T E C H N O T E 1091

Extensions Manager 4.0

By Mark Cookson
Apple Developer Technical Support (DTS)
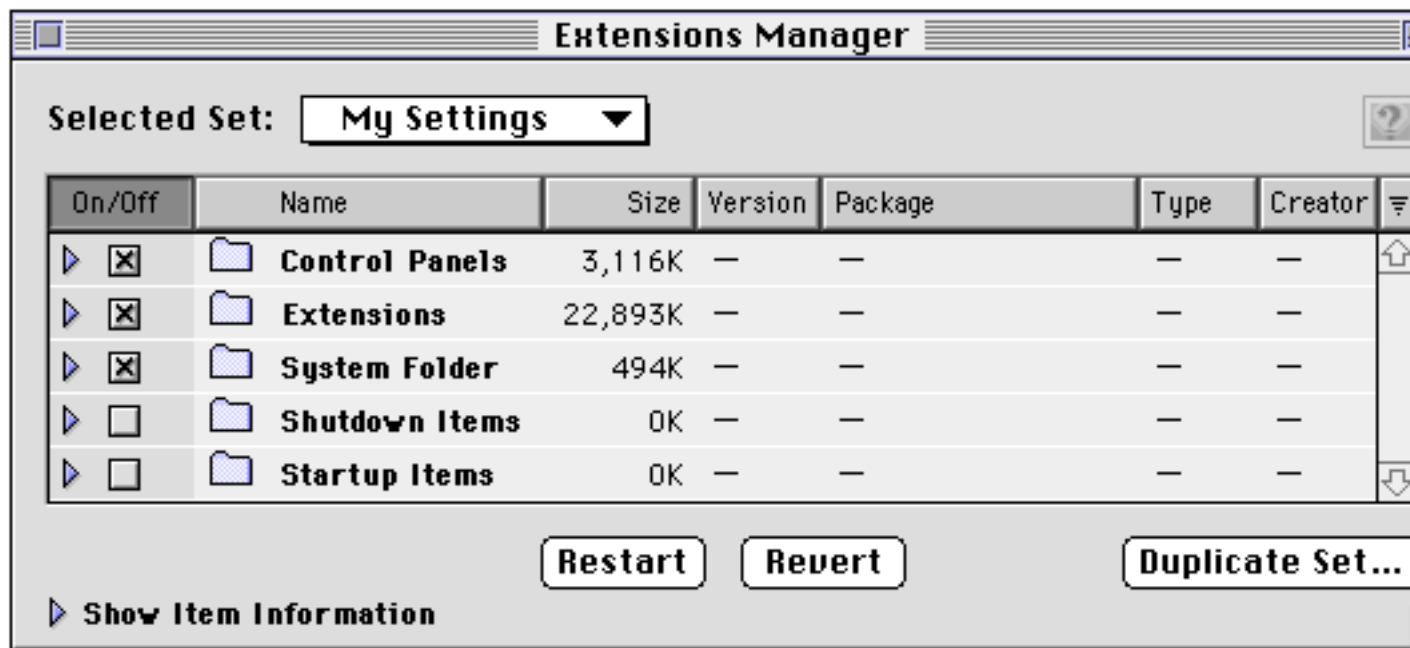devsupport@apple.com

CONTENTS

This Technote is intended as a brief overview of Extensions Manager 4.0, which is included in Mac 0S 7.6. There are a number of new and enhanced features in the Extensions Manager which will be of interest to anyone who develops control panels, extensions or applications which might be controlled by it.

This Technote is a companion to Technote 1090, Mac OS 7.6, which provides a full overview of the new release. We highly recommend that you read Technote 1090 in addition to this document.

A New Look

The first change you will notice in Extensions Manager 4.0 is the new look. It's called the Apple Grayscale Appearance as shown in Figure 1.

Figure 1. The new look for Extensions Manager 4.0

On/Off	Name	Size	Version	Package		Type	Creator
▷ ☒	🗀 Control Panels	3,116K	—	—		—	—
▷ ☒	🗀 Extensions	22,893K	—	—		—	—
▷ ☒	🗀 System Folder	494K	—	—		—	—
▷ ☐	🗀 Shutdown Items	0K	—	—		—	—
▷ ☐	🗀 Startup Items	0K	—	—		—	—

Selected Set: My Settings ▼

[Restart] [Revert]   [Duplicate Set...]

▷ Show Item Information

How the Extensions Manager Interacts With Your Extension

The Extensions Manager 4.0 disables and enables extensions as past versions did by moving the disabled extensions to the current System Folder with the string "(Disabled)" appended to the source folders' name. It enables extensions by disabled folder to their appropriate folder.

This movement of extensions between the active folders and the disabled folders brings up a warning for developers of

> **WARNING**:
> As a developer, you need to make sure that your extension or control panel functions correctly when it is installed (i.e., its code ran at boot time), but it is no longer in the same folder it was at boot time. For example, your control panel was in the Control Panels folder and now it is in the Control Panels (Disabled) folder.
>
> Also, make sure that it functions correctly when it was not run at boot time, i.e., it's not installed, but it is now in the Control Panels or Extensions folder, meaning that it will run at next boot. For example, a control panel might put up an alert when opened in this case, saying that changing its settings will have no effect until the Macintosh has been restarted.

Package Handling

Beyond the new look, the second area of improvement is the ability to deal with "packages". A package is a group of together, either because they are from the same manufacturer or because the extensions rely on each other. When view by package, users can easily turn all related extensions on or off with one click of the mouse.

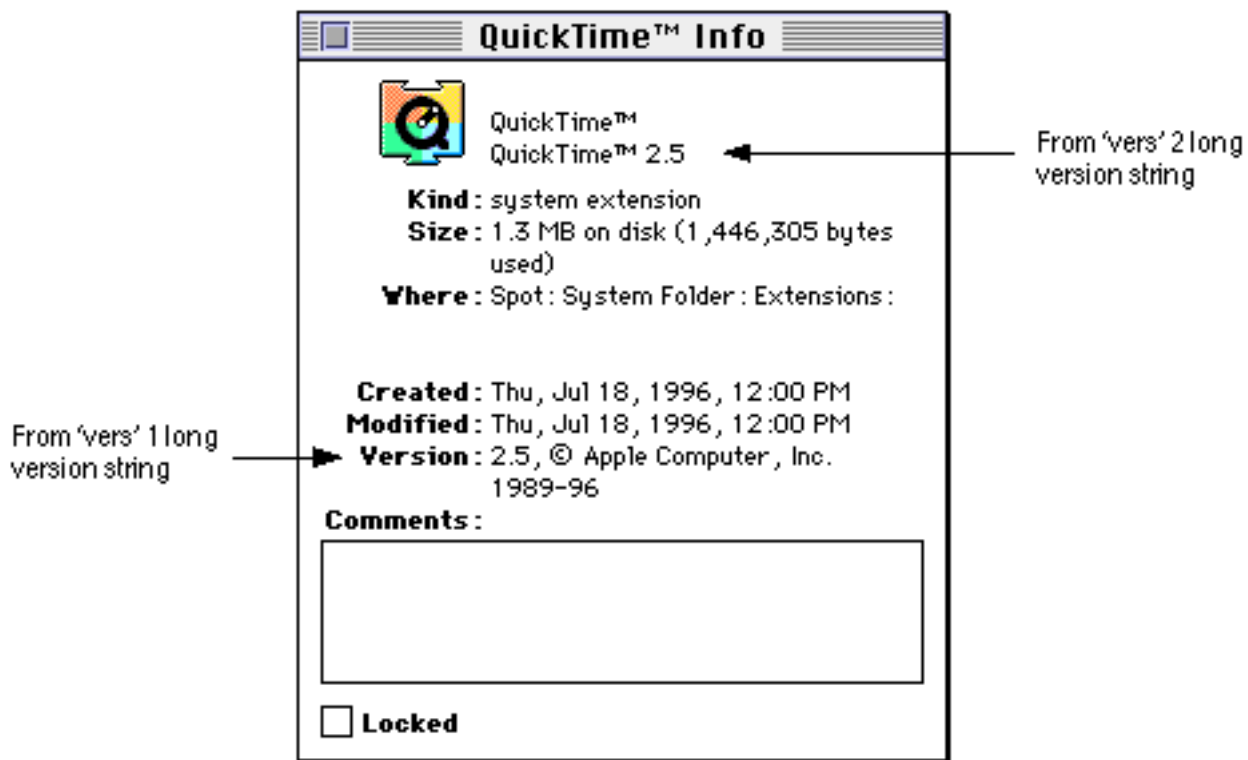Extensions Manager 4.0 provides three different ways to view the list of extensions:

- as Folders (the view shown in the above picture)
- as Packages
- as Items.

The "as Folders" option resembles the previous Extensions Manager's list, which separated all the extensions from all the System Folder items. The "as Items" list removes the folders from the list, so you don't have to be concerned with is a control panel or an extension.

The newest and most powerful feature of Extensions Manager 4.0 is its ability to sort extensions "as Packages". Extensi a "System 7.5.X" selection in its pop-up menu -- a built-in package of those extensions that shipped with System 7.5.X takes this idea to its logical conclusion, since it allows any vendor to define extension packages in an intuitive and fle

Extensions Manager constructs packages by looking at the `'vers'` 2 resource, which the Finder uses to display informat window, like this one for QuickTime 2.5. Figure 2 shows an example of the Get Info window.
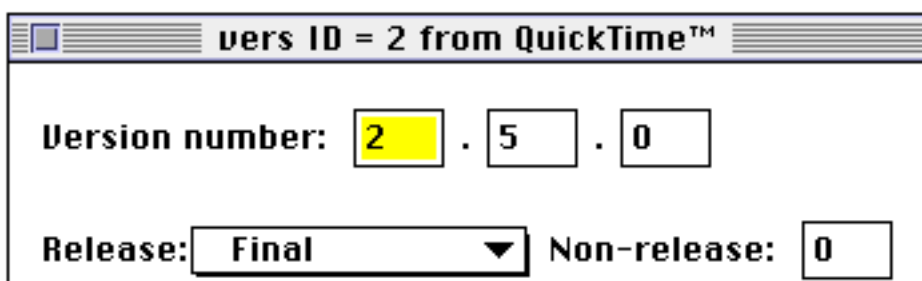
Figure 2. Example of Get Info window

Extensions Manager uses the `'vers'` resource to not only inform the user about an extension, but also to group extensions long version string together.

Figure 3 shows what a `'vers'` resource looks like in ResEdit.

Figure 3. ResEdit window, showing `'vers'` information

Country Code: 00 - USA ▼

Short version string: 2.5

Long version string (visible in Get Info):

QuickTime™ 2.5

Extensions Manager 4.0 retrieves the version number from the `'vers'` 1 resource's short version string, or if there is no `'v...'` attempts to retrieve the version number from the short version string of the `'vers'` 2 resource.

Extensions Manager 4.0 uses the short version string to display the version of a file in its window, and it uses the long `'...'` package identifier for each extension. The short version string does not have to be limited to just a number, but it shoul `'...'` package feature of Extensions Manager 4.0, the long version string of all extensions in the same package must match e `'...'`

If you are a vendor of extensions or other items which go into the System Folder (or one of its subfolders) and you have `'...'` that work as a group, you can make them into a package by simply giving all of them the same long version string in th `'...'` Extensions Manager 4.0 will treat those extensions as being in the same package, as Figure 4 demonstrates.
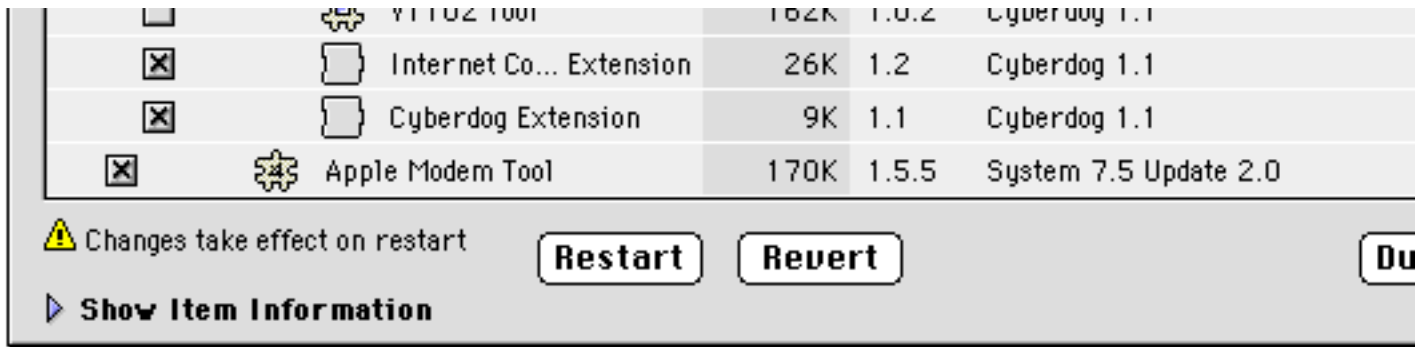
Developers creating groups of extensions should package all of those extensions into one package, even if those extensi`'...'` together as a group. By doing so, your extensions appear as a complete software package and will be organized in a wa`'...'` identified by the user when Extensions Manager 4.0's display is in the package mode.

Figure 4. Examples of Different Packages

On/Off		Name	Size	Version	Package
▷ ☒	📦	**System Sof...e 7.6a2c1**	15.2MB	—	**System Sofware 7.6a2c1**
☒	Q	QuickDraw™ GX	3,332K	1.1.3	—
▷ ☒	📦	**English Sp...on 1.5b11**	1,718K	—	**English Speech Recognition**
▽ ☐	📦	**QuickDraw™ 3D v1.0.6**	1,632K	—	**QuickDraw™ 3D v1.0.6**
☐	Q	QuickDraw™ 3D	1,377K	1.0.6	QuickDraw™ 3D v1.0.6
☐	Q	QuickDraw...3D Viewer	170K	1.0.6	QuickDraw™ 3D v1.0.6
☐	Q	QuickDraw™ 3D RAVE	85K	1.0.6	QuickDraw™ 3D v1.0.6
☒	a	~ATM™	1,462K	v 3.8...	Adobe Type Manager™ v 3.8.3
▷ ☒	📦	**AppleVisio...are v1.0.2**	757K	—	**AppleVision Software v1.0.2**
☒	💣	MacsBug	485K	6.5.3	—
▽ ⊟	📦	**Cyberdog 1.1**	197K	—	**Cyberdog 1.1**
☐		VT102 Tool	163K	1.0.2	Cyberdog 1.1

As you can see in Figure 4, if there are two or more items in a package, then a checkbox is shown, a special package icon[...] name of the package (taken from the long version string in the `'vers'` 2 resource) is shown in bold. The user can use the [...] expand the view and can enable or disable entire packages by clicking on the checkbox for the main package (as is the [...] QuickDraw 3D v1.0.6 package in Figure 4). The user can also disable only some items in a package (as is the case with [...] package in Figure 4).

Extensions Manager 4.0 incorporates tri-state checkboxes which let the user easily know that only some items in a gro[...] Installer lets you know that only some items in a custom install package will be installed, as in Figure 4.

If the check box has a horizontal line through it, like this:

Figure 5. Partially-disabled package checkbox

it means that one or more items in the group are not active, as is the case of the Cyberdog 1.1 package in Figure 4.
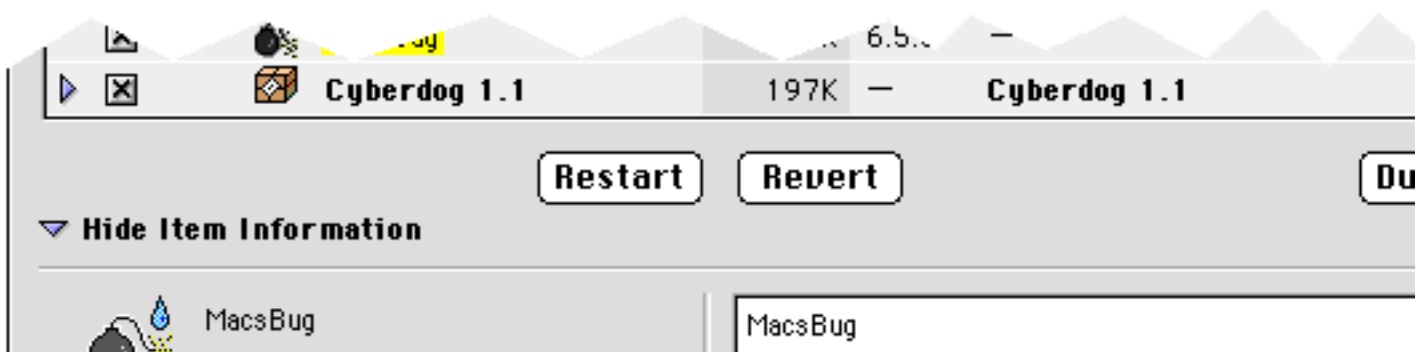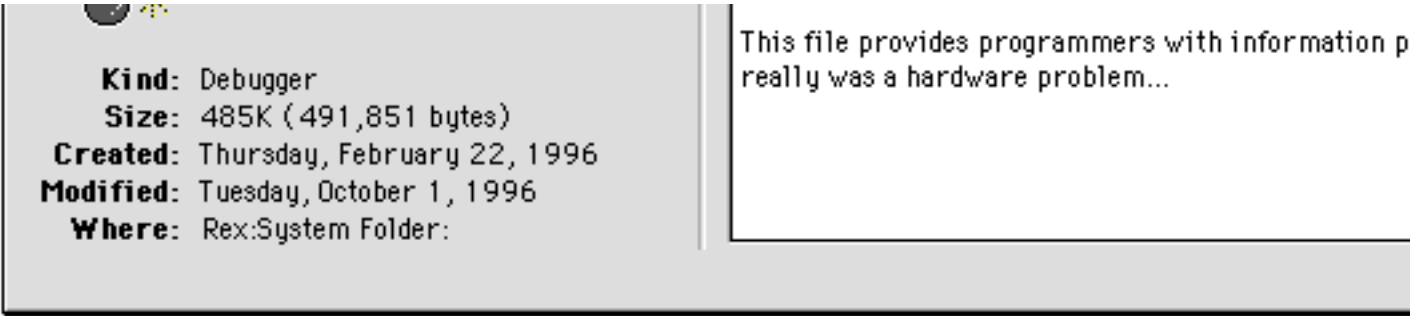
The Item Information Window

The "Item Information" window, shown in Figure 6, provides a place for the display of textual information describing [...] by an extension. Vendors can provide this information by including necessary resources in their extension files. Extensi[...] retrieves the textual information displayed in this window from one of four places. The search order for finding that [...] follows:

1. It first looks in resource `'CCI™'` [1] 128
2. If that resource does not exist, it looks in an internal Extensions Manager Info database.
3. If it doesn't find a match in the database, then it looks in the file for resource `'hfdr'` -5696, which is the Finc[...] resource.
4. Finally, it looks in the Finder Help file for information about the file.

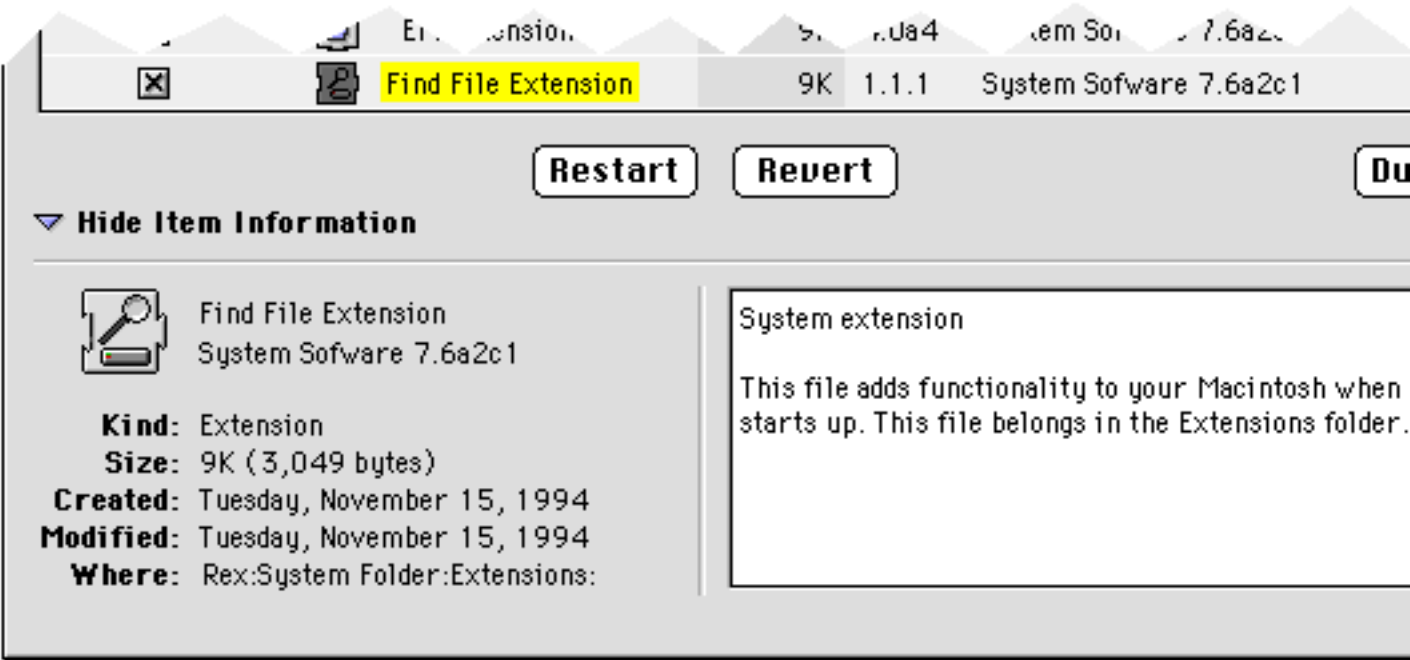Here is an example from MacsBug's `'hfdr'` -5696 resource:

Figure 6. Item Information window

Kind: Debugger
Size: 485K (491,851 bytes)
Created: Thursday, February 22, 1996
Modified: Tuesday, October 1, 1996
Where: Rex:System Folder:

This file provides programmers with information p
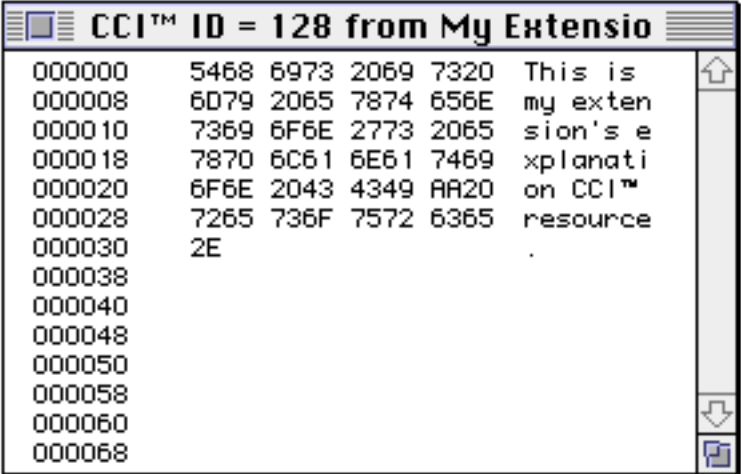really was a hardware problem...

If no information is found in any of these places, it displays the default information (which is the same information t in Balloon Help where there is no `'hfdr'` -5696). It is a generic message, as shown in Figure 7.

Figure 7. Generic Item Information

Find File Extension   9K 1.1.1   System Sofware 7.6a2c1

[Restart] [Revert]   [Du

▽ **Hide Item Information**

Find File Extension
System Sofware 7.6a2c1

Kind: Extension
Size: 9K (3,049 bytes)
Created: Tuesday, November 15, 1994
Modified: Tuesday, November 15, 1994
Where: Rex:System Folder:Extensions:

System extension

This file adds functionality to your Macintosh when
starts up. This file belongs in the Extensions folder.

The format of the `'CCI™'` (™ is the option-2 character, hex AA) resource is exactly the same as a `'TEXT'` resource, a pu extraneous information. Figure 8 shows how it appears in ResEdit.

Figure 8. ResEdit view of `'CCI™'` resource


```
 CCI™ ID = 128 from My Extensio
000000    5468 6973 2069 7320   This is
000008    6D79 2065 7874 656E   my exten
000010    7369 6F6E 2773 2065   sion's e
000018    7870 6C61 6E61 7469   xplanati
000020    6F6E 2043 4349 AA20   on CCI™
000028    7265 736F 7572 6365   resource
000030    2E                    .
000038
000040
000048
000050
000058
000060
000068
```

The format of the `'hfdr'` resource is described in [Inside Macintosh:More Macintosh Toolbox](#).

Using the 'CCI™' resource allows your extension to display useful information in Extensions Manager (i.e., what func provides or what other extensions this extension requires) while allowing your `'hfdr'` -5696 resource to say things like Extensions folder to be active," or other things which don't make sense when viewed in the Extensions Manager's cont

Further References

- [Inside Macintosh: More Macintosh Toolbox](#), page 3-86, regarding the `'hfdr'` resource.
- [Inside Macintosh: Macintosh Toolbox Essentials](#), pages 7-31 through 7-33, regarding the `'vers'` resource.
- The Writing a System Extension chapter in [Inside Macintosh:Operating System Utilities](#) (chapters 9 and 10)
- The Control Panels chapter in [Inside Macintosh: More Macintosh Toolbox](#) (8-1)
- [Technote TB15-"New" cdev Messages](#)
- [Technote TB515-Control Panel Q&As](#)
- [Technote OV18-Resource in CDEV?](#)
- Developers building safe "fat" accelerated extensions should refer to the sections of [Inside Macintosh: PowerPC System Software](#) beginning on pages 1-34 and 2-24.
- A piece of Extensions Manager trivia: `'CCI™'` means "Conflict Catcher Information™".

Downloadables

[Acrobat version of this Note (how many K?)](#)

Acknowledgments

[1]Thanks to Conflict Catcher for coming up with the great idea of the `'CCI™'` resource.

Thanks also to Tim Maroney, Jeff Robbin.

Send feedback to devsupport@apple.com
Updated: 17-Jan-97

[Tech Support](#)
[Technotes](#)
[Previous Technote](#) | [Contents](#)

Navigation graphic, see text links

[Main](#) | [Page One](#) | [What's New](#) | [Apple Computer, Inc.](#) | [Find It](#) | [Contact Us](#) | [Help](#)