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# Removing Unwanted DLLs

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*Duplicate or “orphan” DLLs can easily accumulate, particularly in the System directory. Removing these unwanted files can liberate many megabytes of space on your hard disk. We examine the best tools for the job.*

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If you were to search your users' PCs for \*.DLL you might be surprised - perhaps shocked - by the number of files that you find. Most of these will be essential for the smooth running of the users' applications, but it's a safe bet that many of them will be totally unnecessary, and will simply be cluttering up the system. If you could get rid of these surplus files you would liberate a worthwhile amount of disk space.

To illustrate, I am writing these words on a four-year old PC which has been used for little more than Microsoft Office and a couple of accounting and email applications. Yet I found a staggering 1,900 DLLs on my hard drive, totalling 375 MB. By using the techniques which I am about to describe, I was able to safely delete 127 of these and thus re-claim over 35 MB of disk space.

Saving disk space isn't the only reason to rid yourself of unwanted DLLs. In general, the more files there are in a given directory, the longer it takes Windows to locate and open a file in that directory. So, if you can remove unnecessary DLLs, your users might notice a worthwhile improvement in performance. This is especially true of the vital Windows System directory, which is where many redundant DLLs hang out.

Where do these superfluous files come from? The commonest cause of DLL clutter is file duplication. This happens when multiple applications install copies of the same DLL in different directories. When you install an application, it will usually place its DLLs either in its own directory or in the Windows System directory. If the DLL belongs specifically to the application, the application's own directory (or a subdirectory thereof) is the preferred location. It will be faster for Windows to open the file there, and it will avoid clashes with other DLLs which have the same name.

However, if the DLL is a shared library the System directory is a better place for it. If the file is not available in the application's own directory, Windows will eventually look for it in the System directory, so all applications that require the DLL can be sure of finding it there. Unfortunately, not all software vendors seem to understand this. In some cases, they will cheerfully install a DLL in a private directory even though an identical copy already exists in the System folder. In other cases, there might be an existing copy in another application's private directory, but the new application will have no way of knowing this, so it will install yet another copy somewhere else.

The solution might at first seem obvious: make sure that there is always a copy of the file in question in the System directory and then delete all other copies. But it's not quite that simple. It could be that you have two DLLs with the same name but which are different versions. If the one that you placed in the System directory happens to be the older version, any application that depended on the newer version would no longer work.

A separate DLL-related problem is that of orphaned files: DLLs that get left behind after their parent applications have been uninstalled. This especially affects DLLs in the System directory. The uninstall utility will assume that these files are shared, but it will have no way of knowing which other applications use them or whether these applications are actually present on your system. In most cases the uninstaller will play safe and decline to erase any DLLs at all from the System directory, which thus becomes a warehouse of orphaned files.

### Identifying DLLs

Clearly, before you can do any pruning of duplicate or obsolete DLLs, you must know what each DLL is used for, which applications it belongs to, and what version it is. One way to find this out is to look at the DLL's property sheet. To do so, locate the DLL file in Windows Explorer or a folder window, right-click on it, select Properties, then select the Version tab. With luck, the resulting window (see Figure 1) will display a short description of the DLL, its version number and a copyright notice, and perhaps also the vendor's name, product name and several other useful items of information. Unfortunately, these details are not always present. It is the software developer's job to provide them, and not all developers bother to do so.

If you have installed McAfee Utilities or McAfee Office the property sheet will have an additional tab labelled File Links. When you click on this, you will see a list of the DLL's dependencies - that is, the executable files which call it and those which it in turn calls. If the first part of this list is empty, the DLL is probably an orphan and can therefore be deleted (but back it up first to be on the safe side).

In some cases you will have to study the application's documentation in order to discover what a particular DLL is for - assuming, of course, that you know which application the DLL belongs to. In the case of Microsoft applications, searching the Knowledge Base for the DLL filename often yields useful results.

If the computer is running Windows 98, the System File Information utility is a good source of DLL data. This applet displays descriptions of all the Windows 98 system files, including its 850-odd DLLs - although it unfortunately does not show version information. The utility is part of the Windows 98 Resource Kit, and can be installed by copying FILEINFO.EXE and WIN98.MFI from the Resource Kit CD-ROM to the hard drive (you will also need to remove the read-only flag from WIN98.MFI after copying it).

A much more comprehensive source of information is the Microsoft DLL Help Database. This online resource covers virtually every Microsoft DLL that you are likely to come across. It will tell you exactly which versions of which applications (including service packs where applicable) require each version of the DLL, and also the relative path to the directory where they expect to install it from.

You can search the database either by application name, DLL name or both. You would search by application name if you wanted to verify that all of a given application's DLLs are present and are up to date. If you have a DLL that you suspect has been left behind after uninstalling an application, you could search the database for the DLL name, then check to see which other applications, if any, require it to be present. To access the database, go to [msdn.microsoft.com](http://msdn.microsoft.com), then select DLL Help Database from the Resources menu. This will take you to the

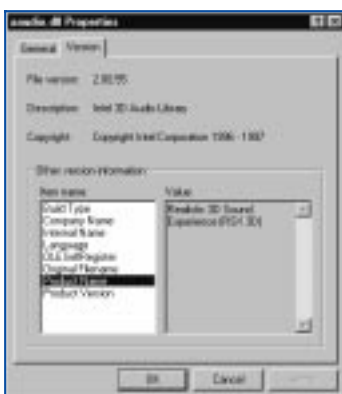


Figure 1 - A DLL's property sheet.

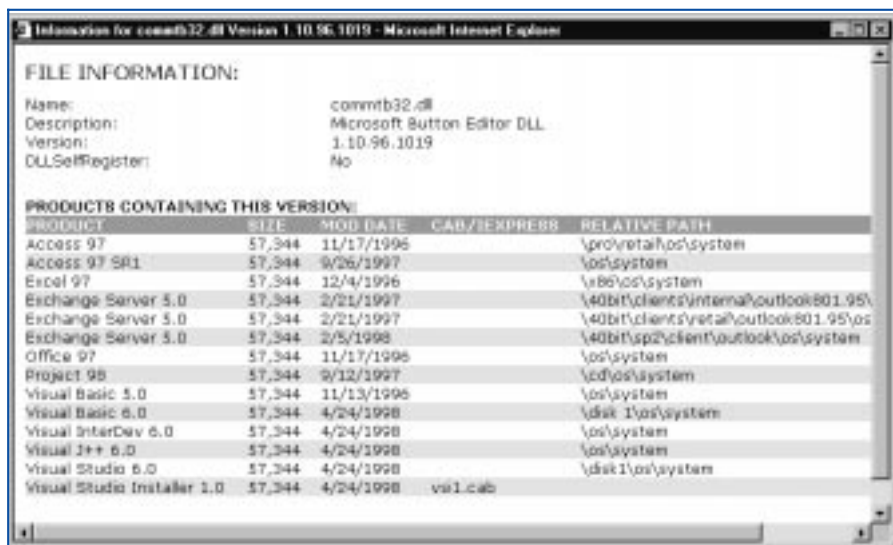


Figure 2 - The Microsoft DLL Help Database.

main search page. Once you have located the file you are interested in, click its More Information link to view its full details (see Figure 2).

### ***Purging Orphans***

The techniques which I have described so far can be helpful when you are dealing with individual DLLs - when you want to check to see if a given DLL is no longer required by any application on the computer, for example. But they would be far too laborious to use on a large scale. If you want to quickly locate and delete all the orphaned DLLs in the System folder, you will need a utility that does the job automatically.

Surprisingly, none of the leading commercial utility packs provides that particular service. The two utility packs which are most popular with support staff are Norton Utilities and McAfee Utilities, but neither of these has a function specifically designed to eradicate orphaned DLLs (you might think that the promisingly-named Orphan Finder in Norton Cleansweep will do the job but, in fact, it locates applications for which there is no shortcut in the Windows shell, which is a different story).

The best tool for tracking down and eliminating orphaned DLLs is a free utility called ClnSys, by Kevin Solway (see Figure 3). If you are worried about entrusting this potentially hazardous operation to a piece of freeware published by a one-person programming shop, don't be. ClnSys is used by thousands of large companies, and it is completely safe, provided that it is used properly. ClnSys works by examining every executable program installed on the computer. It works out which DLLs those programs call, then compares these to the DLLs in the System directory. Any DLLs for which there is no calling program are flagged as orphans. ClnSys then moves these to a backup directory.

If, after you have run ClnSys, you experience problems with any of your applications, you should copy the backed-up DLLs back to the System folder. ClnSys can do this for you, but it is easy enough to do it yourself. If, on the other hand, several weeks go by without any problems, you can go ahead and delete the backups. For real belt-and-braces safety, you could copy them to a floppy before deleting them from the hard disk.

When I ran ClnSys for the first time, it found 42 redundant DLLs on my drives, with a total size of 11 MB. And this was on a fairly stable PC. If your users often try out shareware or evaluation programs, or if they have recently uninstalled some large applications, it is likely that ClnSys will find many more unwanted DLLs.



Figure 3 - Kevin Solway's ClnSys utility.



Figure 4 - Cleansweep's Redundant DLL Finder.

### ***Eliminating Duplicates***

When it comes to tracking down duplicate DLLs there are several commercial utilities which can help. Norton Cleansweep and McAfee Uninstaller (which is now part of McAfee Office) both include tools which will locate multiple copies of DLLs, and both programs will help you decide how to deal with them.

### ***More DLL Cleaning Tools***

There are several more programs available to help you identify and eliminate unwanted DLLs, although they fall short of the functionality of the products described in the main text.

DLL Finder displays cross-reference information to help you decide which applications require a given DLL; however, it does not actually delete unwanted files. RJ System File Checker looks for duplicate DLLs and displays their version data. Trash can search for orphaned DLLs, and has the ability to schedule unattended searches. DiskClean Gold is a general clean-up utility which includes a duplicate DLL finder.

These four programs are all available as shareware, and can be obtained from the popular download sites (eg, [www.download.cnet.com](http://www.download.cnet.com), [www.filemine.com](http://www.filemine.com) and [www.zdnet.com/downloads](http://www.zdnet.com/downloads)). Searching these and other shareware sites for DLL cleaners will probably reveal more useful tools.

### ***Norton Cleansweep***

In Norton Cleansweep, the job is handled by the Redundant DLL Finder. When you run it, it displays a window like the one in Figure 4. This colour-coded list shows each group of duplicate DLLs. You can use it to review the duplicates and to select the files that you think it is safe to erase. After making the selection, you press the Clean button. The program will offer to make a backup of the files in question, after which it will proceed with the deletions.

On the whole you can rely on the colour-coding to help you determine which of the duplicates you should get rid of. Files in the System directory are flagged in red, and should be left alone. Green-flagged files are exact copies of those in the System directory. It is always safe to erase these - in fact, Cleansweep pre-selects these for deletion. It is the files with the yellow flags which require most thought. These have the same names as DLLs located elsewhere, but are not identical copies. You need to look at these files individually. If a file appears to be the same as one which is in the System directory but it has a higher version number, you should move it to the System directory and overwrite the one already there. You must do this manually, and it is up to you to first back up the file you are overwriting.

If the file has a lower version number than the one in the System directory, it is usually safe to select it for deletion. If there are two or more copies of the file, but none is in the System directory, move the newest one to the System directory and select the others for deletion. If you are in doubt about any of this, click on the file and then on the Advise button. This will bring up a window showing more information about each DLL in the group, with a recommendation for how best to deal with them.

### ***McAfee Uninstaller***

The PowerClean function in McAfee Uninstaller works in much the same way. You launch it from the main menu, then drill down to the Duplicate DLLs window. This uses the same type of colour-coding as the Norton product, and gives broadly similar advice on how to deal with specific cases. The most noticeable difference between the products is that the Norton tool scans the entire drive each time you launch it. McAfee maintains a permanent database of DLLs and similar files, and only needs to update it with recent changes, which is a lot quicker.

With both utilities, it is important to test your system after deleting a batch of DLLs. Run your applications as usual, preferably over a period of several weeks. If you are satisfied that they are behaving normally, you can go ahead and delete the backups. If you experience unexpected problems, restore the files from the backups. You can do that from inside the utilities, with just a couple of mouse clicks.

### ***Conclusion***

When you first use the tools described in this article you will probably be surprised by the large amount of disk space that you liberate. Running them on a regular basis - perhaps once a month - will produce further savings, not to mention improvements in performance. Multiply those savings by the number of users in your organisation and you begin to see how valuable regular DLL cleaning can be.

#### ***Resources***

ClnSys is available free of charge  
[www.ozemail.com.au/~kevsol/sware.html](http://www.ozemail.com.au/~kevsol/sware.html)

Norton Cleansweep costs  
 US\$40  
[www.symantec.com](http://www.symantec.com)

McAfee Office costs  
 US\$50  
[www.mcafee.com](http://www.mcafee.com)

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