location for information being sent or received.

# Bytes

A byte is eight bits of information composed of zeros and ones, one of which may be a parity bit. Most character sets, such as ASCII, use one byte to represent each character (letter, number, or special symbol).

# Cache

A cache is part of the computer's memory used to temporarily store recently accessed information. A cache is designed on the premise that recently used information may be needed again soon. Keeping information available in cache reduces the time it takes for an application to obtain the information again.

## Cluster

A cluster is a unit of storage allocation usually consisting of four or more 512-byte sectors.

## Conventional Memory

Conventional memory is the first 640 K (kilobytes) of RAM (random access memory).

## CPU (Central Processing Unit)

The "brain" of your computer. This is main computer chip that controls all activity that takes place on a computer.

# Diagnostics

Diagnostics are tests run to detect faults in a computer system. Diagnostics tests are run to detect faults before they become serious problems so the faults can be corrected.

## Directories

Directories are locations within a volume on a drive where you can store files or subdirectories. In Windows, directories are equivalent to folders that appear on the desktop in a drive window.

# Discardable Memory

Discardable memory is memory used by an application that it has marked as discardable. Windows can reallocate the discardable memory to a different application if it needs to.

## DLLs (Dynamic Link Libraries)

A DLL is an executable code module that can be loaded on demand and linked at run time. DLLs can be shared among multiple applications and independently updated, transparent to the applications. DLLs can also be unloaded when they are no longer needed.

# DMA (Direct Memory Access)

DMA is a fast method of moving information from a storage device or LAN interface card directly to RAM which speeds processing time. DMA is direct memory access by a peripheral device that by-passes the CPU to save time.

## Expanded Memory

DOS running on the Intel 80286, 80386, or 80486 family of computers can only address one megabyte of memory at one time. Expanded memory is the memory located between the base memory (either 512 K or 640 K) and one megabyte. Expanded memory is reserved by DOS for housekeeping tasks, such as managing information that appears on the screen.

## Extended Memory

Memory above one megabyte in 80286 and higher PCs. Extended memory can be used for RAM disks, disk caches, or Windows, but it requires the CPU to run in a special mode (protected mode or virtual real mode).

## FAT (File Allocation Table)

The FAT is an index to the location where all the information is stored on a floppy disk or hard drive. The FAT is extremely important because the system uses it to store and retrieve files containing information.

## GDT (General Description Table)

The GDT is a table that is basic to the operation of protected mode. This table contains data structures (descriptors) that describe various regions of memory and how they may be accessed. Windows uses the GDT for system devices. *See LDT.*

## Global Heap

The Global Heap is the general pool of memory available to Windows applications.

## GPF (General Protection Fault)

An error condition caused by an application when it attempts to perform an operation not allowed by the operating system. Windows uses GPFs to determine and control the state of the currently executing application. GPFs that are unexpected by Windows cause a system error message to appear.

# HMA (High Memory Area)

The HMA is the first 64 K of extended memory. If you use DOS 5.0, you can save memory by loading DOS into the HMA. Do this by adding the DOS=HIGH setting to your CONFIG.SYS file and restarting your PC.

## Interrupt

A temporary suspension of a process caused by an event outside that process. More specifically, an interrupt is a signal or call to a specific routine. Interrupts allow peripheral devices, such as printers or modems, to send a call to the CPU requesting attention.

## I/O (Input/Output) Device

An I/O device is any piece of computer hardware that can exchange information with the CPU. Examples of I/O devices include network cards, printers, speakers or other sound devices, or devices connected to the serial or parallel ports of your PC such as external modems.

# Kernel

The Kernel is the part of a computer operating system that performs basic functions such as switching between tasks.

## LDT (Local Descriptor Table)

The LDT is a secondary data structure table that contains additional information about various regions of memory and how they can be accessed. Windows uses the LDT for programs.

## Linear Memory

Linear memory is the currently defined address space of the system that Windows uses to allocate memory to Windows applications.

# Local Heap

The Local Heap is a region of memory allocated for local use by an application.

## Locked Memory

Locked memory is memory used by an application that cannot be relocated or discarded by Windows.

## Mapping

Mapping is the process of assigning physical memory (RAM) to a particular linear address range.

## Mode Switch

A mode switch is a transition made by the CPU when changing from one mode of operation to another. For example, switching from real or protected mode, or a transition between different levels of protection. *See Ring 0, 1, 2, 3*.

## Modules

A module is a device driver loaded by Windows.

# Paging

The process of saving information stored in RAM to the swap file on the system hard drive so Windows can make the RAM available at a different linear address.

## Parallel Port

The parallel port is a connector on the back of your PC and on some peripheral devices. With the appropriate driver software installed and a parallel cable connected to the parallel ports on your PC and a peripheral device, the two can communicate with each other. Parallel transmissions have no EIA standard, but most equipment follows a quasi-standard called the Centronics Parallel Standard.

## PCI (Peripheral Component Interconnect) Bus

The PCI Bus is a local motherboard specification (that provides connector slots on the motherboard for installing peripheral cards). The PCI Bus, designed by Intel, offers a high performance, peripheral component level interface to the CPU bus.

## Physical Memory

Physical memory is the RAM (Random Access Memory) installed in your PC. *See Random Access Memory (RAM).*

## Protected Mode

A mode of operation of 80286 or later CPUs which allows access to more than 1 MB of memory.

## RAM (Random Access Memory)

RAM (Random Access Memory) is also called physical memory. It is installed in your PC on SIMMs (Single Inline Memory Modules) or DIMMs (Dual Inline Memory Modules). RAM is volatile, extremely high-speed storage used by your computer for processing information.

## Real Mode

A mode of 80286 or later CPUs, where the CPU operates substantially like an older 8086 CPU and can address directly only 1 MB of memory.

# Resources

Resources are objects that Windows and its applications can use, such as the buttons on the screen that you can click.

# Ring 0, 1, 2, 3

Different levels of protection in protected mode, where programs having varying degrees of freedom of operation. Ring 0 (zero) is least protected and has direct access to all hardware in the system.

## Sector

A sector is a pie-shaped portion of a hard disk. A disk is divided into tracks and sectors. Tracks are complete circuits and are divided into sectors. Under DOS, a sector is 512 bytes.

# Serial Port

A serial port is an input/output port (connector) that allows the transmission of information out at one bit at a time, as opposed to parallel which transmits eight bits, or one byte at a time.

## Swap File

The swap file is created by Windows on the system hard disk. It uses the swap file to copy information stored in part of the linear address space so it can reallocate the RAM used at that location to another linear address space.

# Swapping

Swapping is the process of saving to disk or restoring from disk the contents of RAM so that the RAM can be used elsewhere in linear memory.

## System Resources

System resources are a series of data structures kept by Windows. System resources are managed by the Windows User and GDI programs and maintain information about objects that appear on your screen.

## 32BDA (32-Bit Disk Access)

32BDA is a process in Windows where the device driver that accesses the disk runs entirely as a 32-bit program at Ring 0 (zero).

## 32BFA (32-Bit File Access)

32BFA is a process in Windows where the DOS file operations are controlled by a program, or set of devices, that operate entirely as 32-bit programs at Ring 0 (zero).

## Unlocked Memory

Unlocked memory is physical memory that Windows can copy to the swap file on disk, and whose linear address can be changed whenever Windows chooses.

## UMB (Upper Memory Block)

The UMB is the area in memory between 640 K and 1 MB that have RAM mapped into them by memory managers, such as Network Associates' Netroom or MemMaker. *See Expanded memory.*

## V86 Mode (Virtual 8086 Mode)

V86 mode is a mode of operation of 80386 or later CPUs where programs, originally designed to run in real mode, can run as sub-programs to a protected mode control program or operating system.

## Video Memory

Video memory, called VRAM, is physical memory installed on your PC's video card that is used for displaying information on the screen.

## Virtual Memory

Virtual memory is the amount of memory that exists either as physical memory (RAM) or on the hard drive (in the swap file).
When a part of memory that is located in the swap file is accessed by an application, Windows reads the information into RAM.

## VMs (Virtual Machines)

Virtual machines (also called Virtual DOS machines or VDMs) are created in Windows when you open a MS-DOS Prompt window. The VDM is a software emulation of a separate computer, offering all the services that the DOS application expects of a PC.

## VxDs (Virtual Device Drivers)

VxDs are used in Windows to communicate with all physical hardware in the system. This prevents any application from having direct access to a piece of hardware. Instead, it communicates only through the VxD for that hardware.

## Windows Registry

The Windows Registry file contains user, application, and computer-specific configuration information in a central location that was kept in various .INI files in Windows 3.1. The Registry contains settings that determine how your computer runs.