WASTE for Windows

WASTE for Windows scans a specified disk and reports various numbers which help you decide how best to partition the disk. Specifically, it reports how much space is wasted due to the disk's cluster size, and how much would be wasted for other given cluster sizes.

This allows you to make intelligent choices--using your own actual files--on how best to partition your hard disk. If your disk currently uses 32K clusters, for example, you'll see exactly how much space you would "recover" if you split that disk into multiple partitions each with 8K clusters.

 Calculating the Percentage "Wasted"

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Calculating Percentage "Wasted"

An example might be most illustrative here:

Let's say that a disk contains 500 megabytes of files as reported by File Manager. *Waste for Windows* reports that these 500 meg of files take up an additional 250 megabytes of "wasted" space.

So is there 50% waste here? Well, you *might* say that, but that would be misleading and something of an exaggeration.

Why? Because it is *not* of those 500 megabytes that 250 are wasted. The actual disk space in use by all those files is a total of 750 megabytes, because all these directory utilities (like File Manager, DOS's DIR, and so forth) only report the file size *without the waste*.

Since 750 megabytes of space are used by these files, of which 250 megabytes are nothing but "slack waste" then the actual percentage wasted is 250 / 750 = 33%.

The percentage "wasted" is the amount of disk space wasted, divided by the full total disk space taken up by the files which is the "dir" size *and* the wasted amount.

Re-partitioning your disk

There are two options if you decide to repartition your disk.

MANUAL

One is to backup everything on your disk(s), then use DOS's FDISK utility to repartition your disk(s), making sure you create a bootable floppy disk also containing your backup software. Then restore the old volumes to your newly created volumes.

You'll have to refer to your DOS manuals and online help for information on how to use FDISK.

AUTOMATIC

A product called PartitionMagic (from PowerQuest) will *dynamically* repartition your hard disk, according to the press. That is, it will repartition your hard disk *without* destroying your files! (Although a full backup is always recommended anyway). This product is **NOT** mine and I've also never used it, because I've always optimally partitioned my disks when they are still new. They have a web site at **http://www.powerquest.com** and their phone numbers are 800/379-2566 and 801/226-8977. Their FAX number is 801/226-8941. The product costs between $40 and $60 and it always receives great reviews.

VERY IMPORTANT THING TO NOTE

If you are repartitioning your hard disk to create *more* volumes, then make sure you take into account the new drive letters you will be creating.

As an example, let's say you had a single drive **C**, and a CD-ROM drive which was assigned as **D**. Now you wish to repartition your large **C** drive into three partitions. These three partitions will be assigned the letters **C, D, and E**. Thus, your CD-ROM drive will be assigned the next available letter, or **F**. Therefore you will have change all references to your CD-ROM drive from "C" to "F."

This is not too hard. Typically, you'll need to edit your config.sys (and/or your autoexec.bat) in your root directory. (link here for detailed instructions).

You should also be aware that you'll have to make some changes to various INI files and such to tell some of your programs that they are now on the "D" drive instead of "C" (for example).

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Disk Basics: The Lowdown on Disk FAT

Click here if you are running any kind of disk compression (Stacker, DoubleSpace, etc).

Files on PC systems require a minimum file size. Let's say your disk uses 8K clusters. Now, even if DIR reports that a file has a size of say, 2556 bytes, it will really take up 8,192 bytes on your hard disk because that's the smallest **chunk** that DOS or Windows (Win 3.1 or Win 95) can allocate. (WinNT and OS/2 are different).

So, in this case, **5636** bytes of disk space are wasted. Then, what if you were able to reduce the cluster size to 4K (4096 bytes)? In that case only **1540** bytes would be wasted.

This kind of savings really adds up. On my disks, I typically keep the volumes to just under the 512 meg boundary (511 MB). This makes the cluster size 8K. In my case, typically around 30 to 40 megabytes are wasted, or about 10% of the disk. Had I coalesced this volumes into a single large 1.6 gigabyte drive, then I'd be "wasting" over 300 megabytes! See Cluster Size vs. Volume Size table.

For large volumes (over 512 megabytes) it is not unusual to see wastage that uses up fully a fourth, a third, or even half of the hard disk!

If you don't partition your 1.6 gigabyte hard disk into smaller partitions, you may well be throwing away **hundreds of megabytes** of disk space!

Fixed disks and floppies running under DOS, Windows 3.x, and Windows 95 use a File Allocation Table (or FAT) to keep track of your disk's files. Space doesn't permit a detailed discussion here, but basically, certain design limitations of the FAT structure require that it use cluster sizes of a specific size (see Cluster Size vs. Volume Size) for specific size logical disks.

Disk Compression

Many people ask, "What if I'm using a disk compression utility like Stacker or DoubleSpace? Will I still benefit by repartitioning?"

The short answer is **NO! Do not repartition!**

The longer answer is that disk compression schemes put everything into one giant file, like a giant ZIP file. Then, they keep track of where each file is with their own internal pointers and software.

But as far as DOS or Windows can tell (without the compression driver loaded that is) it is just one big file.

So the most you are wasting is just one cluster. Even if you have 32K clusters, then the most you'd be wasting is 32K (minus 1 byte, of course). This big file might even be sized to fit exactly into your cluster size evenly, so that there is **zero** wastage.

Incidentally, if you ARE running disk compression, then ***Waste for Windows*** will **not** report accurate results at all. It gets its information through DOS and Windows calls, which are intercepted by the compression device driver. So ***Waste for Windows*** gets back information on such-an-such a file of size, say, 1201 bytes, when in reality that "file" is really a little chunk somewhere in the middle of that big compressed file.

Windows NT & OS/2 are different

Win NT and OS/2 allocate clusters differently.

Win NT uses NTFS (New Technology File System) while OS/2 uses HPFS (High Performance File System).

NTFS uses a cluster size of between 512 bytes and 4K, depending on volume size. And HPFS uses 4K clusters regardless of volume size.

Thus, these two OSs are very efficient in disk management, obviating the need for this program.

Windows 95 on the other hand, uses the same FAT disk structure as DOS and Windows 3.1x.

Cluster & Volume Sizes

This table gives the cluster size for a given volume size.

Cluster Size	Volume	Size
2K	16 MB up to*	128 MB
4K	128 MB up to	256 MB
8K	256 MB up to	512 MB
16K	512 MB up to	1024 MB
32K	1024 MB up to	2048 MB
64K	2048 MB up to	4096 MB

Floppy disks use a cluster size of 512 bytes (or 0.5 K)

*In each case, "up to" means "up to but not including"

A "volume" is a disk partition. Some hard disks are "partitioned" into multiple smaller volumes, each with its own assigned letter, starting with **C:**.

If your hard disk is accessed only by a single drive letter (i.e., "C:") then your entire hard disk is one single partition.

A cluster is the smallest chunk of disk space that the computer's operating system call allocate to hold a file. Every file must always use a whole number of these "chunks" (sometimes called *allocation units*.)

What's with the Weird Graphic?

It has to do with hidden knowledge and control of your own destiny. With **Waste for Windows**, you now have more knowledge of how your hard disk works. You now have better information regarding how best to partition your disk(s). Thus, you can control just how much waste you want on your disk. Yes, *you are in control!* And... well... the graphic is kind of cool anyway. It was either that or something depicting the cutting of waste, like a knife cutting into a slab of bacon. So I thought most of us would rather look at a *Moon Goddess*. I certainly do.

All we have is ourselves. Love Everyone!

How to Operate Waste

1. Select a drive letter from the drive dialog box.

2. Click on **Scan Drive**. The Goddess Box will have **SCANNING** flashing in blue.

3. Wait for it to end. (Look for a green **DONE** in the Goddess Box.)

MORE DETAIL

The gauges' total **empty** length represents the *entire* capacity of the selected drive. Typically, this will not be filled up completely by a colored line.

The first gauge (the one representing the chosen drive) will display the total space used as a **blue line**. The **blue line** will never make it all the way to the right edge, because this line shows the file size not including "waste." And there is *always* some waste!

The subsequent gauges show how much **would** be wasted given the indicated cluster sizes. The volume size associated with each cluster size is also given. One of these represents the disk or volume you've chosen, and it will be so indicated with a star. All the other drives are shown for information as to what **would** be wasted if you chose your disk's partitioning differently.

These gauges will represent the wasted space with **RED** lines. The actual prospective bytes wasted are given, the prospective percentage, and that percentage displayed graphically in the gauge.

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Waste for Windows was designed by

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This software should help you in the recovery of a great deal of disk space, possibly hundreds of megabytes. Please consider registering this software for only $5 with a check to the address above, or via SWREG (#11192) on CompuServe. Since CompuServe requires a $10 minimum, if you use SWREG then I will send you back a $4 cash rebate, or send three other great utilities (Monitor, Great Clock, and Super Directory) at your option.

Any and all comments are welcome. Thank you for using ***Waste for Windows!***

Legal Disclaimer

This is the legal fine print.

Short Version:
I assume no responsibility for any damage or loss caused by the use of this program, regardless of the circumstances.

Why:
This program only interrogates your disk like File Manager. If File Manager doesn't damage your disk, neither will this program.

Longer Version:
The Copyright Owner hereby disclaims all warranties relating to this software, whether express or implied, including without limitation any implied warranties of merchantability or fitness for a particular purpose. The Copyright Owner will not be liable for any special, incidental, consequential, indirect or similar damages due to loss of data or any other reason, even if The Copyright owner or an agent of The Copyright Owner has been advised of the possibility of such damages. In no event shall The Copyright Owner's liability for any damages ever exceed the price paid for the license to use the software, regardless of the form of the claim. The person using the software bears all risk as to the quality and performance of the software.

Troubleshooting

A few people have reported problems with Windows 95 with earlier versions of Waste for Windows.

For these users, **Waste** would GPF and terminate, usually a few seconds into a scan.

Therefore, a **"debug"** mode has been included which should allow us to better diagnose the cause of the problem, should it happen with your machine.

If you click once on my name at the main screen (**Joseph T Glosz**) then this debug mode is turned **ON**. You'll be able to tell because a little message displays over the **Designer** button that says "**Debug File Logging ON**" To turn the debug off, click the name again.

What does Debug Mode do?

All it does is create a file called **LOG.TXT** in the Waste directory. This file contains all the names of all the files and directories that Waste has scanned. Waste for Windows will also now **trap** or "catch" any GPFs before Windows "sees" them (don't you wish other programs did this?). You should then see a dialog box telling you of such event, and you should then be able to exit the program normally.

If a GPF occurred (or any other exception) then please email me (see Designer) the **LOG.TXT** file. It might help in determining why the error happened.

Thanks!