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), for example.

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). Then restore the 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

There is a software product which will *dynamically* repartition your hard disk. That is, it will repartition your hard disk *without* destroying your files! (Although a full backup is always recommended anyway). This product only costs about $60; please contact me (Joseph T. Glosz) if you wish more information.

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

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 is 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 around 300 MB. This makes the cluster size 8K. In my case, typically around 30 to 40 megabytes are wasted, or about 10% of the disk. See Cluster Size vs. Volume Size table.

However, if I were to combine the two volumes into a single volume larger than 512 megabytes, then the cluster size would double to 16K. In my case, the wasted space would jump to well over 100 megabytes!

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 1.2 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 file. Each FAT can have only 65,536 entries.

Windows NT is different

Win NT allocates clusters differently in its HPFS (High Performance File System): it uses 4K clusters regardless of volume size.

Thus, Win NT is very efficient in its disk use, pretty much obviating the need for this program.

File space waste under Win NT HPFS will be approximately the same percent as that of a 100 MB volume under DOS.

Cluster & Volume Sizes

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

Cluster Size	Volume Size
2K	16 MB to 127 MB
4K	128 MB to 255 MB
8K	256 MB to 511 MB
16K	512 MB to 1023 MB
32K	1024 MB to 2047 MB
64K	2048 MB to 4095 MB

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

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 was 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.

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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Any and all comments are welcome.

Please contact me if you need Windows products that look better than your competitors, perform flawlessly, with a time to market of one third to one half of standard projections. Rates are negotiable, but begin at $75 per hour; higher for Client/Server applications.

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:
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