



# POWERSCAN

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## USER'S MANUAL

Version 2.1.2

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Program and manual by Jonas Walldén. Copyright © 1993-1999 Jonas Walldén.  
 PowerScan is shareware — please use the enclosed Register application to pay for this  
 software. PowerScan may not be included in any kind of commercial distribution without  
 my permission.

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## Introduction

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Welcome to PowerScan 2.1! This application started out as a hack that would list duplicate files on a friend's harddisk. As always, computer programs grow far beyond initial expectations and PowerScan 1.0 was born. After releasing it to the public I got a lot of feedback and ideas for this version. Among other things were printing and better filtering very much asked for. Well, here it is!

Another thing supported in this version is Apple's Thread Manager which gives you (kind of) multitasking when scanning and processing file lists.

Here's a short summary of new features in version 2:

- Supports Thread Manager for multitasking. Scan and find duplicate files in several windows at the same time. PowerScan works in background so you can use other applications if you want to.

Thread Manager is not required to run PowerScan, but I strongly recommend you to install it.

- Completely redesigned user interface with a floating palette for easy access to settings and commands. You can select any font and size for document windows and columns can be resized or hidden.
- Much improved file filtering. This version can filter on filename, size, type, creator, creation and modification date. If this isn't enough you can extend PowerScan with external filters that integrate seamlessly with built-in counterparts. Filter components can be grouped to create a logical AND relation in addition to the default OR.
- Using external modules called preprocessors you can process each file in some way before it's handed over to PowerScan. For example, I have written a Compact Pro archive preprocessor which reads the contents of compressed archives transparently to PowerScan.
- PowerScan can save document windows in both text and native formats. This lets you reopen saved directories.
- Printing is now supported. You can set margins (in inches or cm depending on your system!), page header and print font. On-screen preview is available.
- Other small improvements such as ability to read version information from files (rather slow, though), movable dialog boxes, Finder interaction (select or open files) and more.

## System Requirements and Installation

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PowerScan needs System 7. Memory use depends on how large folders you scan and how many windows you want to keep open. The default partition is set to 1 Mb and should be sufficient for normal use.

### Installing PowerScan

Installation is very simple — just copy PowerScan to your harddisk. If you have any external addins they should go into a folder called "PowerScan Addins" that should be located where your application is or in the System folder (at the top level or in the Preferences or Extensions subfolders).

### Installing Thread Manager

The functionality provided by the Thread Manager has been incorporated into System 7.5 or later. If you are using an earlier System version you should copy the Thread Manager extension to your Extensions folder and reboot.

*Note* Thread Manager has a small incompatibility with the Macintosh Plus. (Technical info: you can't use Resource Manager in any other thread than the main one.) This means that you should not use Thread Manager with PowerScan on a Mac Plus.

## Scanning

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### Starting a scan

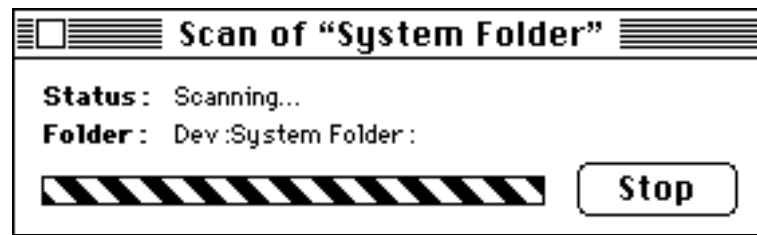
You can start a scan operation in several ways:

- Click the “Scan Disk/Folder” button in the Commands pane of the floating palette.
- Select “Scan Disk/Folder” from the Commands menu.
- Type Command-N.

If you do as listed above you will get a dialog box where you can select the disk or folder you want to scan. Moreover, you can:

- Go to the Finder and drag-&-drop a folder or disk on top of the PowerScan icon.
- Insert a disk when PowerScan is the frontmost application. (This autoscan feature can be disabled in the floating palette.)

### Scan window



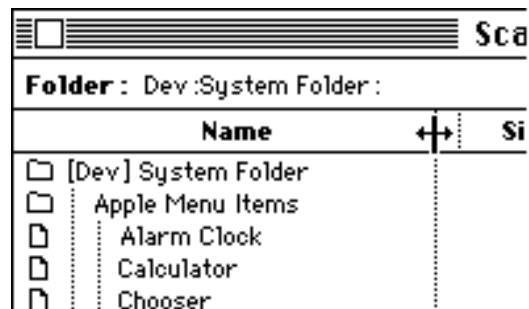
When scanning starts a small window appears on the screen. It contains a “candy bar” to show that PowerScan is working, and a “Stop” button.

As soon as the directory is read the window is resized to show the file listing.

## Directory Window

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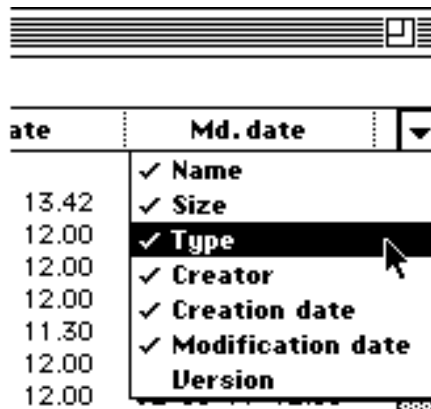
### Changing column widths



The text at the top of the window shows which folder that was scanned. Right below are the column headers. Place the mouse pointer between two columns and drag to change the width.

After changing widths you can click the zoom box to resize the window to fit the visible columns.

### Hiding and showing columns



Click the small popup arrow at the right edge of the window to display the columns menu. All columns that are visible are checked in the menu. Select a column title from the menu to hide or show it.

*Hint* Hold down the Option key before clicking the popup arrow to display the number of files and folders in the window and the memory it uses.

### Scrolling

If the window contains more data than fits inside the window, use the scrollbars to move around.

*Hint* Hold down the Option key while scrolling to double the scroll speed. Hold down Option and Shift keys to quadruple the speed.

You can use the keyboard to navigate in windows if you like that better. Press the arrow keys (the hint above applies here as well) to scroll in each direction or, if you have an extended keyboard, press Home, End and Page Up/Down to move to the start or end or to scroll a page at a time respectively.

### Finder interaction

When you double-click on a file or folder in a directory listing PowerScan will send a “Highlight Selection” Apple Event to the Finder. This shortcut is very useful when you have found a duplicate file and e.g. want to delete it.

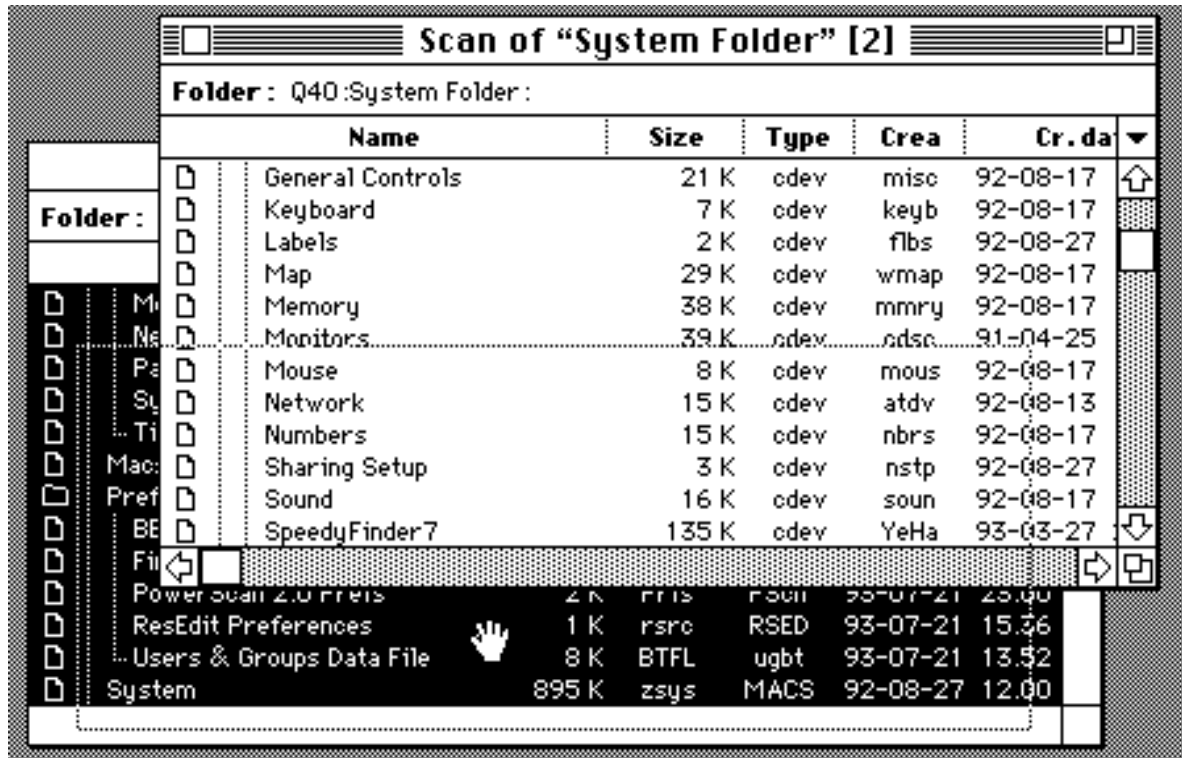
*Hint* Hold down the Option key when double-clicking to send a “Open Selection” Apple Event to the Finder. This is the equivalent of launching the selected file or opening the selected folder.

### Combining two directories

A feature that isn’t very apparent is that you can combine two (or more) directories into one. You can do this if you e.g. want to find duplicates among several scans.

Windows can only be combined if they are of the same type. This means you must combine two scan windows or two duplicate list windows. When the windows are combined the contents of the first window is appended to the end of the second window, leaving the first window unchanged.

To combine two windows, place the mouse pointer in the first window and press down the mouse button. The pointer will turn into a hand and you can drag an outline of the window. Keep dragging until the hand is inside the destination window (which is highlighted if it is of the right type) and release the mouse button to append the directory.



## Saving and Opening Windows

This version has improved saving functions — you can save a directory window in a format that PowerScan can read or as a text file that can be opened by your word processor.

### Saving a directory

To save the frontmost window, select “Save As...” from the File menu. Select the file format you want to use from the popup menu in the save dialog box. Remember that PowerScan can only reopen the file if you save it in its native format, so use the Text option only when exporting to other applications.

### Opening saved directories

To open a window saved in PowerScan format, either double-click the file in the Finder or use the “Open...” command in the File menu.

*Note* This version of PowerScan uses something called volume reference numbers for keeping track of which disk each file is located on. The problem is that these numbers are not guaranteed to stay the same when you eject a disk or reboot your computer.

The bottom line is that PowerScan might fail to find and highlight a file in a Finder window when you double-click it in a PowerScan directory listing. Unfortunately there is no simple solution to this problem.

## Palette Window

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The palette window is a floating window where all options can be changed. There are four panes in the palette: the PowerScan logo, Scan Options, Find Duplicates Options and Commands.

The palette window is hidden when you switch to another application. This behaviour is in conformity with the Macintosh user interface guidelines. If you instead want the palette to be visible when PowerScan is placed in the background you can set this in the Preferences dialog box which is described later on in this manual.

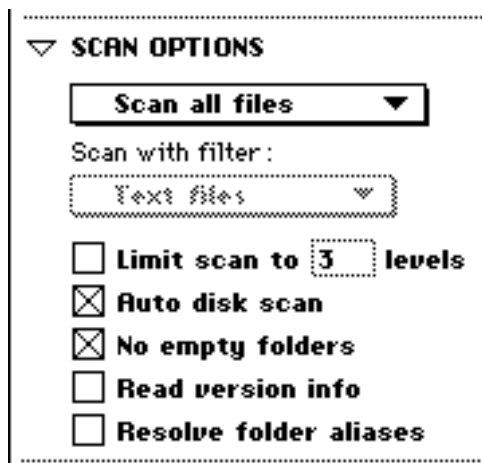
### Hiding and showing palette panes

To save screen space on smaller screens and to reduce clutter you can hide and show each pane individually by clicking the small triangle to the left of the pane title.

*Hint* Hold down the Option key when clicking an arrow to hide or show all panes at once.

*Hint* Hold down the Option key and click in the title bar of the palette window to hide or show the logo pane.

### Scan Options pane



Settings in this pane affect what PowerScan does when you scan a disk or folder.

Select the type of files you want to scan in the first popup menu:



- “Scan all files” includes every file in the directory listing.
- “Scan applications” includes applications and folders in the listing.
- “Scan documents” includes all files except applications in the listing.
- “Scan folders only” includes folders only and no files in the directory listing.
- “Scan with filter...” passes each file through a filter that you have designed. Select the filter you want to use from the second popup menu.

**Hint** Hold down the Option key while selecting a filter from the popup menu to go to the Edit File Filters dialog box.

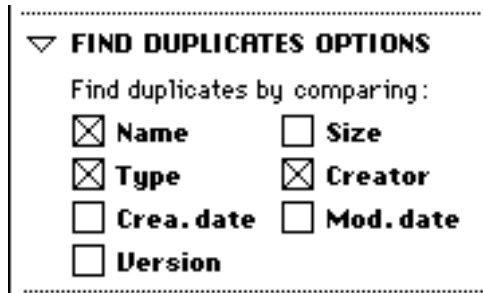
Below the popup menus are a couple of checkboxes:

- When “Limit scan to X levels” is checked PowerScan will not go deeper than X folder levels (counted from the starting level) when scanning.
- Check “Auto disk scan” to automatically scan all disks (such as diskettes and CD-ROMs) that are inserted while PowerScan is the frontmost application. When scanning is completed the disk will be ejected.

**Hint** If the disk is larger than about 3 Mb PowerScan will ask you to confirm that you really want to autoscan it. You can bypass this dialog by holding down the Option key while inserting the disk.

- If “No empty folders” is checked only folders that contain files will be included in the directory listing.
- Check “Read version info” to read version information stored in most application and system files. Note that when enabled it will slow down scanning considerably as each file must be opened to extract the version data.
- Use “Resolve folder aliases” to follow any aliases to folders or other volumes. This could possibly make the directory listing much longer so it is off by default. Another thing to watch out for is infinite loops when the aliased folder/volume contains another alias pointing back into the starting hierarchy.

## Find Duplicates Options pane



By checking the boxes in this pane you tell PowerScan what file information it should compare when looking for duplicate files.

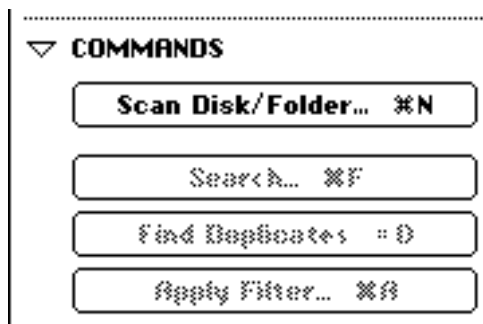
For example, by using the settings as pictured here PowerScan will treat two files with identical names, types and creators as duplicates even though their sizes may be different.

You must have at least one checkbox checked in order to find duplicates. Note that checking more checkboxes speeds up the duplicates search process. Using Name alone really slows down sorting.

## Options settings and Thread Manager

In case you have the Thread Manager installed you will notice that you can change the settings in the palette window, or even edit file filters while a scan or find duplicates operation is processing. This will *not* affect operations that are running. For example, it is possible to delete the filter used in a running scan operation and still get the correct result.

## Commands Pane



The last pane in the palette has a number of buttons. All of these commands can also be found in the Commands menu (with the same keyboard equivalents).

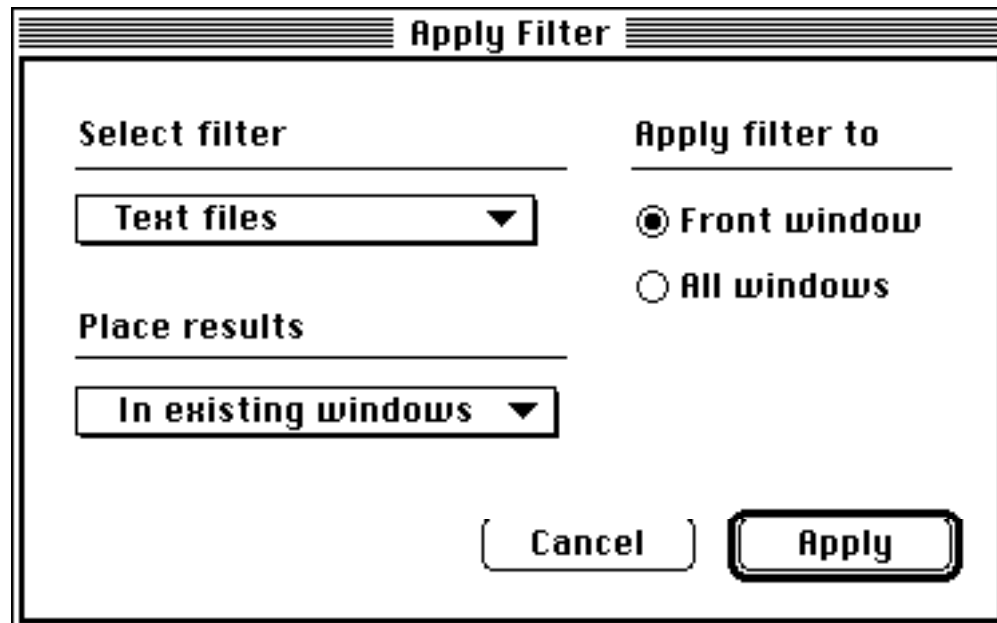
- The “Scan Disk/Folder...” button has been discussed in the “Scanning” chapter earlier in this manual.
- The “Search...” button opens a dialog box where you can enter a text string to search for. When searching is finished all files matching the text will be highlighted.

The different search methods are the same as for the built-in filename filter which is described later on in this manual.



**Hint** Hold down the Option key (or type Command-Option-F) to repeat last search in the currently active window.

- Use the “Find Duplicates” button to open a new window where all duplicate files in the current window are listed. While this operation is running you can’t close the original window.
- The “Apply Filter...” button presents the dialog box shown below. It lets you filter files after they have been scanned, and you can apply a filter to the active or all windows at the same time.



Use the bottom popup menu to select if the results after filtering should replace the contents of those windows that you are filtering or be placed in a new window. Note that if you use the former option there is no way of undoing the operation.

## File Filters

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File filters are what give PowerScan real power. You can build simple or complex filters by dragging and dropping, and even perform advanced tasks such as embedding filters inside each other.

### What is a filter?

Let’s start at the beginning. A file filter defines a set of rules that decide whether a file should be included in the directory listing or not. It could be something as simple as “Size is larger than 250 Kb” or “Name ends with ‘copy’” or a combination of several rules.

### Filter components

If a filter contains more than one rule (i.e., filter component), PowerScan implies a logical OR among the components. This means it will stop filter evaluation as soon as it finds that a file passes at least one filter component. To get a logical AND you must group components together.

For example, if you want to find all files that are between 200 and 300 Kb in size you need a filter with two components:

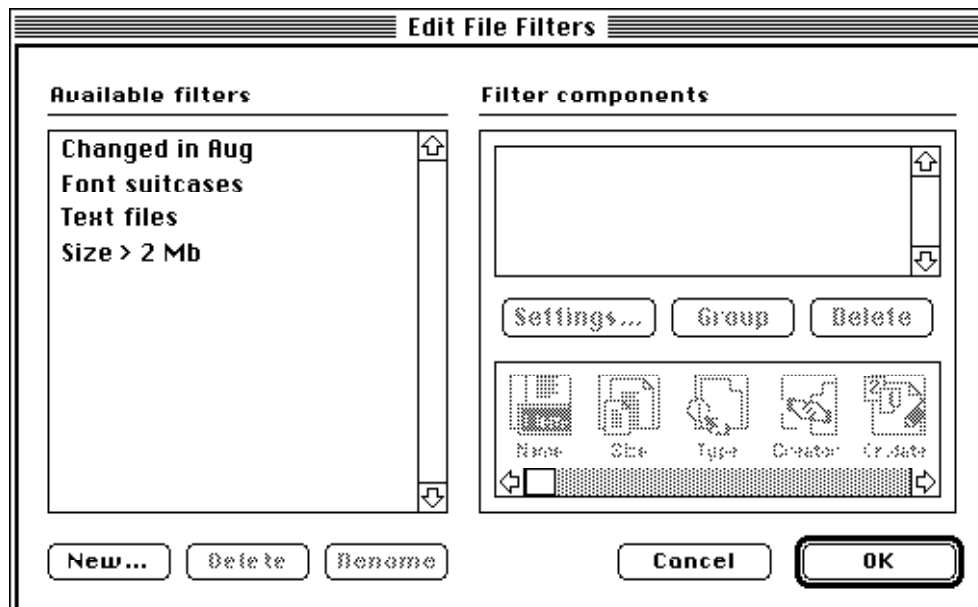
- Size is larger than 199 Kb
- Size is smaller than 301 Kb

These components must be grouped together for PowerScan to understand that both of them should be true before a file is added to the directory.

### Editing file filters

To edit filters, select “Edit File Filters...” from the Edit menu.

*Hint* If you want to edit an existing file filter you can hold down the Option key and select the filter from the floating palette.

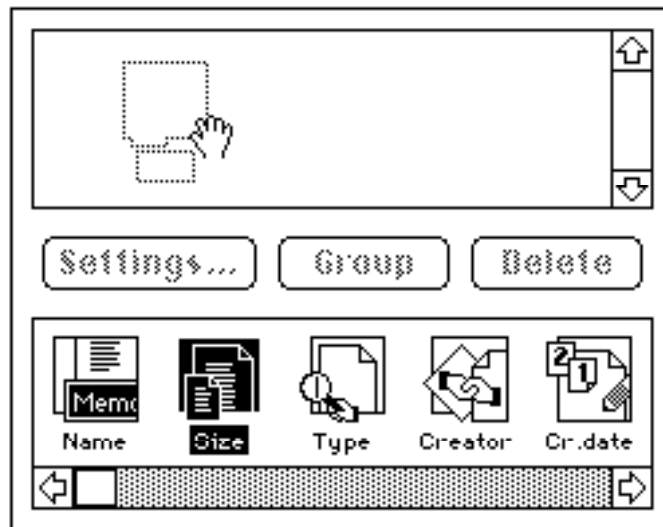


The dialog is divided in two parts — to the left is a list of available filters and to the right is the part where a single filter is displayed and edited.

The icon list at the bottom right shows all filter addins (built-in and external) that are available. These are the building blocks used to create a filter.

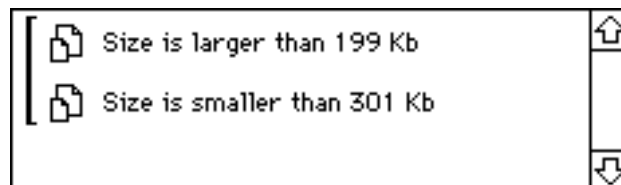
We can, for example, create the 200-300 Kb size filter described earlier. Start by clicking the “New...” button to add a new filter to the list. Name this filter “200-300 Kb” or whatever you think is appropriate.

## Filter components



Now drag the icon called “Size” from the icon list to the filter components list. This adds a size filter component to our new filter. Click the “Settings...” button (or double-click the component) to configure it. Select “larger than” from the popup menu, type “199” in the text field and close the settings dialog box.

Repeat the procedure above for the next component — “Size is smaller than 301 Kb”. Finally group both components using Shift-clicks and click the “Group” button.



**Hint** Use Command-click to create a discontinuous selection of filter components that you want to group.

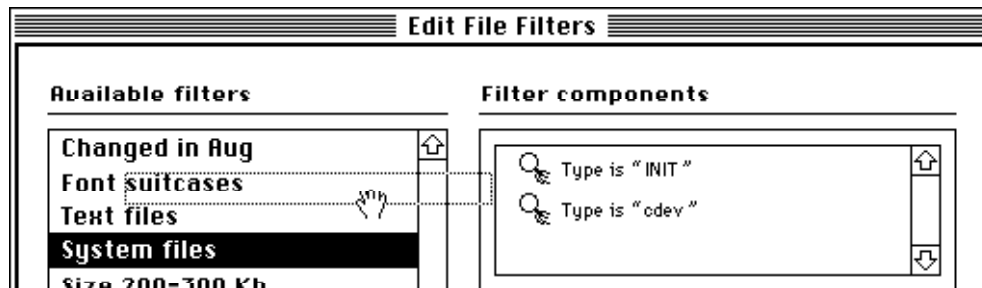
**Hint** Click on the grouping bracket to select all components of a group.

**Note** Grouped components must be ungrouped before you can delete them or include them in other groups. There is only one level of grouping but this can be circumvented by using the filter embedding feature described below.

## Embedding filters

PowerScan lets you place a filter inside another filter. This feature gives you additional levels of grouping and also has the benefit of hiding the complexity of more advanced filters.

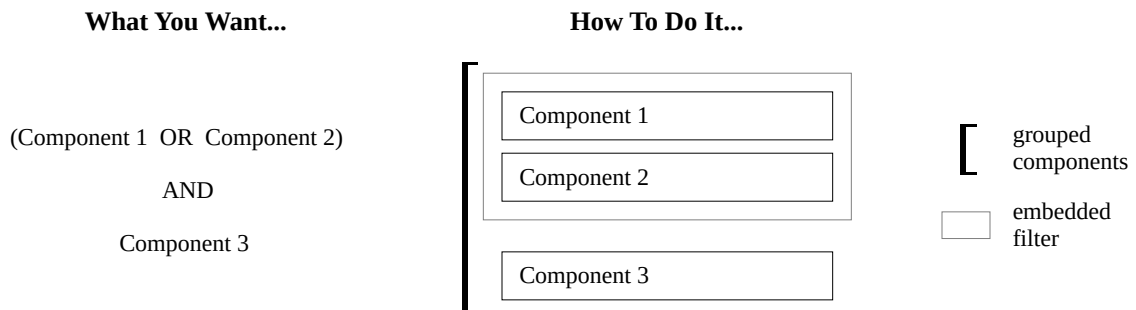
There is no limit on the number of times you can embed filters. The only constraint is that you must not create circular references. If a circular reference is found at scan time, PowerScan will show an error message.



To create an embedded filter, simply drag the filter from the left-hand list in the Edit File Filters dialog to the components list. The embedded filter will be displayed in italics.

### Using embedding to create complex logical expressions

Embedded filters can be included in groups just like ordinary components. Using a combination of embedding and grouping you can create complex logical expressions — in several levels if needed.



## Built-In Filters

PowerScan comes with a number of built-in filters. Here's a brief description of what each one does:



*Name*

Use this filter to find files whose filenames match the string you enter in various ways. E.g., it is possible to test for “comes before” or “comes after” for matching a range of names.



*Size*

The size filter compares file sizes to your entered size. All calculations are done in Kb. Note that the “smaller than” and “larger than” comparisons are strict which means that they won't include sizes that are exactly the same as the one you specify.



*Type*

This is the file types filter. To enter a file type which you don't know, click the “Get from file...” button and select the file. This is also useful for files whose file types contain non-writable characters (such as the invisible files used for custom folder icons).



*Creator*

The creator filter is analogous to the type filter above.



*Creation date*

To filter file creation dates, enter the date in the format used in your country (the date string is parsed by the system). Click the checkmark to verify that the date was valid and interpreted in the right way. The note about strict comparison mentioned earlier applies here as well.



*Modification date*

The modification date filter is analogous to the creation date filter above.

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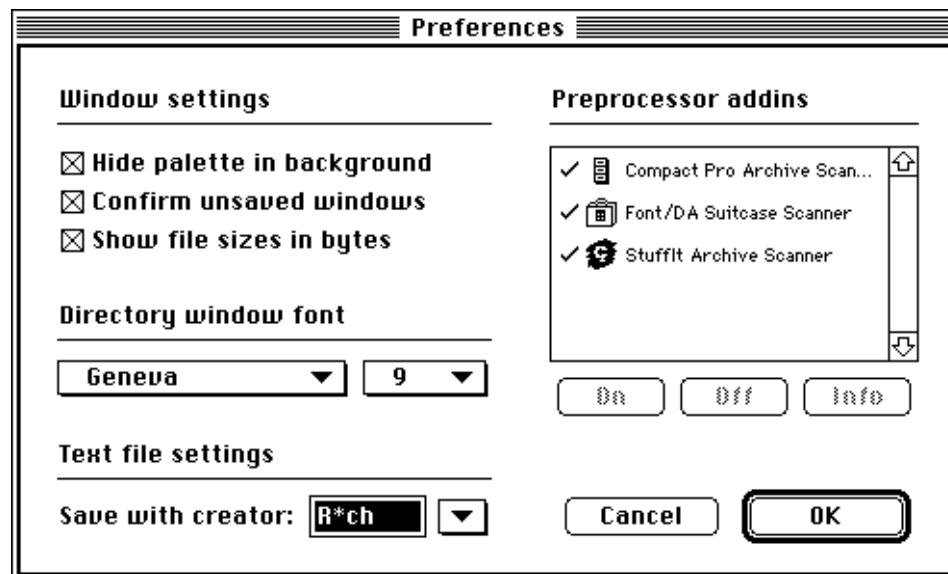
### External filter addins

In addition to the filters listed here all external filters (placed in the PowerScan Addins folder) are shown when you open the Edit File Filters dialog box. Please see the documentation, if available, accompanying those addins for more information.

## Preferences

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Select “Preferences...” from the Edit menu to display this dialog box:



### Window settings

Starting at the top-left is a checkbox where you can set whether you want the floating palette to be hidden when you put PowerScan in the background. Check the second checkbox to make PowerScan ask you if you want to save changes when you close a window. The last option lets you select if you want file sizes displayed in bytes or kilobytes.

### Directory window font

Next comes two popup menus where you select the font and size used in directory windows. For faster screen updates, select a font and size for which you have a bitmap installed. Don't worry if this font doesn't print beautifully on your printer — it is possible to select a different print font in the Page Setup dialog box.

### Text file settings

Further below is an edit field where you can enter the file creator code that PowerScan should use when saving text files. The popup menu lists a couple of common word processor and text editor creator codes — select one to put the corresponding creator code in the edit field.

### Preprocessor addins

At the right-hand side of the dialog is a list where all external preprocessors are shown. You have the option of enabling and disabling them individually by selecting them and clicking the buttons below. Click the Info button to get a short description of what the selected preprocessor does.

*Hint* Disabling unused preprocessors will often speed up the scanning. You also need to disable a preprocessor if you e.g. want to scan for archive files without expanding their contents.

When you install a new preprocessor addin it will default to enabled.

### What's saved in the preferences file?

Preferences settings in the dialog box above, filter settings, page setup settings and palette window settings are stored in the PowerScan 2.0 Prefs file in the Preferences folder inside your system folder. If you have any problems with corrupted filters you can delete this file to restore default settings. Note that this will delete all filters permanently so don't do it unless you really have to.

## Printing

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### Using Page Setup

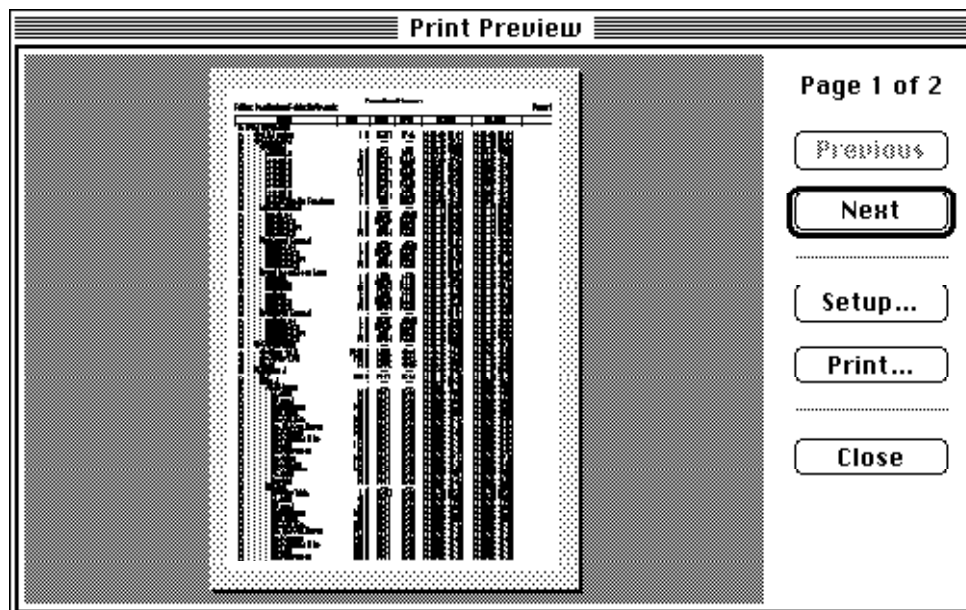
Before printing you need to select "Page Setup..." from the File menu to set your paper format, margins, page header and print font. These settings are saved so you don't have to reset them every time you run PowerScan.

<b>Print font</b>		<b>Page header</b>	
Helvetica ▼	9 ▼	PowerScan Directory	
<b>Margins (cm)</b>			
Left	1.50	Right	1.50
Top	1.50	Bottom	1.50

Margins are displayed in inches or centimeters depending on your system.

### Previewing output

When you select “Print Preview” from the File menu you get an on-screen preview of what the output will look like.



You might have noticed that the paper has a light-colored border (or gray pattern for you with monochrome monitors); this border represents the region of the page where your printer can't print. Make sure the margins are big enough to avoid this region or the output will be clipped.

To step through the pages, click the Next or Previous buttons (or use the Page Up, Page Down, Home and End keys on your keyboard). You can also jump directly to the Page Setup or Print dialogs by clicking the appropriate buttons.

### Printing

Select “Print...” from the File menu to print the frontmost document window.

PowerScan will resize the columns in the window to fit all data when you print. To ensure that everything fits within the paper width, use the Print Preview feature described above.



## Miscellaneous

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### Balloon Help

PowerScan fully supports Balloon Help. Select “Show Balloons” from the Help menu and move the mouse pointer to any button, window area or menu item to display help information.

### Option key shortcuts

If you have read this far it should come as no surprise that the Option key is used for various shortcuts. Here are some more:

- Hold down the Option key when PowerScan is launching to skip the loading status window.
- If the Option key is down when dragging a window PowerScan will continue to run active threads! This requires Thread Manager, of course.
- Open Print Preview or Edit File Filters dialogs with the Option key down to get a smaller dialog variant (designed for 9" screens). Useful if you want to save some screen space.

### Other stuff

- Type Command-[first letter in button title] to click buttons (including radio buttons and checkboxes) in dialogs. Pressing Return or Enter are equivalent of clicking the outlined button and Escape is linked to the Cancel button.
- Option key shortcuts used when clicking buttons or selecting menu items also work with keyboard equivalents. E.g., Command-Option-F repeats the last search. (This should work on all international keyboards as well.)
- Even if you have a modal dialog box visible it is possible to move windows beneath by dragging their title bars.

## Version History

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(Version 1.0 and 1.0.1 are not described in this manual.)

**Version 2.0                      October 1993                      Initial release**

**Version 2.0.1                      January 1994                      Bug fix update.**

- Memory and disk errors should be handled better. Error alerts display an additional error string to describe the type of error (e.g., “disk full”).
- Improved handling of several preprocessors that want to preprocess files of the same type (e.g. self-extracting archives created by different compression applications).
- The list of installed fonts is not created unless needed. This improves launch speed for those with many fonts.
- Fixed a problem with registration names that sometimes disappeared (temporarily) when the application was moved to another Mac.
- The about box tells if the Thread Manager is installed.

- PowerScan now uses a new version of Troy Gaul's Infinity Windoid. Thanks Troy for this excellent software!
- And finally... a StuffIt preprocessor! I still haven't got any official documentation on the StuffIt format, so please contact me if you have any problems and I'll try to fix it.

**Version 2.0.2      March 1994      Bug fix and speed improvements update.**

- Fixed a bug that sometimes prevented registration information to be transferred when a registered user upgraded to a new version.
- Improved scanning speed.
- Fixed the Compact Pro and StuffIt preprocessors so they ignore alias files. This solution is better than resolving the alias files which would list the archive contents several times leading to a lot of duplicate files.
- When both "Limit scan level" and "No empty folders" were checked, folders at the deepest level were removed even though they weren't empty. This has been fixed.
- A new preprocessor is included for scanning font and desk accessory suitcases. This one has not been extensively tested but seems to work fine.
- A new version of Infinity Windoid which fixes a problem with the transparent title bar in the floating palette on some color Macs.

**Version 2.0.3      May 1994      Bug fix update**

- Fixed a bug introduced in 2.0.2 that caused crashes on 68000 Macs when the Preferences or Page Setup dialogs were opened.
- Fixed an update bug that prevented dialogs to redraw correctly when PowerScan was switched to foreground (e.g. when the user dropped an object on the PowerScan icon).

**Version 2.0.3+      June 1994      Documentation update**

- Included printable registration form. No changes to the code.

**Version 2.0.4      August 1994      Bug fix update**

- Files representing archives of some type (e.g. Compact Pro files) lost their type/creator and size due to the way preprocessors were implemented. This has been fixed.
- PowerScan and the Font/DA filter has been improved in the way they check for open files. Previously some font suitcases used by Suitcase were left open twice in memory. The new solution was taken from a tip by Mark Pilgrim (check TopMapHndl to see if it changes after the file is opened; if not, it was already open).
- Updated the manual to include the full pathname of the Thread Manager 2.0.1 at Apple's ftp site, and added information on System 7.5. Also updated my personal info.

**Version 2.0.5      September 1994      Bug fix update**

- Preparing filter plug-ins for scanning caused a write to address 0 and has been fixed. This bug actually prevented filters from being rearranged into the most optimal evaluation tree (where each branch is weighted for an estimated processing time and shortcut-AND and shortcut-OR is used for fastest

execution). This would only be noticeable for large and complex filters, if at all. Thanks to Peter N. Lewis for finding this one!

- Opening saved windows now restores the visible/hidden columns. Also, exporting a window as text only saves the columns that are visible.

**Version 2.0.6      December 1994      Bug fix update**

- Fixed a problem regarding garbage date strings in filter settings dialog.
- Updated the manual to the new location for the Thread Manager extension and added a reference to my WWW home page.

**Version 2.0.7      January 1995      Feature update**

- Added the option of displaying file sizes as bytes instead of kilobytes.

**Version 2.1      March 1996      Feature update**

- Removed the registration code system entirely and replaced it with the Kagi Shareware registration service. I'm also bundling the Thread Manager extension since I now have a license for it.
- Added the ability to resolve aliases, and also fixed a few obscure bugs. Recompiled using Metrowerks CodeWarrior.

**Version 2.1.1      Spring 1998      Bug fix update (no public distribution)**

- Fixed two bugs which could cause crashes at launch time or when using a filter for file creator.

**Version 2.1.2      June 1999      Bug fix update**

- Fixed a font problem when running on MacOS 8.5 or later.

## Registering

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PowerScan is shareware, which is not the same thing as free software. If you use this application for more than 15 days, please register it.

In version 2.1 or later registration is handled by the enclosed Register application. This is a major improvement since it allows for many more ways of payment. Another great advantage is that the old password system is gone; there are no passwords or codes in this release! See the accompanying "How to Register" file for more information on how to register.

*Note* If you've already registered version 1.0, you are welcome to use 2.1 without paying.

### Sharing PowerScan with your friends

You can give copies to your friends as long as you don't charge for it. Please include all accompanying files when sharing.

If you are interested in using PowerScan in any commercial distribution (e.g., shareware disks or CD-ROMs), please contact me first and we will work something out.

### How to contact the author

Payments should *only* be sent to Kagi Shareware, but please contact me directly at any of addresses below if you have a question, comment or bug report. Also check the FTP or WWW sites below (or your nearest Info-Mac mirror site) for updates.

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## About the Author

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I'm a 26-year-old Swede studying Computer Science at the Linköping Institute of Technology. I've written a few Macintosh programs over the years, and a selection of the best ones are available on my WWW home page.

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