WinDirStat - Directory Statistics

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Shows where all your disk space has gone, and helps you clean it up.

You know the problem: The hard disk is almost full, and you don't know, where the big files actually are lying, which occupy all the space. They may well be hidden in sub-sub-directories. To find out this by means of the Windows Explorer, is tiring: you would have to expand and collapse directories over and over or view the "Properties" of the directories, which always count just the size of a single subtree. It's hard to form a mental image of the hard disk usage in this way. This is where WinDirStat helps.

On start up WinDirStat opens the Select Drives Dialog. Press the OK button.

Then WinDirStat reads in the whole <u>directory tree</u> once (this can last some minutes depending on the hard disk size) and then presents it in three useful views:

WinDirStat	
<u>Directory</u> <u>List</u>	Extension List
Treemap	

The views are <u>coupled</u> with each other.

You can clean up the hard disks with several **Cleanups**.

The views and the <u>User Defined Cleanups</u> can be <u>configured</u> according to your personal needs.

Sorting

Legend

Frequently Asked Questions

Limits

Deinstallation

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What is a Directory Tree?

On most computer operating systems, so on Microsoft Windows, the data on the hard disk are organized hierarchically.

On the one hand there are the *files* which have a certain size and contain the effective data. Each file has a name. Under Microsoft Windows the "filename extension" informs about the type of the file. The extension ".exe", for instance, indicates that it's a program file. The extension ".doc" indicates a WinWord document, ".jpg" is a photo, and so on. But ridiculously the Microsoft Windows Explorer hides these filename extensions by default. You can change this behaviour in the options menu of the Windows Explorer.

On the other hand there are *directories*. The Windows Explorer and WinDirStat, too, symbolize directories as yellow folders. Directories also have a name, but normally without a filename extension. Directories only serve to contain files and other directories ("sub-directories"). Due to the fact that directories can contain subdirectories, and those again can contain subdirectories, the result is a hierarchical structure on the disk.



Instead of "hierarchical structure" we simply say *tree structure*. Since a tree is built hierarchical as well: The trunk branches out into branches, the branches into sub-branches, twigs and finally into the leaves. In a file system the so called root directory is the trunk, the directories are the branches and the files are the leaves.

That's why we call the file system of a computer simply a "directory tree".

Unlike most real trees, on a disk the trunk and the branches already have leaves. And, unlike most real trees, too: the <u>files</u> are the voluminous entities (the size of which is measured by megabytes or gigabytes), whereas the actual directories are neglectibly small. By the way, we imagine abstract trees as turned round: the root at the top, the leaves at the bottom.

If you saw a branch off a tree and stick it into the earth, then it becomes itself a little tree (well, at least it looks like one): Every branch is, together with its subbranches and leaves, itself a tree, a *subtree*.

The family tree metaphor is often used as well: The subdirectories and files of a directory are called its *children*. And a directory containing a subdirectory or file is called their *parent*. The root directory is earliest ancestor of all items in the directory tree.

A *path* like "C:\documents\letters\draft\loveletter.doc" indicates that on the hard disk C:, in the root directory "C:\" there is a directory "documents", under it the subdirectory "letters", under it a subdirectory "draft" and in there a file "loveletter.doc". So the path is a precise representation of the way from the root to the leaf.

Directory List

The directory list resembles the tree view of the Windows Explorer, with the difference that it shows directories and files sorted by size descending. At the top you see the directories and files, which use up most space. When you expand a directory, its subdirectories are shown again sorted by size, and so on.

Columns

- <u>Name</u>. This column shows the names of the files and directories and their tree structure.
- <u>Size</u>. For files, this is the size of the file, in bytes. For directories, this is the size of the subtree, that is the sum of the sizes of all subdirectories and files.
- <u>Subtree Percentage</u>. This column shows, how the size of a subtree is composed of the sizes of the sub-items. This information is comparable only within *one* level and is always related to the expanded parent item. [During the scanning, this column shows either a pacman or the number of read jobs to do for the subtree.]
- <u>Percentage</u>. The same information as in "Subtree Percentage", in percent. [During the scanning, this column can optionally show the time spent for the subtree so far.]
- <u>Files</u>. Number of files in the subtree.
- Subdirs. Number of sub-directories in the subtree.
- Items. Number of items in the subtree. Sum of "Files" and "Subdirs".
- <u>Last Change</u>. Date of the last modification in the subtree.
- <u>Attributes</u>. File/folder attributes. R = read-only, H = hidden, S = system, A = archive, C = compressed, E = encrypted.

Operation

In the column "Name" you can expand and collapse the directories by a mouse click on the little boxes with + and -, as in the Windows Explorer. A click on a name *selects* an item. After that you can navigate in the tree with the arrow keys.

The treemap always highlights the selected item with a frame.

If you select a file, the extension list automatically shows its type.

The sorting can be set with a mouse click on a column header.

Extension List

The extension list contains all types (filename extensions) occurring in the directory tree. For every file type the column "Bytes" shows the sum of the file sizes. By default, the extension list is sorted descending by this column. So at the top are those files types, which all in all take up most space on the hard disk.

12 colors are assigned to the 12 file types, which take up most space. The rest is grey. The treemap shows the files in these colors.

Columns

- Extension. Icon and filename extension.
- <u>Color</u>. The color, which is used by the treemap to display the files of this type.
- <u>Description</u>. Description of the file type. Corresponds to the description shown by the Windows Explorer.
- Bytes. Total volume of the file type in the directory tree. Sum of the sizes of all files of this type.
- <u>% Bytes</u>. The same information as proportion related to the overall tree size.
- <u>Files</u>. Number of files of this type in the directory tree.

Operation

Click on an extension: The treemap highlights all files of this type.

Treemap

The treemap shows the whole contents of the <u>directory tree</u> straight away.

It represents each file as a colored rectangle, the area of which is proportional to the file's size.

The rectangles are arranged in such a way, that directories again make up rectangles, which contain all their files and subdirectories. So their area is proportional to the size of the subtrees.

The color of a rectangle indicates the type of the file, as shown in the extension list.

The cushion shading additionally brings out the directory structure.

Operation

You effortlessly see the big rectangles, that is the big files, even if they are hidden deeply in subdirectories in the directory tree. Click on them: the directory list opens the path to the file, and you can read its location and attributes, and - if you like - apply a cleanup action on it, e.g. delete the file.

Navigate in the directory list: the respective selection is highlighted with a colored frame. In this way gain an impression of the proportions: How big, for example, is C:\windows compared with C:\program files?

The context menu options "Select Parent" and "Re-select Child" are also useful for the navigation.

Zoom. The option "Zoom in" enlarges the treemap, so that a subtree is displayed full size. As it were you make a step towards the selected item. The directory list show the root of this subtree with a blue frame. By "Zoom out" you step back, and the parent element is shown again.

Coupling of the Views

The really strong point of WinDirStat is, that the three views, Directory List, Extension List and Treemap, are coupled with each other.

Directory List -> Treemap

When you *select* an item (directory or file) in the directory list, the treemap also shows this item by highlighting it with a colored frame. In particular you can see the size of directories.

Treemap -> Directory List

When you click into the treemap, the mouse always hits a file (a colored rectangle). After that the directory list expands (if necessary) the appropriate nodes and selects this file. So you can, e.g. by clicking on a big rectangle, see path and attributes of the corresponding big file in the directory list.

So, because of this mutual coupling, the selections in the directory list and in the treemap are always the same.

Directory List + Treemap -> Extension List

When you select a *file* in the directory list (or in the treemap), the extension list shows the file type (the extension). The extension is selected and scrolled into view. So you can see the description and the statistics for this file type.

Extension List -> Treemap

When you select a file type in the extension list, the treemap highlights all files of this type.

Select Drives Dialog

Here you can decide which drives to include in the statistics.

You can select one or more drives from the list or choose a directory.

The list shows all present drives (hard disks, inserted floppy disks or CDs, and network drives).

Columns

- Name. Name and drive letter of the drive.
- <u>Total</u>. Capacity of the drive.
- <u>Free</u>. Free space on the drive.
- <u>Used/Total</u> Percentage of used space, related to the capacity.
- <u>Used/Total</u> The same information in percent.

Operation

The dialog box has three "radio buttons".

- <u>All local drives</u>. This is the default. Scans all local drives, that is all drives, which are not network drives. Drives created with SUBST are also excluded (NT and higher only).
- <u>Individual drives</u>. Here you can explicitly select a set of drives.
- <u>A folder</u>. Here you can select a folder or an UNC path.

Click on OK to begin the scan.

The selection is persistent, i.e. when you open the dialog the next time, the default setting will be that which you made the last time.

Cleanups

Serveral clean up actions can be applied to a selected item. The cleanups are accessible through the main menu, the tool bar and through keyboard shortcuts.

Refresh Selected

Possibly an item has been deleted or modified outside of WinDirStat. "Refresh" makes WinDirStat re-read the item, so that the display accords with the actual conditions on the hard disk again.

Copy Path

Copies the path of the selected item into the clipboard.

Open

Opens the selected file. Note that in case of an executable file (.exe), this means that the program is started.

Explorer here

Launches the Windows Explorer so that it shows the selected item.

Command Prompt here

Launches the DOS prompt in the selected directory.

Delete (to Recycle Bin)

Moves the selected item into the recycle bin. Then the item and the recycle bin directories are refreshed.

Delete (no way to undelete)

Deletes the selected item irreversibly. Then the item is refreshed. Please delete

only files and directories, when you know that neither you nor the system needs it any more!

Properties

Opens the 'Properties' dialog for the selected file.

Send Mail to Owner

Generates a textual report about the selected directory, which can be sent a via email to its owner. This is intended for network drives, which are used by several people. The report accurately contains the lines displayed in the directory list underneath the selected item, in the same "expansion state" and in the same sort order.

User Defined Cleanups

In addition to these built-in clean ups you can freely <u>define your own cleanups</u>.

User Defined Cleanups

This feature is for experts.

You can define up to 10 custom cleanup actions. The cleanups are specified by *command lines*.

Select an entry in the list an set it to "enabled". Choose a title, the title appears in the menus.

Compose a command line. Use the "MSDOS prompt" (Windows 9x, command.com) or the "Command prompt" (NT, cmd.exe) to get help about the available commands and to test the command line.

Examples

• dir /b > dir.txt

List the filenames to the text file dir.txt.

• del *.bak

Delete all *.bak files in the current directory.

• del /s *.bak *.tmp

Recursively delete all *.bak and *.tmp files.

• windirstat.exe "%p"

Call up a second instance of WinDirStat with the path of the selected directory (a PATH to windirstat.exe must be set).

Examples (NT and higher)

• echo %n & pause

Display the name of the current directory.

• cd & pause

Display the current path and wait for a key stroke.

• cd .. && myzip "%n"

Compress the selected directory (with the hypothetic tool myzip).

The meaning of the placeholders %p, %n, %sp, %sn is shown in the dialog. Don't forget to enclose them in quotation marks, if necessary.

Assembly of the command line

Suppose you enter the command line

xyz

. WinDirStat then trys to start the following process:

%COMSPEC% /c xyz

More Options

Specify, for which item types the cleanup works. Be careful with UNC paths: a command prompt cannot chdir to UNC paths!

Specify, whether the cleanup shall be applied recursively on all subdirectories (depth first).

The other options should be clear.

Configuration

General

<u>Cross file system boundaries (only NT and higher)</u>. Under NTFS volumes can be mounted in directories. By default WinDirStat stops reading at these mount points, i.e. it shows only the usage of *one* file system. Here you can change this behavior. (No mount points are recognized on UNC drives.)

Follow Junction Points (except Volume Mount Points) (only NT and higher). Under NTFS target folders can be grafted onto another folder by using junction points. (You need a third-party tool, e.g. awxlink, downloadable from http://www.arniworld.de/, to create junction points.) By default WinDirStat stops reading at these junction points. Here you can change this behavior.

<u>List Style</u>. These options, grid and stripes, apply to all lists in WinDirStat.

<u>Language</u>. In addition to the built-in language English, this combo box offers those languages, for which a correspondig wdsrxxxx.dll exists. The setting takes effect next time when WinDirStat is started.

Directory List

Two options which control what the columns 'Subtree Percentage' and 'Percentage' display during the scan. Colors for the subtree percentage presentation.

Treemap

Squarification style, parameters for the cushion shading, grid lines, color of the selection rectangle.

Cleanups

Here you can configure the <u>User Defined Cleanups</u>.

Report

Administrators can customize the e-mail report feature here.

Sorting

All lists in WinDirStat can be sorted at will. The current sorting is indicated by the symbols < and > in the column headings. < means ascending sort, > means descending sort.

You can set the desired sorting by a mouse click on a column heading.

Actually two columns are drawn on the sorting. First that one, on which you clicked last, and second - if the elements are equal regarding this column - that, which sorted before.

Note that the sorting of the directory list of course respects the tree structure: sorting occurs only within one level.

Annotation

The column widths and column order can be adjusted via drag 'n drop. The widths and column order are persistent; that is, at program start they are automatically restored as you have set them last.

Legend

<Files>

Generally, each directory in the directory list has a pseudo subdirectory <Files>. There, all ordinary files of the directory are put together. That is, all files, which are immediate children of the directory, not those of subdirectories. This has the advantage, that the directory list is cleaner and that the statistics is sounder. Because with this item you can see how much space is used all in all by the files of the directory (not of subdirectories).

The <Files> item is omitted, if there is only one file in the directory, or if it has no subdirectories.

<Free Space>

If you have activated "Show Free Space" in the Options menu, each drive has an <Free Space> item. The size of this item tallies with the amount of free space available on the drive. In the treemap this item has a dark grey color. Through the <Free Space> item you get an impression of the ratio between the totally used disk space and the free disk space. This information corresponds with the value shown in the Windows Explorer properties dialog for the drive.

<Unknown>

If you have activated "Show Unknown" in the Options menu, each drive has an <Unknown> item. The matter is as follows. On the one hand, WinDirStat knows the total capacity of the drive and the free disk space. (These values tally with the number shown by the Windows Explorer properties dialog for the drive.) On the other hand WinDirStat has determined the sizes of all files and added them up. Well, <Unknown> is the difference: Total capacity minus free space minus determined sum. This rest can be greater than zero by serveral reasons. For instance there can be directories (e.g. "System Volume Information") with readaccess denied. Their size cannot be included in the sum calculated by WinDirStat. In the treemap, the <Unknown> item is colored vivid yellow.

< (in column headings)

indicates that the list is sorted by this column in ascending order.

> (in column headings)

indicates that the list is <u>sorted</u> by this column in descending order.

Frequently Asked Questions

Does the treemap relate to the allocation of hard disk sectors?

No. The treemap view has nothing to do with hard disk sectors. Generally big files are scattered on the hard disk. The treemap on the other hand shows each file as *one* rectangle.

Does WinDirStat start threads for the read jobs?

No. WinDirStat is - apart from the about box, which runs in an own thread, and apart from the drive querying in the drive selection dialog - single-threaded. All work is done in OnIdle().

What does the item <Files> mean?

See Legend.

What does the > symbol in front of the column captions mean?

The > and < symbols in the column headers indicate the current <u>sorting</u>.

On my XP WinDirStat shows more than a GB <Unknown>, what's wrong?

Nothing. XP quite often creates rather big 'System restore points' under C:\System Volume Information, but denies access to it.

What is the file wdsr0407.dll for?

This file contains the German translation of WinDirStat. 0407 is the language identifier for "German - Germany". If this file is absent, then WinDirStat is available in the (built-in) language English only.

The size information in KB and MB seems to be a bit too small.

WinDirStat sticks to the computing convention, that "kilo" doesn't stand for 1000 but for 1024. So we have:

1 KB = 1024 Bytes 1 MB = 1024 KB = 1,048,576 Bytes 1 GB = 1024 MB = 1,048,576 KB = 1,073,741,824 Bytes.

Limits

Time spent on scanning	2^32 ms (= 49 days)
Number of direct subitems of a directory	2^31 (= 2,147,483,648)
File size, tree size	2^63 (= 8,388,608 TB)
Total number of items	2^63
Number of concurrent read jobs	2^63

Deinstallation

- Remove the directory C:\program files\windirstat
- Remove the shortcuts for WinDirStat
- *For experts*: Remove HKCU\Software\seifert\windirstat.

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