



Apple® IIcs

Phoenix Reference Manual



**Dedicated to the memories of Joe Kohn 1947-2010
Ryan Suenega 1967-2011, and Glen Bredon 1932-2000**

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Credits

My thanks go to all who have helped me develop Phoenix,
and especially for their extensive beta testing, many suggestions,
and error corrections:

David Schmidt, Andrew Roughan



Preface



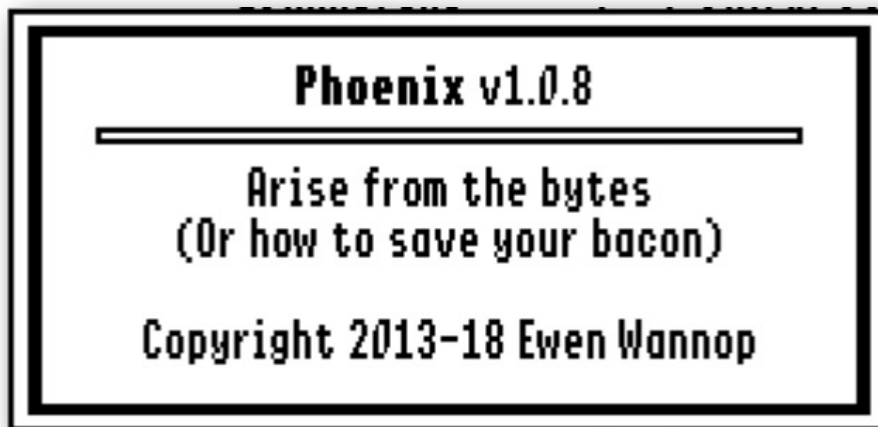
Welcome to Phoenix

Background

Some time ago, I was asked how to undelete a file from a GS/OS disk. At the time, I could only suggest that Prosel from the great Glen Bredon would be able to undelete ProDOS files, but that it might not be able to handle GS/OS extended or forked files.

Of course this question only posed a new challenge for me to tackle, so I suggested that when I had finalised the current project I was working on, the next project should be an undelete utility for GS/OS!

Thus Phoenix was born...



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Reference



The Phoenix Life Saver

Requirements

Phoenix is entirely self-contained, so can be run in an emergency from either a custom self-booting disk, or from another disk. In an emergency, do not copy Phoenix, or any other files to the disk that you are going to retrieve files from. If you do not already have the Undo Manager installed, copy Tool132 to the System:Tools folder and reboot.

What is Phoenix

Phoenix is a utility to let you exhume or copy deleted files from a ProDOS or GS/OS volume. To help you in that task, Phoenix also includes some other useful features, such as file copying, renaming or deleting files, creating new directories, and changing file access flags.

Phoenix supports ByteBagger and other NDAs, by letting you view the content of compatible files by a simple double-click from the list window.

Warning: Phoenix works minor miracles, but cannot work magic. If the blocks of a deleted file have ever been overwritten by a new file or folder, nothing will be able to resurrect the data from the depths of your disks.

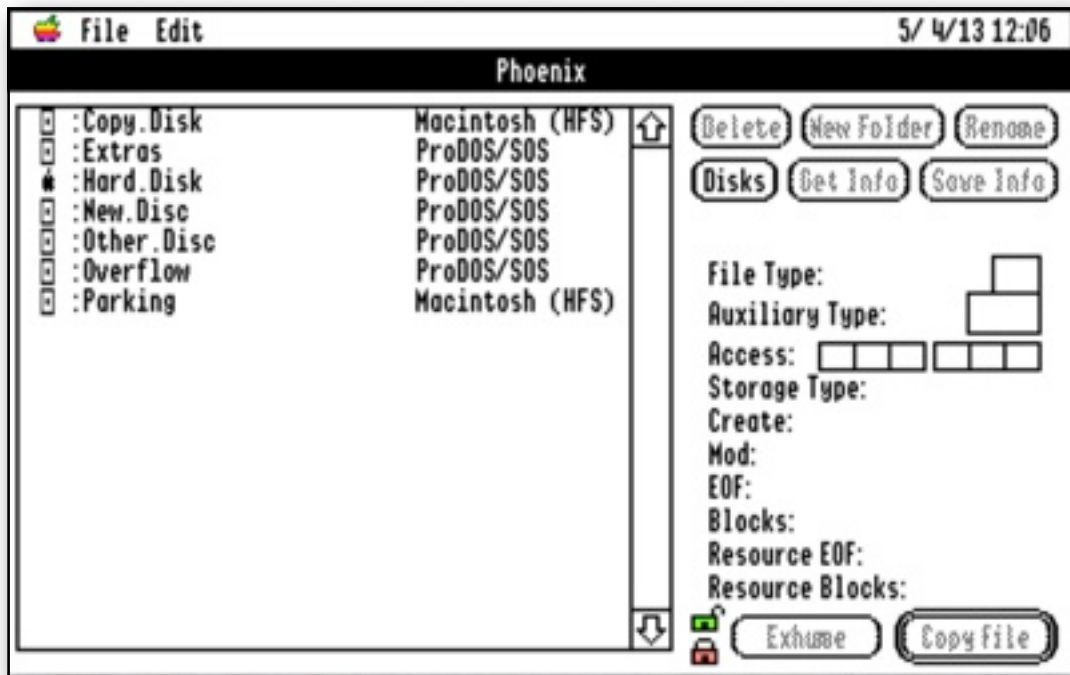
Please refer to the explanation below...

Legal

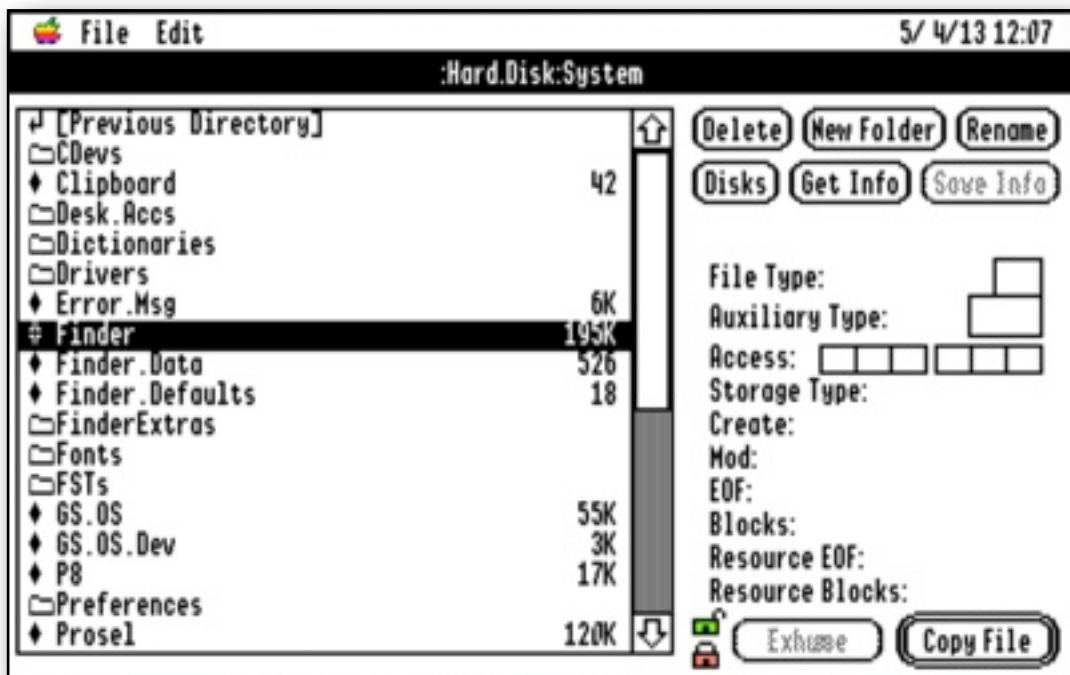
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Using Phoenix

Open Phoenix and you will see the volumes or Disks window:



Navigate your volumes and disks by double-clicking a disk entry. This will open the top directory for that volume, and show you a window similar to this:



The File and Directory Lists

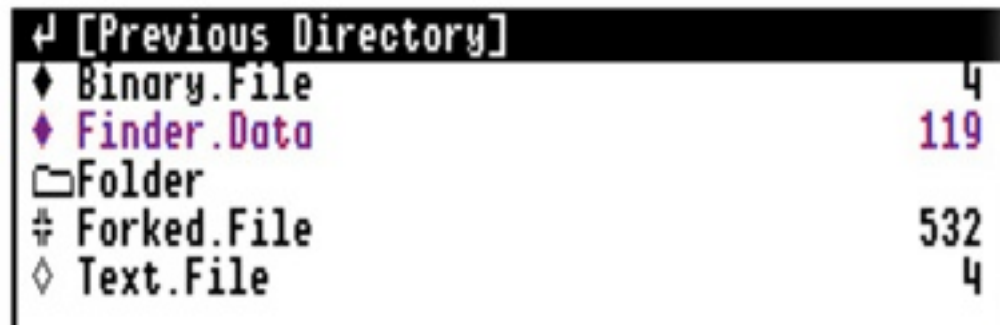
To navigate a directory, double click on a folder to go down a level, and click on 'Previous Directory' or 'Disks', to move up. You can also use the arrow keys to move around the lists, or jump to specific entries using the alpha-numeric keys.

At top level, you will see a list of the mounted Volumes, with a 🍏 icon showing against the Boot volume. The type of volume is listed. You will only be able to exhume or undelete files from ProDOS volumes.

Disk listings display:



Directory listing display:



Icon	Description
📀	Disk Icon
🍏	Boot Disk Icon
↩	Previous Directory
◆	Binary File
◇	Text File
⚡	Forked or Extended File
📁	Folder

Deleted files or folders display in **Purple**, locked files or disks display with a bullet, and locked folders with a dash.

Deleted ProDOS Files and Folders

Phoenix can only exhume or copy deleted files from ProDOS volumes. When ProDOS deletes a file, it zeroes out a marker byte in the file directory, and marks the blocks the file or folder used as being available once more. Phoenix can navigate the volume at block level, and reverse that process.

Success will depend on what has been written to the volume since the file or folder was deleted. If a new file or folder, and this includes the invisible Finder data files, has been written to the disk after the file was deleted, it may well have overwritten blocks that were used by the file you are trying to exhume or copy.

If you immediately exhume a file that you have deleted, the chances are extremely good that the file will be recovered intact. If however Phoenix reports there are overlapped blocks, the chances are that the file will be corrupted to some degree. If that happens, Phoenix will not let you exhume the file or folder.

If a new file has been written since your target file was deleted, and then itself deleted, it may still have overwritten blocks from your file. In such a case, Phoenix may be none the wiser, and may not report any problems.

Very Important!

To avoid disasters, Phoenix will not let you exhume a file or folder directly from a Boot volume. To recover files from a Boot volume, you must copy them instead. In general, copying deleted files is a safer option than trying to exhume them.

Alternatively, make a clone of your Boot volume, or boot up from an alternate System disk, and you will then be able to exhume files from your that volume.

If Phoenix finds the blocks from your deleted file or folder are in use by another file on the disk, it will not let you exhume the file or folder. Copy the deleted file to a new disk instead.

If you exhume a folder, and the data within has been corrupted, it may display the directory as garbage.

You might not always end up with a file that is exactly as it was originally written, but hopefully you should at the very least be able to salvage some data from it.

A File Recovery Strategy

The biggest problem with recovering deleted files, is that the Finder tends to write its invisible files behind your back, often wiping out blocks from your deleted file. If you turn off “Save Finder information onto disk” in the Finder Preferences, then there is less danger of this happening when you least expect it.

If you are trying to recover a file that was deleted some time ago, then you are at the mercy of what may have happened to the disk since the file was deleted. If however, you have only just accidentally deleted a file, then take one of the following steps, and you should recover the file perfectly.

It is important that you try and stop the Finder from writing any of its files back on the disk with the deleted file. If possible, keep an emergency bootable disk that can run Phoenix independently.

Floppy disk

If the deleted file is on a 5.25” floppy disk, then immediately open the disk flap remove the disk, and lock the disk with a tab. For a 3.5” floppy, immediately press the eject button, and slide the tab to lock the disk.

Reinsert the locked disk into the drive, and run Phoenix. Navigate to the deleted file, and choose to “Copy File” to another disk. After checking that the recovered file is intact, it can be put back where it belongs.

Hard disk

If the deleted file is on a hard disk, then without closing any windows, immediately run Phoenix, select the deleted file, and “Copy File” to another disk.

If you have a second bootable disk, turn off power to the computer, and boot from that disk. Select the deleted file and “Copy File” to another disk.

Emulators

Immediately force quit the emulator, or force eject the disk with the deleted file. Lock the disk image, reboot the emulator, if necessary from another boot drive, mount the locked disk image, run Phoenix, select the deleted file, and then “Copy File” to another disk.

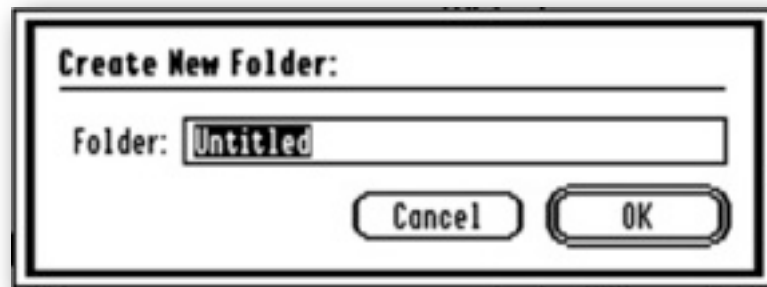
The Buttons

Buttons will be dimmed when you cannot use them. For instance, if you are navigating a deleted folder, most of the buttons will be dimmed, and you will only be able to Copy a File. Some disk types may not support all the features.

Delete Button

Deletes unlocked folders or files. If you delete a folder, all files, folders, or sub-folders that it contains, will also be deleted. On a ProDOS disk, any deleted files or folders will be displayed in **Purple**.

If you delete a file or folder from a non-ProDOS volume, it will disappear from the directory, and cannot be exhumed or recovered!



New Folder Button

Creates a new folder within the current folder.

Rename Button

Renames a file or folder. You cannot Rename deleted items.

Disks Button

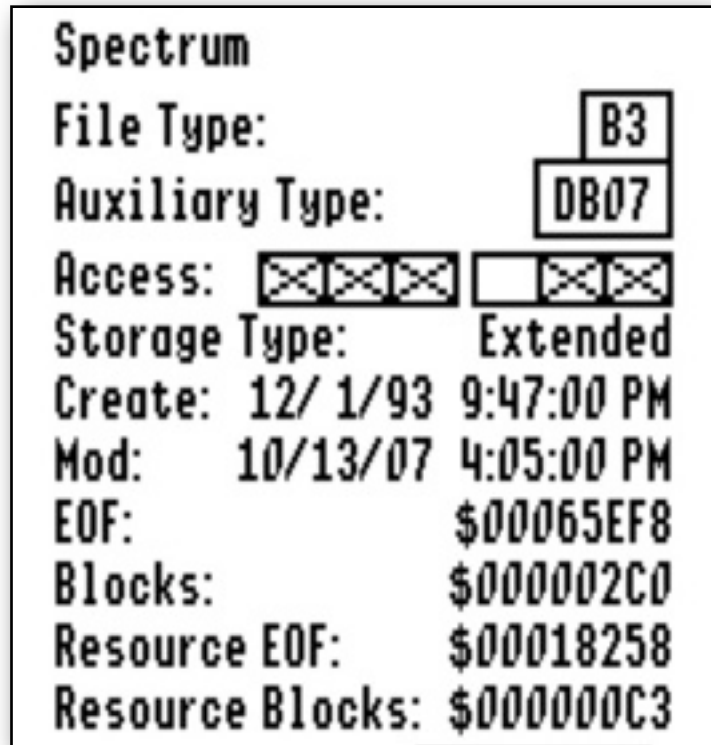
Displays all the mounted volumes, along with the volume type. Only ProDOS volumes can display deleted files or folders. The Boot volume is shown with a 🍏 icon. You can only copy files from the Boot volume, and not exhume them. Please refer to the notes above.

Note: If you eject or insert a 5.25" disk, you must immediately press the Disks button and rebuild the Disks list to let Phoenix know what has happened.

Get Info Button

Displays the File name, File Type, Auxiliary Type, Access flags, Storage Type, Creation and Modification dates, and Fork sizes for the file or folder.

Use the Save Info button to write back any changes you make.



Save Info Button

You can change the File Type and Auxiliary Type of a file, as well as the Access bits, and then save the changes back to disk.

You cannot change the File or Auxiliary Type of a folder, and you will also not be able to change any access bits for a deleted file or folder.

The six Access flags reading from left to right are:

- Destroy-enabled bit (Unchecked when Locked)
- Rename-enabled bit
- Backup-needed bit
- File-invisible bit (Checked when Invisible)
- Write-enabled bit
- Read-enable bit

Be careful if you change any of these bits, as you may end up with a file that is invisible, or does not behave as you expect!

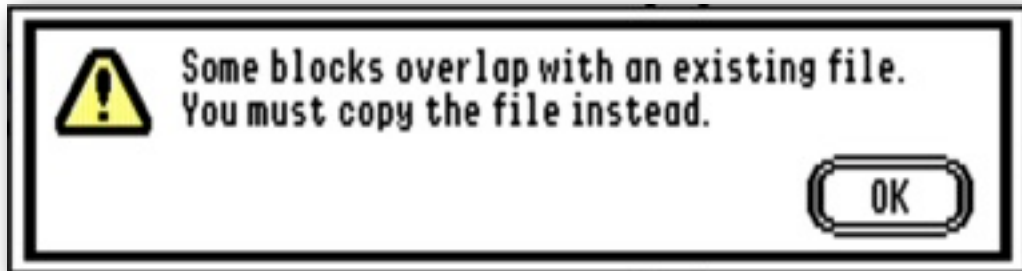
If you set the File-invisible bit, the file will disappear from the Finder unless you change 'Finder Preferences' to show Invisible files. Despite the setting of the File-invisible bit, the Finder's own data files will always be visible in the Finder if you have told it to show Invisible files.

Exhume Button

If none of the blocks that were originally allocated to this file are reported to be in use by another file or folder, this command will exhume or undelete a file on a ProDOS volume. The file can then be accessed normally from the Finder.

The file may not be exactly as it was originally written, depending on what has happened to the disk in the meantime. Please refer to the notes above.

You cannot exhume a file from a Boot volume or from within a deleted folder. Please refer to the notes above.



Copy File Button

It is always advisable to Copy a deleted file to another volume, rather than try to exhume or undelete it. Copying is non-destructive, so you are less likely to cause havoc to any of your other files. It is also the only way to recover a file from within a deleted folder, and it is the only way to recover a file from a Boot volume, without first cloning the volume, or booting from another disk.

When you click 'Copy File', you will be asked for a destination disk, which to avoid any possible recovery problems, must be on a different volume.

Unlock File Button

Clicking the green padlock button will unlock any selected files in the list.

Lock File Button

Clicking the red padlock button will lock any selected files in the list.



Extras



Problems

Hopefully you will have none, but if you do, and they cannot be answered by reading these notes, please contact me on:

spectrumdaddy@speccie.uk

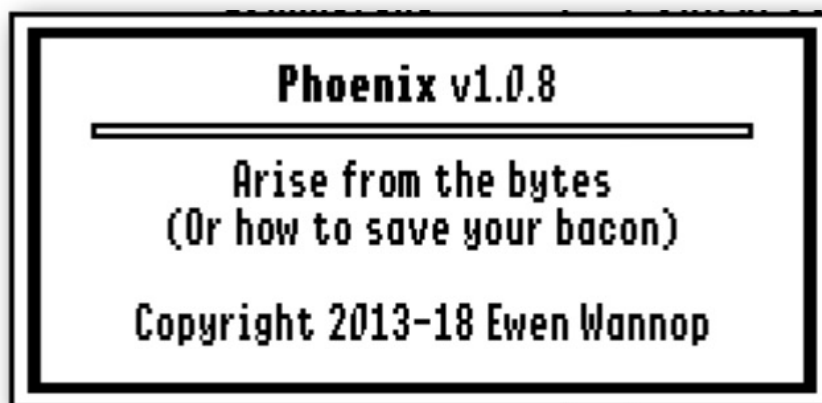
Other information

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Spectrum™ is now Freeware, and amongst my other applications, is available from my web site:

<http://speccie.uk>

Someone once said to me, 'Spectrum™ does everything!'



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