

Technote 1102

Mac OS 8

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Version 1.8

This Technote discusses changes and corrections in the next generation of the Mac OS Operating System, Mac OS 8. This system follows Mac OS 7.6.1 and contains several new and revised features. Mac OS 8 offers improvements and/or new features in the following areas:

- Multi-threaded [Finder](#)
 - [Virtual Memory](#) performance
 - [AppleScript](#) execution time
 - Application launch times
 - System startup time
 - User interface facilities
-
-

Document History

1.8 Updated discussion of both FI nfo and FXi nfo records and the DI nfo and DXI nfo records in the [Other Important Finder 8 Facts](#) part of the [Finder 8.0](#) section. -JM, 8/19/99

1.7 Updated and expanded the details and samples presented for [Apple Event Changes](#) in the [Finder 8.0](#) section. -AFB, 3/29/99

1.6 Fixed broken Apple Location Manager and Appearance Manager SDK links. -IK, 8/6/98

1.5 Fixed broken links in the [QuickDraw GX](#) section. Corrected the ' fntb' drag flavor description in the [Finder:New Drag Flavors](#) section ('Preventing Folders from Springing Open' was changed to 'Disabling Finder Tracking Behavior'). And XFI nfo spelling changed to FXI nfo. -JM, 12/11/97

1.3 Documented a crashing bug with UTVol CacheWri teIP under in the [File System Manager](#) section. -Quinn, 6 Nov 1997

1.2 New HideOnSwitch flag defined along with it's accessor routines, GetHi deOnSwi tch and SetHi deOnSwi tch, in the [Process Manager](#) section. -JM, 10/6/97

1.1 QTVR version changed to 2.0.1, added information about the flavorNotSaved flag in the [Finder:New Drag Flavors](#) section, added "Cleanup at Startup" folder to Folder Manager section with developer note about its use. -JM, 9/11/97

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Hardware Requirements

Mac OS 8 can be installed on any Mac OS compatible computer that has either a PowerPC or a 68040 processor (including 68040 machines with a PowerPC upgrade card). PowerPC cards installed in 68030 computers are not supported, and Mac OS 8 does not support machines upgraded with either a 68030 or a 68040 upgrade card.

Installation



Install Mac OS 8

This is an upgraded version of the Install Mac OS application provided with Mac OS 7.6 and 7.6.1. The new Install Mac OS application provides an enhanced user experience guiding the user through all of the steps required to install the new system software. Install Mac OS requires System 7.0 or later.



Finder 8

Finder 8 is a replacement for the System 7 Finder, offering a multi-threaded interface that allows users to proceed with many file-oriented tasks simultaneously. In addition, many of the new user interface elements, such as [Contextual Menus](#), present in Mac OS 8 are utilized by the new Finder. Other additions to the user interface experience provided by the Finder are:

- Pop-up windows and spring-loaded folders,
- Apple platinum [Appearance](#) for windows and dialogs,
- Files and folders can be displayed as icon buttons in Finder windows,
- Files and folders can now be listed by their creation date,
- Integration of older control panels such as Views and Labels directly into the Finder.

Other more technical changes are discussed in the following sections.

Apple Event Changes

Reopen Application Apple Event

Finder 8 now sends running applications a reopen application Apple event (kAEReopenApplication == 'rapp') whenever the user reopens the application. The purpose of the reopen application Apple event is to allow the application to provide visual feedback to the user.

User testing has indicated that when a user double-clicks on an application's icon, or in some other way causes the application to be launched, they expect to see some visual feedback that the application has in fact started and is ready for use. This visual feedback is

often a new untitled document window or a document creation dialog when a document file has not been opened. Users associate this feedback with the action of double-clicking on the application icon.

It was discovered that when users double-clicked on the icon for a running application, and there was no visual feedback from the application (such as a document window or tool pallet), they would often think that something was wrong because nothing happened. Testing showed that the menu bar change (including the application menu icon) when the running application came to the front was not enough of a visual clue for novice users. They didn't realize that the application whose icon they had just opened was in the front ready for their use.

The idea behind sending the reopen application Apple event to the running application is to let the application know that the user has attempted to open it. When handling the reopen application Apple event, the application has an opportunity to provide visual feedback to the user. What the application does will depend on the application itself, and on the current state of the application. The action taken should also take into consideration any startup options the user has set in the preferences for the application.

In general, if no windows are open in the application, the action taken should be similar to what happens when the open application (`kAEOpenApplication == 'oapp'`) Apple event is received after the application is launched. This could be opening an untitled document, or perhaps displaying a document creation dialog. If the application already has windows open -- be they document, tool pallet, dialog, etc. -- this will most likely be enough feedback and nothing further needs to be done.

Application frameworks should provide support for the reopen application Apple event. In many cases, the framework will be able to leverage the support it already provides for the open application Apple event. It could, for example, provide a global flag to indicate that the first Apple event has been handled at application startup time. After the flag is set, the open application Apple event handler would behave as the reopen application Apple event handler.

Determining Item at Screen Location

Finder 8 provides a mechanism which allows applications to determine what icon or window, if any, is located at a particular point on the screen. You ask for this information by sending a get data Apple event (`kAEGetData == 'getd'`) to the Finder. The direct parameter for the event must be an object specifier describing the item type you are looking for and the point at which to check for the item. If there is no icon or window at the point the event will return an `errAENoSuchObject (-1728)` error.

The following AppleScript scripts show how to get the icon or window at a location.

```
tell application "Finder"
```

```
  item {xLoc, yLoc} -- returns a file object reference if an icon is under the point
```

```
  window {xLoc, yLoc} -- returns container reference if a window is under the point
```

```
end tell
```

The reply to the events above are Finder style references which an AppleScript script can easily work with, but which are more difficult for an application to use. You can add a `keyAERequestedType` parameter to the event to tell the Finder to return its reply in the form you prefer to work with. Also, when checking for windows at a particular location you are likely to be interested in the folder the window belongs to. Here is how these changes would look in AppleScript.

```

tell application "Finder"
  item {xLoc, yLoc } as alias -- alias for the icon under the point
  folder of window {xLoc, yLoc } as alias -- alias for folder window under the point
end tell
    
```

There is a third key form, `typeWidCard`, that you can use when asking the Finder for the item at a particular location. An event with this key form will cause the Finder to first check for an icon at the specified location. If no icon is found, the Finder then checks for a window. Because the result can be either an icon or container reference you cannot add a `keyAERequestedType` parameter to the event. If you use this key form you must send a second get data event to get an alias or `FSSpec` for the item found at the location.

```

tell application "Finder"
  anything {xLoc, yLoc } -- returns a file item or container reference
  anything { xLoc, yLoc} as alias -- alias for icon under point, error for window
  folder of anything {xLoc, yLoc } as alias -- alias for window, error for icon
end tell
    
```

The contents of the object descriptor sent as the direct object for the get data event will contain the following data.

Key	Value	Description
keyForm	formAbsolutePosition	
keyAECContainer	typeNull	
keyData	typeAEList	
	long	x location
	long	y location
keyAEDesiredClass	One of the following values	To get this type of item
	cObject	icon at location
	cWindow	window at location
	typeWidCard	icon or window at location

Intercepting Documents

Before the Finder opens one or more documents using an application, it sends a 'fopn' Apple Event from the Finder Event suite (`kAEFinderEventSuite 'fndr'`). Developers wishing to override the Finder's normal document handling facilities can install a global Apple Event handler to intercept these events and direct the Finder to discontinue processing the open command. The Finder event 'fopn' contains the following parameters:

A parameter with `keySelection` and `keyData` of object specifier for the selected item or an `AERecord` of object specifiers for the selected items (if more than one item is in the selection being opened).

An optional parameter with the key 'APPL' and `keyData` containing an object specifier for

the application the Finder plans to use to open the documents. There are two different cases where this optional parameter will be present. First, when documents are dropped directly into an application, the application will appear in this parameter and the Finder will send the 'fopn' Apple event only once. And second, if one or more documents are double-clicked or opened from the file menu, then the Finder will send the 'fopn' event twice, both times specifying the entire selection, once without the 'APPL' parameter and once with the 'APPL' parameter when the application Finder plans to use has been determined.

Developers wishing to override the Finder's normal document handling behavior must install a global Apple Event handler for the 'fopn' Apple event. Once installed, the handler can distinguish between the files it wishes to process and the files the Finder should process normally by returning a Boolean value in the reply event. A value of `true` in the key `AEDat` a parameter of the reply tells the Finder to discontinue all processing of the open request, and a value of `false` tells the Finder to continue processing the open request as it normally would.

If there are several documents in the selection being opened by the Finder, it is possible that the documents will not be all of the same type. As such, the entire group may not be appropriate for use in one particular application. In these cases, the Finder groups the documents by type and sends each group separately (first without the 'APPL' parameter, and once with the 'APPL' parameter). For example, if a selection contains both a SimpleText document and a MoviePlayer document, then the Finder first sends a 'fopn' event with the SimpleText document followed by a 'fopn' event with both the SimpleText document and the 'APPL' parameter referring to the application SimpleText. Finder would then repeat the same process for the MoviePlayer document using the MoviePlayer application in the 'APPL' parameter. This behavior of the 'fopn' Apple Event allows your handler to override the processing of particular document types while allowing the Finder to open other documents in the normal way.

NOTE

Since the Finder discontinues all processing of documents if the global Apple Event handler for the 'fopn' Apple Event returns a Boolean value of `true`, any such handler should provide appropriate user feedback for any exceptional circumstances that may arise while attempting to open the files (failed opens, insufficient memory, etc.).

COMPATIBILITY NOTE

This event is not present in the Finder's AETE dictionary, and as such it is not officially supported by the Finder and may not be present in future versions of the Finder.

SendToSelf Apple Events

Beginning with Finder 8, all Apple events are handled in separate threads. When the Finder receives any high-level event (including Apple Events), it immediately suspends the event, creates a Thread Manager task where the event will be handled, and schedules the task for execution. Once the thread has completed execution and wishes to return a value, Finder resumes the Apple Event.

Products patching the system and sending Apple Events to the Finder with the send mode `kSendToSelf` while the Finder is the current process may require revision. In this case, `AESend` will return the error `errAEEEventTimeout`, which requires special handling. The caller should handle this error by periodically attempting to extract data from the reply event. Also, the caller should be sure to yield time to the System so the Finder can run and process the event. When the Finder completes processing of the event, the reply will contain the requested data.

The [AppleScript](#) facilities provided by the Finder have changed. All of the scripting services formerly provided by the Finder are still present in the operating system; however, some of the facilities provided by the Finder have been moved to the appropriate control panels.

Network Commands Moved to Control Panels

The Finder no longer handles creation or manipulation of network users or groups, nor can the Finder be asked to retrieve information about connected users or file sharing activity. These scripting features are now handled by their respective control panels, which can be targeted by scripts. Developers who have created scripts that instruct the Finder to either create or modify Users or Groups or query the Finder about file sharing details require modification for compatibility with Mac OS 8. In most cases, such modification will only require a change in the target application from the Finder to either the File Sharing control panel or the Users & Groups control panel.

NOTE

For compatibility with the majority of scripts utilizing the network facilities once provided by the Finder, the Finder continues to support commands for turning on and off file sharing.

Revised Property Values

In order to correct an incompatibility with the 'info for' scripting addition, the Finder has changed the values of several properties. Specifically, the values of the properties 'folder', 'creation date', 'modification date', 'locked', and 'file type' have changed. Compiled scripts compiled under Finder 7 will continue to run without requiring recompilation. However, if these same scripts are opened with the ScriptEditor under Finder 8, all former references to these properties will have the text 'obsolete' appended to the property name indicating the older property value. These scripts will continue to compile and run for both Mac OS 7 and Mac OS 8; however, if the text 'obsolete' is removed, indicating the newer property value, then the compiled script will only be run Finder 8.

COMPATIBILITY NOTE

Scripts utilizing the new property values that have been compiled under Finder 8 will not run with Finder 7 as the new property values will not be recognized by Finder 7. To create a script that will run with both Finder 7 and Finder 8, developers should either compile and save the script with Finder 7, or they should leave the text 'obsolete' in place when compiling with Finder 8.

Application Processes

Under Finder 7, requests for 'application processes' result in a collection of 'applications' which is actually data of type `typeProcessSerialNumber`. For example, under Finder 7, 'application processes' might return {application "Script Editor", application "Stickies"} and 'first application process' might return 'application "Script Editor "'.

Under Finder 8 the behavior of 'application processes', 'desk accessory processes', and 'processes' has changed to always return a list of processes. For example, the same script under Finder 8 still returns {application "Script Editor", application "Stickies"} because AppleScript is asking for the items as `typeProcessSerialNumber`. However, in this case, 'first application process' under Finder 8, will return 'process "Script Editor"' which is a different data type. Developers wishing to obtain the same data type for both Finder 7 and Finder 8 should use the query 'first application process as «class psn »' in their scripts, which will return the value 'application "Script Editor "' with both Finders.

New Drag Flavors

Finder 8 introduces four new drag flavors -- 'fdtt', 'fntb', 'clnm' and 'clfn' -- for client applications who wish to support dragging to the Finder. The appearance of any of these new flavors attached to any drag item in a `DragReference` will direct the Finder to provide the following behaviors when accepting the drag:

Limiting Valid Drop Targets to the Trash

Adding the 'fdtt' (drag to trash) flavor to any item in a `DragReference` tells the Finder not to accept the drag anywhere except to the Trash icon. No other icons of windows will highlight. If the 'fdtt' flavor appears anywhere in a `DragReference`, then it applies to all of the items in the `DragReference`. The 'fdtt' flavor provides an opportunity for applications to utilize the 'drag to trash' model for, say, allowing users to delete selections by dragging them to the trash. 'fdtt' flavors do not contain any data.

Disabling Finder Tracking Behavior

Adding the 'fntb' (no tracking behavior) flavor to any item in a `DragReference` instructs the Finder to ignore the drag entirely. Neither windows or icons will highlight to accept drags, nor will any spring-opening occur in the Finder when the 'fntb' flavor is included in a `DragReference`. If the 'fntb' flavor appears anywhere in a `DragReference`, then it applies to all of the items in the `DragReference`. 'fntb' flavors do not contain any data.

Controlling Clipping File Names

The 'clnm' and 'clfn' flavors have been added to provide applications with better control over the naming of clipping files. These flavors are used by the Finder in the following steps that it uses to determine the name for a clipping file:

1. If the item contains a 'clnm' flavor (`flavorTypeClippingName`), then this value (a pascal string) is used in the template "`^0 clipping`" to name the file. This is the preferred method for new applications. Usually, the application should provide the name of the document from which the clipping was dragged.
2. If the file name was not assigned in the above and the item contains a 'clfn' flavor, then this value (a pascal string) is used as the complete file name.
3. If the clipping file name was not established by either of the above methods, then the flavors are examined in order until a 'TEXT', 'PICT', or 'snd' flavor is found. If one of these flavors is found, then the clipping file is named either "text clipping", "picture clipping", or "sound clipping" respectively.
4. as a last resort, the name "untitled clipping" is used.
5. If the name assigned by the above steps is already in use, then a number is appended to the name (or appended and incremented until a unique name is established). Also, if the resulting name is longer than 31 characters, the name is truncated in the middle and an ellipsis is added. For example, "A Very Long Doc... clipping 100".

NOTE

Developers utilizing the 'fdtt', 'fntb', 'clnm', and 'clfn' flavors are not required to create additional drag items to attach them to when including them in a DragReference. To request the behaviors defined for each of these flavors from the Finder, simply attach them to any drag item included in the DragRef; and, as these special flavors define behaviors and contain no data, when adding any of these flavors to a DragReference the flavorNotSaved flag must be set in the FlavorFlags parameter in calls to AddDragItemFlavor. The Finder will provide the behaviors defined for each of the new flavors if they appear anywhere in the DragReference.

Other Important Finder 8 Facts

- Some formerly reserved or private fields in both the FInfo and FXInfo records and the DInfo and DXInfo records have been redefined by the Finder and are now used for special purposes. Archive developers should store the entire contents of these records when archiving files and directories. All fields in these records should be preserved, including flags and fields marked as reserved (with the exception of the "inited" bit for files containing desktop database information).
- Memory usage for applications reported in the "About This Computer..." window now displays the sum of both the application's memory partition size and the total size of any temporary memory allocated by the application.
- Finder 8 performs all drawing operations to off-screen GWorlds before displaying information on the screen via CopyBits. To streamline memory requirements, the Finder limits the depth of the off-screen drawing buffers it uses to 8-bits; hence, when a 16-bit or 24-bit monitor is being used CopyBits performs a translation between the two bit depths (blitting). Video driver (accelerator) authors for such displays should be aware of this fact and should ensure that blits of this variety are accelerated, as probably the most common blitting operation in Mac OS 8 will be from an 8-bit-deep off-screen GWorld to the monitor.
- The new Finder opens stationery documents in non-stationery-aware applications by automatically creating a copy of the stationery document and then passing the copy along to the appropriate application via an "open documents" ('odoc') Apple Event. Stationery-aware applications interact with Finder 8 in the same way as they did under Mac OS 7.x.
- New invisible files created by the Finder include "OpenFolderListDF" and "DesktopPrinterDB".
- Many of the undocumented internal structures maintained by the Finder have changed with this release. Programs making assumptions regarding the organization or content of these internal structures will not be compatible with Finder 8.
- Finder 8 does not support QuickDraw GX desktop printing. ([QuickDraw GX](#) printing is no longer supported under my Mac OS 8.)
- Finder 8 does not support desktop ("Get Info...") comments for floppy disk volumes.
- When the Finder communicates with an old style 'cdev' type control panel, it turns off the new [Appearance](#) facilities. As a result, old style 'cdev' type control panels and the controls they contain appear as they would in System 7.
- Previous versions of the Finder would only search for custom help balloons in the resource forks of applications, control panels, and system extensions. The new Finder searches for custom help balloons in the resource fork of any file. Developers wanting to override the standard help balloons displayed for other files should include a standard 'hfdr' ID -5696 resource describing the file in the file's resource fork.

Related Materials:

- The [Finder Interface](#) chapter of *Inside Macintosh: Macintosh Toolbox Essentials*.
- The discussion of AppleScript in chapters 7, 8, 9, and 10 of [Inside Macintosh: Interraplication Communication](#).
- The [Suspending and Resuming Apple Event Handling](#) section in the "Responding to Apple Events" chapter of *Inside Macintosh: Interraplication Communication*.
- The [AppleScript Finder Guide](#) on the Developer Reference Library CD-ROM.
- The [AppleScript SDK](#).

- o [Technote IC01](#), "SendToSelf: Getting in Touch With Yourself Via the Apple Event Manager"
- o [Technote TN1085](#), "Using the Drag Manager to Interact with and Manipulate File System Entities"



Inside the System file

The system file contains routines and resources responsible for running the computer. This section describes new features and corrections built into the System file. These items are always present under Mac OS 8, even when shift key is held down at system startup.

Native CPU Family Gestalt

A new Gestalt selector `gestaltNativeCPUfamily` ('cpuf') has been added that will always return the CPU family of the current PowerPC processor. The new `gestaltNativeCPUfamily` selector returns the same values as the `gestaltNativeCPUtype` ('cput'), but it does not distinguish between variants within the same processor family. For example, the following table illustrates the difference between the new `gestaltNativeCPUfamily` selector and the older `gestaltNativeCPUtype` selector:

PowerPC Processor	<code>gestaltNativeCPUfamily</code> in Mac OS 8	<code>gestaltNativeCPUtype</code> since System 7.5
601	<code>gestaltCPU601</code>	<code>gestaltCPU601</code>
603	<code>gestaltCPU603</code>	<code>gestaltCPU603</code>
603e	<code>gestaltCPU603</code>	<code>gestaltCPU603e</code>
603ev	<code>gestaltCPU603</code>	<code>gestaltCPU603ev</code>
604	<code>gestaltCPU604</code>	<code>gestaltCPU604</code>
604e	<code>gestaltCPU604</code>	<code>gestaltCPU604e</code>

This new selector allows developers to test for the presence of particular family-specific PowerPC processor features without having to know all of the members of a CPU family.

Alias Manager

The Alias Manager is the part of the operating system that communicates with the file system to maintain alias records that are used to keep track of file and folder locations. The Alias Manager does not create Finder alias files; the Finder creates these files and stores alias records created by the Alias Manager in them.

`MatchAlias` wasn't checking for off-line volumes when `kARMOUI` was specified among its flag parameters. This could have lead to some superfluous alerts requesting the off-line disks when the Alias Manager attempted to access the volume information. The Alias Manager now disables the File Manager's "disk switch alert" when the `kARMOUI` rule is specified.

Related Materials:

- The [Alias Manager](#) chapter of *Inside Macintosh: Files*.
- The [Alias Manager](#) section on page 2-64 of *Inside Macintosh: QuickTime*.
- Technote [FL30](#), "Resolving Alias Files Quietly"

ATA Manager 4.0

ATA stands for AT-Attachment, and is a bus protocol used by the Mac OS for communications with IDE devices such as Hard Disks, CD ROMs, and other IDE devices in some Mac OS compatible computer models. Machines with installed IDE hard drives or ATAPI CD ROM drives use the ATA Manager (this includes most Performas and PowerBooks).

The routine `ATA_RegAccess` function has been updated to work correctly on PowerBook 3400 machines.

Code Fragment Manager 68K (CFM-68K) 4.0

The 68K Code Fragment Manager (CFM-68K) is the 68K implementation of the Code Fragment Manager. The 68K Code Fragment Manager is the part of the Mac OS on 68K machines that loads 680x0 code fragments into memory and prepares them for execution. CFM-68K is not appropriate for use on PowerPC machines.

- In Mac OS 8, CFM-68K has been included in the system file.
- The following CFM-68K shared libraries are now stored in the data fork of the system file:
 - InterfaceLib
 - StdCLib
 - AppleGuideGlueLib.68k
 - DragLib
 - QuickTimeLib
 - ThreadsLib
 - ObjectSupportLib
 - AppleScriptLib
 - Translation
 - CollectionsLib
 - FoldersLib

Related Materials:

- Technote [TN1084](#), "Running CFM-68K Code at Interrupt Time: Is Your Code at Risk?"
- Technote [TN1077](#), "Calling CFM Code From Classic 68K Code, or There and Back Again, A Mixed Mode Magic Adventure "
- The [CFM-68K SDK](#).

Collection Manager 1.1

The Collection Manager provides a data storage and retrieval service usable from applications for the purposes of maintaining small collections of variable sized data elements. This facility has been moved from [QuickDraw GX](#) to the Toolbox and is now included in the System file. The Mac OS 8.0 version of the Collection Manager contains the following corrections:

- Flattening a collection containing items with data of length zero produced an incorrectly formed flattened data stream. A collection unflattened from this buffer would also be incorrect; the zero-length items would be thought to have length 0xFFFFFFFF8 instead of zero.

- When replacing the data of an existing collection item, if there was not enough memory to add the new data, the collection was corrupted by the error-handling code. After control returned to the caller, the data size of the item being replaced was thought to be four bytes larger than it actually was.
- When `AddCollectionItem` or `ReplaceIndexedCollectionItem` replaced an existing item with new data that was larger than the item's old data, a pointer to an unlocked handle was cached across a heap operation.

COMPATIBILITY NOTE

Developers requiring the Collection Manager must link with `CollectionLib` under Mac OS 8 as it will not be accessible via the QuickDraw GX library. The Mac OS 8.0 version of `CollectionLib` includes glue for both CFM-68K and PowerPC CFM callers. In Mac OS 8, the `gestaltCollectionMgrVersion` selector returns version 1.1 (0x01108000).

Related Materials:

- [Collection Manager 1.1 documentation and SDK](#) (preliminary as of 07/23/97).
- The [Collection Manager](#) chapter of *Inside Macintosh: QuickDraw GX Environment and Utilities*.

Communications Toolbox

The Communications Toolbox provides an API for basic communications and connection services.

A problem in the `StandardNBP` routine where it was possible for a list structure exceeding 32k to be allocated when a large number of names were requested has been corrected.

Related Materials:

- Apple Computer, Inc. *Inside the Macintosh Communications Toolbox*. Addison Wesley.

Control Manager

The Control Manager provides facilities for drawing and processing user interaction with controls drawn on the screen.

The new Appearance Manager extends the functionality of the Control Manager. See the Appearance Manager documentation and SDK for further information.

Related Materials:

- The [Appearance Manager documentation and SDK](#) (preliminary as of 07/23/97).
- The [Control Manager](#) chapter of *Inside Macintosh: Macintosh Toolbox Essentials*.

Desktop Manager

The Desktop Manager provides routines for accessing desktop database files on Mac OS volumes.

- The Desktop Manager can now support volumes managed by File System Manager agents. See the

[File System Manager section](#) for more information.

- For asynchronous Desktop Manager requests, 68K register D0 is now saved and restored around completion routines.
- `PBDTGetInfo` now works correctly. Previously, `PBDTGetInfo` usually returned `nsvErr` (no such volume).
- `PBDTOpenInfo` and `PBDTGetPath` no longer crash if called before the Process Manager is available. Now, they now return `paramErr` and do nothing if called before the Process Manager is available.
- All former Desktop Manager patches were integrated into the main code, reducing the number of patches in the system as a whole.

Related Materials:

- The [Desktop Manager](#) chapter of *Inside Macintosh: More Macintosh Toolbox*.

Device Manager

The Device Manager provides a standard programming interface for communications between applications and code that is designed to communicate with particular hardware devices (although some "device drivers" do not actually drive devices).

- The `PCIDriverLoaderLib` now correctly expands the unit table as necessary when loading new drivers.

Related Materials:

- The [Device Manager](#) chapter of *Inside Macintosh: Devices*.
- [Designing PCI Cards & Drivers](#)

Dialog Manager

The Dialog Manager provides automated user interface facilities for managing user interactions with dialog windows.

- Previously, `AppendDialog` and `ShortenDialog` did not correctly resize the `AuxWindowRec`, and random memory was being used to draw the new items. This has been corrected.
- `ShortenDialog` was calling `ReleaseResource` on 'PICT' and 'ICON' items. It no longer does this.
- `ShortenDialog` and `AppendDialog` have been enhanced to support 'cicn' items in non-color dialogs.
- The new Appearance Manager extends the functionality of the Dialog Manager. See the Appearance Manager documentation and SDK for further information.
- When Appearance is turned on, the Dialog Manager ignores all entries in custom dialog color tables (type 'dctb') resources except for the content color entry.

COMPATIBILITY NOTE

Developers drawing an outline around the default button in dialog windows using the older black and white `FrameRoundRect` method should modify their code for compatibility with the new Appearance facilities. To display a dark outline around the default button in a dialog box, call the routine `SetDialogDefaultItem` to ensure that the dark outline drawn around the default button has the proper appearance.

Related Materials:

- [Appearance Manager documentation and SDK](#) (preliminary as of 07/23/97).

- The [Dialog Manager](#) chapter of *Inside Macintosh: Macintosh Toolbox Essentials*.

Disk Initialization Package

The Disk Initialization Package provides formatting services for disks.

The Disk Initialization Package now has platinum Appearance.

Related Materials:

- The [Appearance Manager documentation and SDK](#) (preliminary as of 07/23/97).
- The [Disk Initialization Manager](#) chapter of *Inside Macintosh: Files*.

FKEYs

FKEYs are executable code resources, stored in the system file, that are invoked by typing a command-shift-number combination, where the number is equal to the resource ID of the FKEY resource.

Under Mac OS 7.6 and Mac OS 7.6.1 the FKEY 3 & FKEY 4 routines would fail to capture the screen if At Ease was installed but inactive. This problem has been corrected.

Related Materials:

- [Responding to Keyboard Events](#) in the "Event Manager" chapter of *Inside Macintosh: Toolbox Essentials*.

File Manager

The File Manager provides services for storage and retrieval of disk based information.

- A race condition could occur in the File Manager when it was calling synchronous-only device drivers. This problem has been corrected.
- The File Manager's disk cache I/O code now breaks large requests into smaller requests that can be held in memory when Virtual Memory is turned on. This ensures that large File Manager `_Read` or `_Write` I/O operations no longer fail with a `notEnoughMemory` error if the I/O buffer is larger than what can be held by Virtual Memory.
- The user is now notified when a write-behind operation from the disk cache fails as a result of an error returned by the disk volume's device driver. The notification message on U.S. systems will read:
There is a problem with the disk VolumeName. Some information may have been lost.
Check any recently-used files for data loss, and use a disk repair program on the disk.
- If Virtual Memory is on, the disk cache size may be reduced to a size that can be held by Virtual Memory.
- Internal changes were made to the disk cache to support [new File System Manager calls](#).

Related Materials:

- The [File Manager](#) chapter of *Inside Macintosh: Files*.
- Technote [FL16](#), "File Manager Performance and Caching"

The File System Manager manages the use of foreign file systems. The File System Manager provides a general means by which foreign file systems can be installed, identified, and interfaced to the Operating System.

- Added new File System Manager API calls, `UTVol CacheReadIP` and `UTVol CacheWriteIP`. These two calls work much like `UTCachedReadIP` and `UTCachedWriteIP` except that they read or write volume blocks instead of file blocks.
- `UTBlockInFHASHP` no longer does anything and always returns `noErr`.
- File System Manager volumes can now utilize [Desktop Manager](#) support from the Mac OS Desktop Manager code (the same Desktop Manager code used on HFS volumes). For an FSM-based foreign file system to get Mac OS Desktop Manager support for its volumes, it needs to do two things:
 1. Set the `hfsCIWantsSDSupportBit` (bit 17) in its HFS component `compInterfMask` field. This tells the Desktop Manager that volumes with that foreign file system's File System ID should be supported by the Mac OS Desktop Manager instead of being passed on to the foreign file system's `HFSCIProc`.
 2. When the foreign file system responds to `PBHGetVolParms` requests, it needs to set the `bHasDesktopMgr` and `bHasBTreeMgr` bits in the `vMAttrib` field of the `GetVolParmsInfoBuffer`. Important: The Mac OS Desktop Manager only supports volumes which are at least two megabytes (0x00200000 bytes) large. If your foreign file system supports volumes smaller than two megabytes, then you should **not** set the `bHasDesktopMgr` and `bHasBTreeMgr` bits on those small volumes.
- The File System Manager's `_Control csCode #22` patch no longer affects non-disk drivers.

WARNING:

The `UTVol CacheWriteIP` routine should not be used under Mac OS 8.0 because it triggers a crashing bug. This bug will be fixed in the next update to FSM.

Related Materials:

- The [File System Manager SDK](#).

Folder Manager

The Folder Manager provides facilities for locating "special" folders like the Extensions folder in the System Folder without relying on the names of those folders. This aids application localization.

Developers can now register their own special folders that can be accessed using the `FindFolder` routine. Also, facilities have been added so developers can direct future versions of the Finder to auto-route certain file types into directories they register with the Folder Manager. Interested developers should refer to the [Folder Manager Technote](#) for more information.

The Folder Manager now correctly gives ownership and blank (inherited) access privileges to folders it creates on remote server volumes.

The following folders are registered in Mac OS 8:

Folder Name	Type	Location	New?	Contents
-------------	------	----------	------	----------

System Folder	' macs '	it is the blessed folder		System files and folders
Desktop Folder	' desk '	in the root directory		The Desktop
Trash	' trsh '	in the root directory		The Trash
Network Trash Folder	' empt '	in the root directory		The Trash on network volumes
PrintMonitor Documents	' prnt '	in 'System Folder'		PrintMonitor documents
Startup Items	' strt '	in 'System Folder'		items opened at startup
Apple Menu Items	' amnu '	in 'System Folder'		items in the Apple Menu
Control Panels	' ctrl '	in 'System Folder'		control panels
Extensions	' extn '	in 'System Folder'		system extensions
Fonts	' font '	in 'System Folder'		Fonts and Font Suitcases
Preferences	' pref '	in 'System Folder'		Preferences files
Temporary Items	' temp '	in the root directory		Temporary files
Shutdown Items	' shdf '	in 'System Folder'		Items opened at shutdown
Cleanup at Startup	' flnt '	in the root directory	yes	items deleted at startup
Application Support	' asup '	in 'System Folder'	yes	Application-specific files
Extensions (Disabled)	' extD '	in 'System Folder'	yes	Disabled System Extensions
Control Panels (Disabled)	' ctrD '	in 'System Folder'	yes	Disabled control panels
System Extensions (Disabled)	' macD '	in 'System Folder'	yes	Disabled System Extensions
Startup Items (Disabled)	' strD '	in 'System Folder'	yes	Disabled Startup Items
Shutdown Items (Disabled)	' shdD '	in 'System Folder'	yes	Disabled Shutdown Items
Applications	' apps '	in the root directory	yes	Application programs
Printer Descriptions *	' ppdf '	in 'System Folder'	yes	Printer description files
Editors	' oded '	in 'System Folder'	yes	OpenDoc Editors
Text Encodings	' ftex '	in 'System Folder'	yes	Text encoding extensions
Stationery	' odst '	in the root directory	yes	OpenDoc Stationery
Internet Plug-Ins	' fnet '	in 'System Folder'	yes	Internet related plug-in files
Control Strip Modules	' sdev '	in 'System Folder'	yes	Control Strip Modules
Assistants	' astf '	in the root directory	yes	Configuration assistants
Utilities		in the root directory	yes	Assorted utilities
Contextual Menu Items	' cmnu '	in 'System Folder'	yes	Contextual Menus Plug-ins
Scripting Additions		in 'System Folder'	yes	AppleScript Extensions
Printer Drivers		in 'System Folder'	yes	Printer Drivers

Note:

* The LaserWriter driver (versions 8.5.1 and before) does not take advantage of the 'ppdf' FindFolder feature and still only looks in the Extensions:Printer Descriptions folder for PPDs. This will be fixed in a future release of the LaserWriter 8 driver.

Finder 8 only creates a subset of the folders listed above (namely: "Apple Menu Items", "Control Panels", "Extensions", "Fonts", "Preferences", "Shutdown Items", and "Startup Items"). Other folders are created as they are needed.

Special new folders for developers:

The Application Support Folder. The new "Application Support" folder (type 'asup') is located in the System Folder. This folder is designated as the location where applications should place their private extensions and plug-in files. Applications and third-party extensions can install any files or folders required by their software in this folder. Apple does not define the contents of this folder.

The Internet Plug-Ins Folder. The new "Internet Plug-Ins" folder (type 'fnet') in the System Folder is designated as a common location for the storage of plug-ins for applications such as web browsers.

Cleanup at Startup. The new "Cleanup at Startup" folder provides an alternative location for developers to store their temporary files. Leftover items located in the traditional temporary files folder (type 'temp') are moved to the trash at system startup which may not always be desirable and can be a nuisance to users. Most often, this situation will occur if a application creates several temporary files is aborted and has no chance to delete them. To avoid this condition developers can place their temporary files in the "Cleanup at Startup" folder (type 'flnt') who's contents are automatically deleted at system startup. Developers should not depend on this facility for deleting their temporary files; rather, it should be used to ensure unusable temporary files will not appear in the trash after system startup.

Related Materials:

- [Using the System Folder and Its Related Directories](#) in the "Finder Interface" chapter of *Inside Macintosh: Macintosh Toolbox Essentials*.
- [FindFolder](#) in the "Finder Interface" chapter of *Inside Macintosh: Macintosh Toolbox Essentials*.
- The [File Manager](#) chapter of *Inside Macintosh: Files*.
- [The Extensible Folder Manager Technote](#).

Font Manager

The Font Manager provides system wide services for the retrieval of symbols and glyphs for display of textual information.

COMPATIBILITY NOTE

The default system font has changed and the system font can be selected by the user. The original system font, Chicago, is still present in the system file; however Mac OS 8 installs with Charcoal as the system font. Developers shouldn't make any assumptions regarding the system font in their applications. Namely, don't assume that the system font contains a bitmap character set for a particular font size.

Related Materials:

- The [Font Manager](#) chapter of *Inside Macintosh: Text*.

Help Manager

The Help Manager is responsible for the drawing and display of Help Balloons and the Help menu.

- The Help Menu has been moved from the question mark icon located on the rightmost side of the menu bar to a menu entitled "Help" that appears to the right of the application's menus.
- A new routine, `HMShowOneBalloon`, has been added to the Help Manager. It is utilized by the [Contextual Menu Manager](#).
- A problem where balloons were flickering before being displayed correctly while menu selections were being tracked from hierarchical menus to the previous or next menu item in the parent menu has been corrected.

COMPATIBILITY NOTE

To avoid displaying two menus entitled "Help" in the menu bar, developers should move any menu commands from their own help menus into the Help Manager's help menu.

Related Materials:

- [Adding Menu Items to the Help Menu](#) in the Help Manager chapter of *Inside Macintosh: More Macintosh Toolbox*.
- The [Help Manager](#) chapter of *Inside Macintosh: More Macintosh Toolbox*.

List Manager

The List Manager is the part of the operating system providing standard user interface facilities for drawing and managing user interaction with lists of items.

Under some circumstances, calls to `LSize` could mistakenly validate a part of the window containing the list outside of the list's boundary rectangle, resulting in incorrect drawing during the update event that following the call to `LSize`. This problem has been corrected.

Related Materials:

- The [List Manager](#) chapter of *Inside Macintosh: More Macintosh Toolbox*.

Memory Manager

The Memory Manager is the part of the operating system responsible for managing memory allocation requests.

- The routine `PurgeMem` was not returning `memFullErr` when it could not allocate enough space. `PurgeMem` has been corrected to report errors correctly.

Related Materials:

- The [Memory Manager](#) chapter of *Inside Macintosh: Memory*.

Menu Manager

The Menu Manager is the part of the operating system responsible for both drawing the menu bar and drawing menus and pop-up menus on the screen while the mouse is being held down.

- The execution speed of `AppendResMenu` has been improved. Previously, this call was performing an insertion sort on the menu handle itself when adding resource names to a menu. This method was found to be slow when large menus were being created. Now, the resource names are pre-sorted before they are added to the menu.
- Since System 7.5, `MDEF 0` was leaking memory when displaying pop-up menus.
- There have been extensions to the Menu Manager's API to support Contextual Menus. For further details, see the [Contextual Menu Manager section](#).
- On some machines, including the 8100/110, Centris 650, and 840AV, clicks on dynamically allocated pop-up menus displayed by applications or by the pop-up menu CDEF were leaking handles into both the system heap and the Process Manager heap. This space would eventually be recovered when the application quit, however it would remain in memory until then. This problem has been present on some machines since System 7.5 and has been corrected in Mac OS 8.
- `CountMItems` used to fail for menus containing items with more than 251 characters. This problem has been corrected.
- When Appearance is turned on, the Menu Manager now ignores all entries in custom menu color table ('mctb') resources except for the text color entry. If a default menu bar color is defined, then no theme colors will be used and the default color specified in the 'mctb' is used for all of the application's menus.
- The Menu Manager's API has been extended by the new Appearance Manager. See the Appearance Manager documentation and SDK for further information.

COMPATIBILITY NOTE

Developers displaying pop-up menus in applications should use the popup control rather than calling the menu manager directly to ensure their pop-up menus are displayed correctly when system-wide appearance is enabled.

Related Materials:

- [Appearance Manager documentation and SDK](#) (preliminary as of 07/23/97).
- The [Menu Manager](#) chapter of *Inside Macintosh: Macintosh Toolbox Essentials*.

ObjectSupportLib 1.2.1

ObjectSupportLib provides routines for [AppleScript](#) extensions and applications providing AppleScript services.

- The ObjectSupportLib has been moved to the data fork of the system file to prevent other older versions in the extensions folder from being used (older versions in the Extensions folder will not be loaded).
- This is a fat version of the Object Support Library for both PowerPC and 68K.

Related Materials:

- Technote [TN1095](#), "Object Support Library Version History"

Process Manager

The Process Manager shares the processor among multiple applications. Mac OS 8

includes the following new features in the Process Manager:

- To avoid running out of temporary memory when applications are launched, the Process Manager attempts to reserve 300K of heap space for temporary memory allocations. For example, if there is 900k available for applications and an application is launched whose preferred size is set to 10MB (and its minimum size is 200K), then it will be launched in a 600K partition leaving 300K free for temporary memory allocations. However, launches that were permitted before are still allowed. For example, if there is only 400k free and the same application is launched, then it will be launched in a 200k partition leaving 200k free for temporary memory allocations.
- A problem with memory calculations done by the Process Manager on systems with 256 megabytes of memory installed has been corrected.
- Active Time Manager tasks incorrectly left behind by an application are now removed by `ExitToShell` if the `TMTask` record or the `tmAddr` field in the `TMTask` record are in the application's heap.
- With Mac OS 8 the Process Manager defines a new flag developers can use to control the hiding of processes as they are switched out. And, the new `HideOnSwitch` flag can be accessed using the routines `GetHideOnSwitch` and `SetHideOnSwitch`. When the `HideOnSwitch` flag is set to true, processes are hidden whenever they are switched from the foreground process to a background process. `HideOnSwitch` is a global flag that applies to all running processes during process switching.

Bit sixteen (`gestaltHideLayerOnSwitchSupport`) of the response returned by the `gestaltOSAttr` `Gestalt` selector can be used to determine if the `HideOnSwitch` flag is available and its accessor routines are defined. If this bit is set to one then the following routines are available and can be called.

```
enum {
    gestaltHideLayerOnSwitchSupport = 16
};

extern pascal void SetHideOnSwitch(Boolean setValue)
    THREEWORDINLINE(0x3F3C, 0x006B, 0xA88F);
extern pascal Boolean GetHideOnSwitch(void)
    THREEWORDINLINE(0x3F3C, 0x006C, 0xA88F);
```

Where `SetHideOnSwitch` sets the value of the `HideOnSwitch` flag, and `GetHideOnSwitch` retrieves the value of the `HideOnSwitch` flag. As there are no entry points for these routines in `InterfaceLib`, CFM callers cannot link with them directly. To call these routines from CFM applications, developers should compile and link with the following code:

```
#if GENERATINGCFM

pascal void SetHideOnSwitch(Boolean setValue) {
    enum {
        uppSetHideOnSwitchProcInfo = kStackDispatchedPascalStackBased
            | DISPATCHED_STACK_ROUTINE_SELECTOR_SIZE(SIZE_CODE(sizeof(unsigned short)))
            | DISPATCHED_STACK_ROUTINE_PARAMETER(1, SIZE_CODE(sizeof(unsigned char)))
    };
    CallUniversalProc(GetToolTrapAddress(_OSDispatch),
        uppSetHideOnSwitchProcInfo, 0x006BL, setValue);
}

pascal Boolean GetHideOnSwitch(void) {
    enum {
        uppGetHideOnSwitchProcInfo = kStackDispatchedPascalStackBased
            | RESULT_SIZE(SIZE_CODE(sizeof(unsigned char)))
    };
    CallUniversalProc(GetToolTrapAddress(_OSDispatch),
        uppGetHideOnSwitchProcInfo, 0x006CL, &returnValue);
}
```

```

    | DISPATCHED_STACK_ROUTINE_SELECTOR_SIZE(SIZE_CODE(sizeof(unsigned short)))
};
return (Boolean) CallUniversalProc(GetToolTrapAddress(_OSDispatch),
    uppGetHiDeOnSwitchProcInfo, 0x006CL);
}

#endif

```

Related Materials:

- The [Process Manager](#) chapter of *Inside Macintosh: Processes*.
- Technote [TN1070](#), "Background-Only Applications"
- Technote [PS510](#), "Process Manager Q&As"

Script Manager 8.0

The Script Manager provides facilities for display and retrieval of number, date, time, and other information in a language-independent way.

PowerPC implementations of the routines `CharacterByteType`, `CharacterType`, `TransliterateText`, and `FillParseTable` have been added.

Related Materials:

- The [Script Manager](#) chapter of *Inside Macintosh: Text*.

SCSI Manager

The SCSI Manager is the part of the operating system responsible for communications with connected SCSI devices.

A problem where large volumes (larger than four gigabytes) were not being mounted correctly at startup has been corrected. Some of the disks on which these volumes reside were taking too long to spin up during the first scan of the SCSI bus and were not being recognized by the system. The system now scans the bus again later in the boot cycle looking for volumes that missed the first scan.

Related Materials:

- The [SCSI Manager](#) chapter of *Inside Macintosh: Devices*.
- The [SCSI 4.3 Manager](#) chapter of *Inside Macintosh: Devices*.
- Technote [DV24](#), "Fear No SCSI"

Serial Driver

The Serial Driver provides serial communications services for either the printer port or the modem port using the Device Manager API. The Mac OS 8 Serial Driver includes the following changes:

- The Serial Driver was leaving DCD interrupts enabled after it was closed. The Serial Driver now correctly disables DCD interrupts when it is closed.
- Extensions which called `OpenDriver` to open the serial ports during startup would crash the machine. In this case, the OT/PPP Serial Arbitrator was calling `GetCurrentProcess` before the

trap was installed in the system. This problem has been corrected.

Related Materials:

- The [Serial Driver](#) chapter of *Inside Macintosh: Devices*.
- Technote [TN1018](#), "Understanding the SerialDMA Driver"

Sound Manager

The Sound Manager provides facilities for playback and recording of digitized sounds.

Calls to `SPBSetDeviceInfo` with `siPlayThruOnOff` to turn playthrough off while speech recognition is turned on was incorrectly causing all sound to be suppressed on 5200, 5300, 6200, and 6300 machines. This problem has been corrected.

Related Materials:

- The [Sound Manager](#) chapter of *Inside Macintosh: Sound*.
- Technote [TN1048](#), "Some Sound Advice: Getting the Most Out of the Sound Manager"

StdCLib 3.4.4

StdCLib is a shared library located in the ROM on all PowerPC-based Mac OS compatible computers providing functionality for programs compiled using the C language. StdCLib has been present on all PowerPC models, and prior to System 7.6 updates were provided via the StdCLibInit system extension. Mac OS 8 includes a new version of the StdCLib in the System file's data fork containing the following corrections:

- `printf "e"` format has been modified to display full precision for 128-bit long double values,
- a full rewrite of memory allocation subsystem: `malloc`, `calloc`, `realloc`, `free`
- text files created by tools have their creator set to 'MPS' not 'txt',
- Device handlers are initialized to NULL in `addDevHandler`; this prevents a possible crash if the user installs a device handler.

Related Materials:

- The [StdCLib](#) section in Technote TN1090, "Mac OS 7.6"
- The StdCLib release notes on ETO #23.

Virtual Memory Manager

The Virtual Memory manager provides virtual memory services for the Mac OS. The following changes have been made in the Virtual Memory Manager:

- Virtual Memory was made both smaller and faster by removing 24-bit code and other dead code, using a better compiler, and optimizing source code. These changes mostly affect Virtual Memory's performance in:
 1. handling page faults
 2. patches to other parts of the Mac OS
 3. Virtual Memory's APIs (`DeferUserFn`, `HoldMemory`, `LockMemory`, etc.)
 4. handling of deferred user code

- Virtual Memory's page reuse algorithm was improved.
- Virtual Memory's loader code is more robust.
- Virtual Memory's patch on SCSIGet now holds 2K of the user stack while the SCSI transaction is in progress so it cannot be accidentally paged out.
- The two primary causes of System Error 112 (dsVMDeferredFuncTableFull) have been removed. Virtual Memory's deferred user function table was made larger, and calling `InxTime` more times than `RmvTime` no longer uses additional entries in the deferred user function table.
- A race condition was fixed in Virtual Memory's Time Manager patches. Before, if a `RmvTime` request was made from code that interrupted either `Pri meTime` of the same task or the execution of the same task, a system crash could occur.
- Deferred system operations (Time Manager tasks, I/O completion routines, etc.) are always run in processor supervisor mode. Before, if a deferred system operation was deferred while running in processor user mode, Virtual Memory unexpectedly switched to the user stack when it tried to run the deferred operation, and this crashed the system.

Related Materials:

- The [Virtual Memory Manager](#) chapter of *Inside Macintosh: Memory*.
- Technote [TN1094](#), "Virtual Memory Application Compatibility"

Window Manager

The Window Manager is part of the Mac OS providing facilities for drawing and maintaining windows on the screen.

When Appearance is turned on, the Window Manager now ignores all entries in custom window color table ('wctb') resources except for the content color entry.

COMPATIBILITY NOTE

Developers should not make any assumptions regarding the shape or size of a window's structure region. Also, your application should not assume that the content region of a window has no border. To determine the shape and size of a window's border, calculate the difference between the content region and the structure region. For example, to calculate the height of the title bar for a window, following routine could be used:

```

/* TitleBarHeight -- height of the window's topmost border */
OSErr TitleBarHeight(WindowPtr theWindow, short *height) {
    RgnHandle structure, content;
    structure = content = NULL;
    if ((structure = NewRgn()) == NULL) goto bail;
    if ((content = NewRgn()) == NULL) goto bail;
    GetWindowStructureRgn(theWindow, structure);
    GetWindowContentRgn(theWindow, content);
    *height = (**content).rgnBBox.top - (**structure).rgnBBox.top;
    DisposeRgn(structure);
    DisposeRgn(content);
    return noErr;
bail:
    if (structure != NULL) DisposeRgn(structure);
    if (content != NULL) DisposeRgn(content);
    return memFullErr;
}

```

Related Materials:

- The [Appearance Manager documentation and SDK](#) (preliminary as of 07/23/97).
- The [Window Manager](#) chapter of *Inside Macintosh: Macintosh Toolbox Essentials*.

WorldScript Power Adaptor 7.5.3

The Worldscript Power Adaptor provides language specific text services for the Mac OS.

The Worldscript Power Adaptor has been moved to the System file. It is no longer provided as a separate extension. If the extension is found in the extensions folder it will be moved to the "Extensions (disabled)" folder at system startup time.

Related Materials:

- The [WorldScript I](#) section in "Appendix A - Built-in Script Support" of *Inside Macintosh: Text*.
 - The [WorldScript II](#) section in "Appendix A - Built-in Script Support" of *Inside Macintosh: Text*.
-



Apple Menu Items

Items in the Apple Menu Items folder appear in the Apple Menu. Files of type 'APPD' are auto-routed to the Apple Menu Items folder when they are dropped into the System Folder's icon.



Apple System Profiler 1.2

The Apple System Profiler provides a simple way to obtain information regarding the current system configuration. Information provided by the Profiler is useful for customer support representatives in assisting users.

- Some additional information is now displayed.
- Names of newer machines are displayed.
- The user interface has been changed and reorganized.



Connect To... 1.0

Connect To... is a new small [AppleScript](#) applet allowing for quick access to an internet URL. URLs are dispatched through the Internet Config extension.

Stickies 1.0.3

A new version of the Stickies utility featuring a few cosmetic and implementation



SimpleSound 1.0

A new addition to the Apple Menu Items folder, SimpleSound allows for simple convenient access to sounds installed in the System file.



Control Panels

Control Panels provide user interface facilities for custom configuration of the system. Files of type 'APPC' are auto-routed to the Control Panels folder when they are dropped onto the System Folder's icon. Also, starting with Mac OS 7.6, files of type 'APPC' may contain 'INIT' resources that will be executed at system startup time.

Control panels may contain system extensions. For such a system extension to be active, the control panel must be located in the Control Panels folder when the system starts up. Extensions within control panels are not loaded if the shift key is held down while the system is starting up.

In Mac OS 8, many of the standard control panels have been revised to support the new Apple platinum [Appearance](#), and some of the file types and creator codes for control panels have been changed.



Appearance 1.0

The Appearance control panel provides user interface configuration facilities for the appearance of graphical user interface elements throughout the system. It replaces both the older Color and WindowShade control panels and provides a super-set of the features that were provided by these items.

Related Materials:

- The [Appearance extension](#).



Apple Menu Options 1.1.3

The Apple Menu Options control panel provides user interface configuration facilities for the appearance and behavior of the Apple Menu. There are some corrections present in this implementation of the Apple Menu Options control panel.

- A problem where under certain conditions Apple Menu Options would stop tracking Recent Servers has been corrected.
- Apple Menu Options no longer creates the 'recently used' folders if those options are turned off.



AutoRemounter 1.2.5

The AutoRemounter control panel provides facilities for re-mounting network volumes on portable Mac OS compatible computers after waking the machine from sleep state.

This version has been updated to support changes in [AppleShare](#) authentication techniques.



Desktop Pictures 1.0

Desktop Pictures replaces the Desktop Patterns control panel. Desktop Pictures allows the user to configure the desktop to be drawn using an image stored in a picture file. Unlike the older Desktop Patterns control panel, Desktop Pictures uses stand-alone image files to retrieve image data rather than resources.

- Desktop Pictures is an 'APPC' and will be auto-routed to the Control Panels folder when it is dropped onto the System Folder icon.
- Desktop Pictures supports a suite of [AppleScript](#) commands for configuring the desktop pattern.
- Third-party extensions and applications can query the current status of Desktop Pictures by using the following Gestalt selector:

```
enum {
    /* the 'dkpx' selector is installed by the Desktop Pictures INIT */
    gestaltDesktopPicturesAttr = 'dkpx',
    /* bit zero -> control panel is installed */
    gestaltDesktopPicturesInstalled = 0,
    /* bit one -> a picture is currently displayed */
    gestaltDesktopPicturesDisplayed = 1
}
```

- Desktop Pictures supports the following image file formats: 'PICT', QuickTime Compressed 'PICT', picture clippings, and files supported by QuickTime 2.5 graphics import components including JPEG, GIF, and Photoshop.
- Optional default alignment and positioning information for picture files can be stored in the picture file's resource fork by applications creating picture files. The 'dkpx' ID 0 resource containing this information is formatted as two long words. The first long word contains the positioning information (tiled=1, centered/actual size=2, scaled=3, fill screen=4) and the second long word contains either zero or some combination of the possible alignment flags (left = 0x10, right = 0x20, top = 0x40, bottom = 0x80). When present, Desktop Pictures will use this information as a hint from the picture creator about how the picture ought to appear by default. Users can, of course, reconfigure these settings. For example, to set the default Desktop Pictures display settings for a picture as 'original size, aligned with the top right corner of the screen', the picture's associated 'dkpx' ID 0 resource would contain the following (in hex): 0x00000002 and 0x00000060.
- If Desktop Pictures is installed and cannot find its preferences file during startup, it looks for a picture file in the System Folder called "Desktop Picture", and uses it as the picture for the main screen. Users can remove or replace this picture using the control panel.
- The utility patterns feature of the Desktop Patterns control panel is not supported by the Desktop Pictures control panel (In Mac OS 7.5.x and 7.6.x, holding down the option key in the Desktop Patterns control panel would allow you to set the pattern used in in utilities such as Calculator or Key Caps).

COMPATIBILITY NOTE

The first time Desktop Pictures runs, it reads in any existing Desktop Patterns from the Desktop Patterns control panel's preferences file (if this file exists in the Preferences folder). After saving the original patterns in it's own preferences file, Desktop Pictures moves the old preferences file to the trash.

**Extensions Manager 4.0.1**

The new Extensions Manager control panel provides user interface facilities for users to configure components of the system software that are installed at system startup time. The following have been corrected in the Extensions Manager control panel:

- CCI™ resources may now have any resource ID. Each file may have only one.
- CCI™ resources are now recognized in control panels.

Related Materials:

- Technote [TN1091](#), "Extensions Manager 4.0"

**File Sharing 8.0**

This control panel allows for the configuration of various settings related to sharing files and linking applications over a network. The new File Sharing control panel replaces both the older Sharing Setup and File Sharing Monitor control panels. The new File Sharing control panel has the following features:

- Packaged as an 'APPC' type application file (can be a target for [AppleScript](#)).
- Supports a suite of AppleScript commands and is also recordable. AppleScript commands related to file sharing, formerly supported by the Finder, are now supported by the File Sharing control panel. The File Sharing control panel provides scripting support for starting and stopping shared services, querying server status, and manipulating connected users and shared items.
- Added support for turning on AppleTalk when starting file sharing.
- Third-party extensions and applications can query the current status of either the File Sharing control panel or the Users & Groups control panel by using the following Gestalt selector:

```
enum {
    /* the 'fsue' selector is installed by the File Sharing INIT */
    gestaltFileSharingAttr = 'fsue',
    /* bit zero -> File Sharing control panel is installed */
    gestaltFileSharingCPPresent = 0,
    /* bit one -> Users & Groups control panel is installed */
    gestaltUsersAndGroupsCPPresent = 1
}
```

- In Mac OS 8, the set of file sharing permissions have been reduced to "Read and Write", "Read Only", "Write Only", and "None". When encountering sharing information created with System 7.x, the System 7 permissions are mapped to Mac OS 8 permissions as follows:

	System 7.x Privileges	Mac OS 8 Privileges
See Folders	See Files	Make Changes

X	X	X	Read & Write
X	X		Read Only
	X	X	Write Only (Drop Box)*
X		X	Write Only (Drop Box)*
X			None*
	X		None*
		X	Write Only (Drop Box)
			None

*These entries cannot be mapped accurately to the new set of access privileges. In these cases, the permissions are mapped to the most conservative permission corresponding to the original setting.

- Additional AppleScript support for file sharing is provided by the FileSharing Commands scripting addition which duplicates the most commonly used scripting support found in both the File Sharing control panel and the Users and Groups control panel. This scripting addition is provided so scripts are not required to launch the control panels to access File Sharing services. For security reasons, many of the commands found in the FileSharing Commands scripting addition cannot be used remotely (via scripts run on a different machines across a network). To use remote scripts for these operations, remove the FileSharing Commands file from the "Scripting Additions" folder and enable remote program linking for the appropriate control panel.



General Controls 7.7

The General Controls control panel has been revised to support the new [Appearance](#) guidelines in both itself and the shutdown dialog.



Keyboard 8.0

- The Keyboard control panel provides user interface services for configuring the keyboard menu (displayed when more than one keyboard layout is selected in the Keyboard control panel) and adjusting various settings for the computer's keyboard.
- The Keyboard control panel is now packaged as an 'APPC' file and, as such, it can be a target for [AppleScript](#).
- Additional AppleScript support for keyboard options is provided by the Keyboard scripting addition. This scripting addition is provided so scripts are not required to launch the Keyboard control panel to access Keyboard services.
- The Keyboard control panel no longer calls `SetScriptVariable` to update the default 'KCHR'. This is handled by the keyboard menu.
- New for this version of the Keyboard control panel is the ability to configure the keyboard menu to display various selected layouts for different input methods (multi-byte scripts are not displayed by in the keyboard menu). Under System 7, users could select a keyboard layout in the Keyboard control panel for the currently active input method for a multi-byte system, but that information was neither transferred to the input method nor read by the input method preferences, and, therefore, there was no effect. All multi-byte input methods are now displayed in the keyboard menu.
- Keyboard layout lists are displayed in the control panel by choosing the appropriate script from the script pop-up menu. The user can select multiple layouts and her selection is reflected in the keyboard menu, grouped for each script. Users now select their active layout from the keyboard

menu. In the System 7 Keyboard control panel, users had no way of knowing that they had to switch the script with a keyboard shortcut or with the keyboard menu to see the list of keyboard layouts for the other scripts. Note that changing the script via the menu or a keyboard shortcut will **not** update the list any more or change the chosen script in the popup menu.

- The Keyboard control panel writes to a preferences file which contains a resource of type 'kcfg'. The layout of this resource is:

```
// an entry in the resource format
struct ConfigEntry {
    SInt16 kchrID;
    UInt16 flags;
};
typedef struct ConfigEntry ConfigEntry;
typedef ConfigEntry *ConfigEntryPtr;

// the resource format
struct KCHRConfig {
    SInt32 version;
    ConfigEntry kchrTable[kVariableLengthArray];
};
typedef struct KCHRConfig KCHRConfig;
typedef KCHRConfig *KCHRConfigPtr, **KCHRConfigHandle;

// bit numbers for the flags field
enum {
    kKCHRInMenu = 1,
    kDefaultKCHR = 2,
    kKCHRValid = 4
};
```

- The Keyboard control panel only writes the kKCHRInMenu bit-flag to the resource. The Script Manager sets the other bits.
- The Keyboard control panel needs certain information from a resource of type 'STR#' in the System file, to help with localization. 'STR#' ID -20291 in the system file will hold the following:
 1. The name of the preferences file.
 2. The file type of the preferences file.
 3. The creator code of the preferences file.
 4. The type of resource to look for.
 5. The file type of the Keyboard control panel.
 6. The creator code of the Keyboard control panel.
- The Keyboard control panel uses the Apple platinum [Appearance](#).
- The Keyboard control panel has [Apple Guide](#) support, with an Apple Guide button for quick online keyboard-related help.



Location Manager 1.0.2

Apple Location Manager is a toolbox extension that allows mobile users to save and restore sets of configurations ("locations") under a single name. For example, a user can define a group of printers, network settings, and extension sets for multiple locations.

ALM is developer-extensible. Apple Location Manager modules appear in the "Location Manager Modules" folder in the System Folder.

Version 1.0.2 has been updated to be compatible with new features in Mac OS 8.

Related Materials:

- The Location Manager web pages at <http://developer.apple.com/dev/alm/>
- The [Location Manager SDK](#)



Mac OS Easy Open

Mac OS Easy Open is an optional component of the operating system providing translation services for users opening documents in one application that have been created by other applications.

- Version 9.0 of the MacLinkPlus translators are shipped with Mac OS 8. This version of MacLinkPlus includes additional utilities, online help, and facilities for contacting the creators of MacLinkPlus for technical support.

Related Materials:

- The [Translation Manager](#) chapter of *Inside Macintosh: More Macintosh Toolbox*.



Memory 7.5.8

The Memory control panel provides user interface facilities for the configuration of virtual memory, RAM disk storage, and the size of the disk cache.

- The new Memory control panel has been revised to support the new Apple platinum [Appearance](#).



Monitors & Sound 1.3

The Monitors & Sound control panel originally provided user interface services for configuring and adjusting various settings for AppleVision monitors attached to the computer. In addition, the Monitors & Sound control panel now provides services formerly provided by the Monitors control panel and the Sound control panel.

- A problem that sometimes prevented the AppleVision extension from loading at system startup has been corrected.

COMPATIBILITY NOTE

On systems where a video or sound device cannot be accessed using the Monitors & Sound control panel, use the Monitors control panel or the Sound control panel instead. These older control panels are installed in the Apple Extras folder in the root directory. Unless these older control panels are specifically required, the new unified Monitors & Sound control panel should be used.

Startup Disk 7.6.1

The Startup Disk control panel provides user interface facilities for choosing the disk that will be used to run the computer the next time it starts up.

- This version of Startup Disk provides some corrections in its implementation and changes in the user interface to comply with the new [Appearance](#) guidelines.



Users and Groups 8.0

This control panel provides facilities for the specification and configuration of user names and passwords for people who are able to establish network connections with the computer. The following changes are present in the Users and Groups control panel:

- It is now packaged as an 'APPC' type file.
- The new Users and Groups control panel supports a suite of [AppleScript](#) commands. It is also recordable. For additional information regarding using AppleScript for with the Users and Groups control panel, refer to the [File Sharing control panel](#) section.
- Third party extensions and applications can query the current status of either the File Sharing control panel or the Users & Groups control panel by using the following Gestalt selector:

```
enum {
    /* the 'fsue' selector is installed by the File Sharing INIT */
    gestaltFileSharingAttr = 'fsue',
    /* bit zero -> File Sharing control panel is installed */
    gestaltFileSharingCPPresent = 0,
    /* bit one -> Users & Groups control panel is installed */
    gestaltUsersAndGroupsCPPresent = 1
}
```



Web Sharing 1.1

Web Sharing provides facilities for users to configure and set up the "Web Sharing" folder on their computer to act as a World Wide Web site. Web Sharing allows users to publish documents on an intranet or the Internet. Documents placed in the Web Sharing folder will be available to other users by using means of any web browsers available on any platform. Web Sharing provides the following facilities:

- Support for HTTP 2.2.
- WebStar 1.3 compliance.
- Supports access control configurable using the standard File Sharing facilities.
- Compatible with either MacTCP 2.0.6 or OpenTransport.
- Full CGI support.
- Runs as a background application allowing up to eight simultaneous connections.

NOTE

Web Sharing is not recommended for use on computers connected to the Internet via PPP. It is intended for use on computers that have a static internet address.

Related Materials:

- The Personal Web Sharing web pages at:
<http://www.claris.com/products/apple/personalsharing/personalsharing.html>



System Extensions

System extensions are located in the Extensions folder inside the System Folder. For a system extension to be active, it must be located in the Extensions folder when the system starts up. Extensions are not loaded if the shift key is held down while the system is starting up.



Appearance Extension 1.0

The Appearance Extension implements the Appearance Manager, which extends the facilities provided by the Control Manager, the Dialog Manager, the Menu Manager, and the Window Manager to provide the Apple platinum Appearance to existing and new graphical elements of the Mac OS environment.

IMPORTANT: The Appearance Extension will be loaded at system startup if it is in the Extensions (Disabled) folder. Mac OS 8 will not boot if this file is removed from the System Folder hierarchy.

Appearance Manager introduces several extensions to the toolbox APIs. Developers should refer to the Appearance Manager documentation and SDK regarding these new API's for further details.

Related Materials:

- The [Appearance Manager documentation and SDK](#)



Apple CD-ROM 5.4

The Apple CD-ROM driver contains some enhancements for support of new Apple products and corrects some problems found in previous versions of the driver.

- Contains both the ATAPI and the SCSI CD-ROM drivers.
- Supports mounting and reading of the following CD formats:
 - HFS
 - ISO 9660
 - PhotoCD
 - Video CD
 - CD Extra
 - CD-XA Mode 1 and 2
 - CD-I Mode 1 and 2
 - Audio CD.

COMPATIBILITY NOTE

Non-Apple CD drives are no longer supported by the Apple CD-ROM driver.

Related Materials:

- Technote [DV18](#), "CD-ROM Notes (Most Excellent)"



Apple Guide 2.2.1

Apple Guide provides system-wide instructional online help services for nearly every aspect of the Mac OS user experience. It is extensible in many ways so developers are able to provide Guide help files for their own applications and utilities. This release of Apple Guide delivers speed improvements and corrections over previous versions. Changes and notes of interest to developers are as follows:

- The help key (or Command-?) can be used to access the help services. The help key will no longer launch Apple Guide if any modifier key besides the mouse button or the caps lock key is down. This change allows developers to use the help key in combination with modifier keys to deliver help content that supplements Apple Guide.
- Apple Guide's list management routines have been improved to handle more than the previous limit of 350 items.
- If an application calls `Gestalt` using the 'hel p' selector and Apple Guide has been moved out of the Extensions folder, then selector will indicate that Apple Guide is not installed. Several applications and control panels were not checking for unresolved weak links to the Apple Guide API, and would crash.
- Implemented the AGFile library as a shared library for both PowerPC and CFM-68K.
- Increasing application heap size allows for more [OpenDoc](#) and modular help files, and it improves Apple Guide's ability to play larger QuickTime movies.

Related Materials:

- [Apple Guide Complete: Designing and Developing Onscreen Assistance.](#)



AppleScript 1.1.2

AppleScript is a component of the operating system that provides a scripting interface for users to automate actions that would normally require use of the menus and keyboard, but even more importantly allows users to access functionality of applications which would be difficult or impossible to access by hand. As described below, this new version of AppleScript includes some corrections and enhancements that improve its operation with Mac OS 8.

Special enhancements for Mac OS 8:

- The Scripting Additions folder located in the System Folder is automatically searched by AppleScript for scripting additions. The old location, the Scripting Additions folder in the Extensions folder, is still searched for additions; however, developers installing additions should begin using the [Folder Manager](#) to determine the correct placement.
- The dialog boxes for AppleScript and the Display Dialog scripting additions now include 'dlgx' and 'alrx' resources to give them the new Apple platinum [Appearance](#) when running on a Mac OS 8 machine.
- The AppleScript component now includes a 'CCI™' resource describing its function for display in the Extensions Manager control panel.
- The 'File Commands' scripting addition's 'Path To' command now accepts the following new parameters that can be used to specify the additional folders defined in the Mac OS 8 implementation of the [FindFolder](#) routine:

- "desktop applications", "desktop applications folder"
- "application support", "application support folder"
- "control strip modules", "control strip modules folder"
- "desktop documents", "desktop documents folder"
- "editors", "editors folder"
- "help", "help folder"
- "modem scripts", "modem scripts folder"
- "plug-ins", "internet plug-ins", "internet plug-ins folder"
- "printer descriptions", "printer descriptions folder"
- "printer drivers", "printer drivers folder"
- "scripting additions", "scripting additions folder"
- "shared libraries", "shared libraries folder"
- "stationery", "stationery folder"
- "shutdown items", "shutdown items folder"
- "voices", "voices folder"

NOTE

These keywords return an error at runtime if executed on a version of Mac OS earlier than Mac

Other Enhancements:

- A resource has been changed in the Script Editor to give an additional half inch of left margin on printouts to accommodate 3-hole punching.
- When the Event Log exceeds 20,000 characters, excess characters are now lost off the top to make room for new events and results. This eliminates the -20013 error that occurred on logging many repetitive, long, or ongoing processes.
- Repeatedly doing a Save As to an applet tended to accumulate multiple resources of type PREC and others, because AddResource was being called regardless of whether that resource already existed. This has been fixed in Script Editor 1.1.2.
- AppleScript 1.1.2 will now find and launch files of type 'APPL', 'APPC', 'APPD', or 'appe' with either 'CODE' or 'cfrg' resources, plus the Finder. These file types may be used as targets for AppleScripts.
- The AppleScript symbol table in version 1.1.1 and earlier accommodated a maximum of 1,024 symbols. In version 1.1.2 this is expanded to 4,096 symbols.

Corrections:

- Concatenating a record with an empty vector, e.g. {a:1, b:2} & {}, caused a crash in version 1.1.1. This is fixed in 1.1.2.
- Execution of an applet caused, under certain conditions, memory location \$0006 to be overwritten, causing incompatibility problems with specific third party applications. Applets that are reopened and saved with AppleScript 1.1.2 will no longer overwrite this address.
- Multiple-character text item delimiters caused the machine to hang in an infinite loop on operations like "count text items of" and "text item 2 of". This has been fixed in AppleScript 1.1.2.
- In AppleScript 1.1.1, the test to see whether a script could be reloaded into memory was faulty, and would not allow loading of scripts that had been created and saved under identical circumstances. This has been fixed in 1.1.2.
- Certain numbers (such as 1310.4) cannot be represented with full accuracy as floating point numbers. AppleScript 1.1.1 was displaying these numbers with too much precision, so compilation and decompilation of "1310.4" returned "1310.400000000001". An attempt has been made to fix some of these cases in AppleScript 1.1.2, and efforts are being made to remove this problem altogether in AppleScript 1.2. NOTE that this change in behavior may break some scripts that relied on the inaccurate numbers returned by AppleScript 1.1.1, or require precision beyond the 12th significant digit.
- The method of locking handles holding scripting addition data was not suited for re-entrance. This has been fixed in 1.1.2, so that a scripting addition may be called while it is being called by another

process.

- The English syntax for AppleScript required the possessive property form (for example: "AppleScript's version") to be lower-case. AppleScript 1.1.2 allows an uppercase S (for example: "APPLESCRIPT'S VERSION"), to be accepted. It also supports case-insensitivity for "DOESN'T".
- In AppleScript 1.1.1, the bytecode Program Counter for the runtime engine was left uninitialized, and a routine to set its new value calculated the offset between the new value and the old. In machines with >768Mb of memory, this offset overflowed a 30-bit signed integer and resulted in a numeric overflow error, preventing anything from being compiled. The program counter is now initialized to 0, and the offset is not calculated when the PC is 0, so this error should not happen in AppleScript 1.1.2 and later.
- The month property of a date type should be one of {January, February...} Setting this to a number mistakenly resulted in a Stack Overflow error. In 1.1.2 it results in a more normal "Can't make <number> into the expected type" error result.
- Quitting the Script Editor, then canceling the quit, caused a crash, because the data structures for the Results and Log windows were already disposed. This has been fixed in Script Editor 1.1.2.

Related Materials:

- The discussion of AppleScript in chapters 7, 8, 9, and 10 of [Inside Macintosh: Interraplication Communication](#).
- [AppleScript Finder Guide](#).
- [AppleScript Language Guide](#).
- [AppleScript Scripting Additions Guide](#).
- The [AppleScript SDK](#)
- The AppleScript web pages at <http://AppleScript.apple.com/default.html>



AppleShare Workstation Client 3.7.1

AppleShare Workstation Client provides file sharing services for the Finder and applications on Mac OS-compatible computers networked with file servers.

- A problem where a "File Server unexpectedly closed down" message would appear after a restart has been corrected.
- AppleShare Client 3.7 provides facilities for TCP/IP connections to AppleShare IP 5.0 servers.

Related Materials:

- Appleshare IP 5.0 web pages at <http://www.applenet.apple.com/appleshareip/index.html>

COMPATIBILITY NOTE

AppleShare Workstation Client 3.7.1 can be used with versions of Mac OS including 7.5.3 and later.



Color Picker 2.1

The Color Picker Extension provides standard user interface facilities for selecting colors. The new ColorPicker offers the following new features and corrections:

- Native (in fact, "fat") pickers have been implemented.

- Additional pickers have been added (Crayon and CMYK),
- Has been updated to provide ColorSync 2 support, if it is installed. Older versions of the Color Picker only supported ColorSync 1.
- The New 'EyeDropper' tool allows users to 'pick up' colors displayed in the foreground application's windows while the picker window is visible and the option key is held down.
- Some problems related to saving and restoring the active resource chain when Color Picker is called have been corrected.
- Under some conditions, the "more choices" list did not show any pickers.
- The interface file <ColorPicker.h> has been revised as several calls are no longer used.

COMPATIBILITY NOTE

ColorPicker 2.1 is compatible with System 7.5 and later.



Contextual Menu Extension 1.0

This extension implements the Contextual Menu Manager. Contextual Menus is a new element of the Mac OS user interface experience providing menus associating a set of relevant commands with a particular location on the screen. Contextual menus are activated by a control-click.

Finder 8 utilizes the facilities provided by the Contextual Menu Manager.

Related Materials:

- The [Contextual Menus documentation and SDK](#) (preliminary as of 07/23/97).
- The [Menu Manager](#) chapter of *Inside Macintosh: Macintosh Toolbox Essentials*.



FireWire 1.0

FireWire 1.0 is Apple's Mac OS support for the IEEE 1394 High Performance Serial Bus standard. This extension adds services to the Mac OS that support the use of third-party FireWire hardware and software.

Mac OS 8 ships with the FireWire 1.0 extension.



Mac OS Runtime for Java™ 1.0.2

Mac OS Runtime for Java™ (MRJ) is Apple's implementation of the Java runtime environment. MRJ allows Java functionality to be embedded in Mac OS applications, and applications using MRJ's JManager API are able to run Java applets and applications.

- The Mac OS 8 installation ships with MRJ 1.0.2.

Related Materials:

- [Inside Macintosh: Programming With JManager](#)
- [Inside Macintosh: Using JBindery](#)

- o MRJ web pages at <http://applejava.apple.com/>



OpenDoc™ 1.2.1

OpenDoc is the Mac OS implementation of the OpenDoc open, multi-platform architecture for component software.

- The Mac OS 8 installation ships with OpenDoc 1.2.1.

Related Materials:

- o [Inside Macintosh: OpenDoc Class Reference](#)
- o [Inside Macintosh: OpenDoc Cookbook](#)
- o [Inside Macintosh: OpenDoc Programmer's Guide](#)
- o The OpenDoc web pages at <http://www.opendoc.apple.com/>



Open Transport 1.2

OpenTransport is the only supported networking technology for Mac OS 8.

- Open Transport 1.2 is installed with Mac OS 8.

Some Important changes and enhancements in OpenTransport 1.2 include:

- Includes CFM-68K implementations of its libraries.
- Correctly handles 'ping' packets larger than 65536 bytes in answer to the [Ping 'o Death](#) problem.
- A memory problem that could occur when Open Transport was being used at the same time as ARA Multi-port Client software has been corrected.
- A problem where, under certain conditions, Open Transport was not unloading and reloading some of its libraries correctly has been corrected.
- Addresses the "SYN flood" denial of service events issue.
- Tuned to obsolete the OTSlowLinkTuneUp.
- Improved compatibility between the native implementation of PAP and some third party printers.
- Corrections in the native ADSP implementation.
- Corrects problems that could occur in AppleShare servers under a heavy load.

For more information about changes, corrections, and new features present in Open Transport 1.2, developers should consult the OpenTransport release notes and Developer notes found in the OpenTransport SDK.

Related Materials:

- o [Inside Macintosh: OpenTransport](#)
- o [Inside Macintosh: OpenTransport \(Documentation Updates\)](#)
- o The OpenTransport web pages at <http://developer.apple.com/ngs/lpp/adrrpub/docs/dev/opentransport/developerinfo.html>
- o The [OpenTransport SDK](#)



Open Transport/PPP 1.0.1

Open Transport/PPP provides Point to Point Protocol connection services for users connecting to the internet via modem.

- Mac OS 8 ships with Open Transport/PPP 1.0.1.

COMPATIBILITY NOTE

Open Transport/PPP configuration information is stored in the file "Remote Access Connections" in the folder "...System Folder:Preferences:Remote Access:". Users transferring configuration files from older system installations will want to copy this file.

WARNING:

ARA Client 2.1 must not be installed over the Open Transport/PPP (OT/PPP) installation included with Mac OS 8. Installing the ARA Client 2.1 after installing OT/PPP will replace the OT/PPP Modem Files which can cause connection problems for Open Transport/PPP. However, it is perfectly safe to install OT/PPP after having installed the ARA Client 2.1.

Related Materials:

- The [Open Transport/PPP](#) web pages at
- The [OpenTransport/PPP SDK](#)



QuickTime™ 2.5

QuickTime provides various multimedia services for the Mac OS including the ability to display movies and facilities for the translation and display of various audio and visual data file formats.

- QuickTime 2.5 is installed with Mac OS 8.0.

Related Materials:

- [Inside Macintosh: QuickTime](#)
- [Inside Macintosh: QuickTime Components](#)
- The QuickTime web pages at <http://quicktime.apple.com/>
- The [QuickTime SDK](#)



QuickTime™ MPEG Extension 1.0

This extension provides MPEG media handling services for QuickTime.

- The QuickTime™ MPEG Extension is installed with Mac OS 8.0.

QuickTime™ Musical Instruments Extension 2.5

This extension provides a selection of musical instrument synthesizers available for use in QuickTime.

- The QuickTime™ Musical Instruments 2.5 is installed with Mac OS 8.0.



QuickTime™ VR 2.0

QuickTimeVR provides standard components and API entry points usable for the display and management of virtual reality panoramas.

- The QuickTime™ VR Extension 2.0.1 is installed with Mac OS 8.0.

Related Materials:

- [Inside Macintosh: Virtual Reality Programming with QuickTime VR](#)
- Technote [TN1029](#), "Getting Up to Speed with QuickTime VR: Notes from the Field"
- The QuickTime VR web pages at <http://qtvr.quicktime.apple.com/>



QuickDraw 3D 1.5 1

QuickDraw 3D provides 3D drawing services for the Mac OS.

- Mac OS 8.0 ships with QuickDraw 3D 1.5 1.

Related Materials:

- [Inside Macintosh: 3D Graphics Programming with QuickDraw 3D](#)
- [Inside Macintosh: 3D Metafile Reference](#)
- The QuickDraw 3D web pages at <http://quickdraw3d.apple.com/>



QuickDraw GX 1.1.6

QuickDraw GX provides advanced graphics and typographic services for the Mac OS.

- The Mac OS 8 installation ships with QuickDraw GX 1.1.6.
- ColorSync is no longer installed with QuickDraw GX, since it is installed with Mac OS 8.

COMPATIBILITY NOTE

GX printing and GX printer drivers are no longer supported in Mac OS 8. GX Printing or older versions of GX will be removed during installation.

Related Materials:

- Technote [TN1101](#), "Using The GXGraphics Extension"

- QuickDraw GX [online pamphlet](#).
- [The Inside Macintosh: QuickDraw GX series of books](#).
- Related [Develop articles about QuickDraw GX](#)



Speech Manager 1.5

The Speech Manager provides services for the translation of text into audible speech.

- Mac OS 8 installation ships with English Text to Speech 1.5.

Related Materials:

- The [Speech Manager](#) chapter of *Inside Macintosh: Sound*.



Text Encoding Converter 1.2

The Text Encoding Converter enables the conversion of text data from one encoding to another (e.g. Mac OS Roman to Windows Latin-1). It is targeted for Internet applications which need to handle text typically provided in non-Mac OS encodings. It also represents the first step for supporting Unicode on Mac OS. Features include:

- Conversion of Unicode 1.1 and 2.0, most popular Windows encodings, all the Mac OS script encodings, and others.
- Support for World Wide Web and Internet mail encoding names.
- Auto-detection for certain encodings.
- Plug-in architecture which allows developers to add the above functionality for encodings not currently supported.

Mac OS 8 installation ships with Text Encoding Converter 1.2. Text Encoding Converter 1.2 will run on any Mac OS PowerPC machine or on any 68K machine supporting CFM-68K.

Related Materials:

- The [Text Encoding Converter documentation and SDK](#) (preliminary as of 07/23/97).

Apple Extras



Cyberdog 2.0

Cyberdog is an application and a set of [OpenDoc](#) components which provide access to Internet and intranet services including the World Wide Web, email, file servers, and more. Updated software developer packages and documents describing Cyberdog features available to developers are available at the Cyberdog web site.

- Mac OS 8 installation ships with Cyberdog 2.0.
- Cyberdog 2.0 is "fat" and utilizes CFM-68K on 68040 machines.

- o [Inside Macintosh: Cyberdog Programmer's Kit.](#)
- o The Cyberdog web pages at <http://cyberdog.apple.com/>



Apple Remote Access Client 2.1

The Apple Remote Access (ARA) Client allows users to dial in and connect to AppleTalk networks from remote locations.

Mac OS 8 ships with Apple Remote Access Client 2.1.

WARNING:

ARA Client 2.1 must not be installed over the Open Transport/PPP (OT/PPP) installation included with Mac OS 8. Installing the ARA Client 2.1 after installing OT/PPP will replace the OT/PPP Modem Files which can cause connection problems for Open Transport/PPP. However, it is perfectly safe to install OT/PPP after having installed the ARA Client 2.1.

Related Materials:

- The Apple Remote Access API SDK
- The Apple Remote Access Modem SDK



Assistants

The Assistants folder, located at the root level on the system disk, contains assistant applications used to assist the user in configuring software.



Mac OS Setup Assistant 1.0

Mac OS Setup Assistant is an addition to the Mac OS installation/startup user experience designed to unify the various options and preferences, making system configuration easier by presenting these options in the form of an interview. During installation, an alias to the Mac OS Setup Assistant application is placed inside the Startup Items folder so that it will launch the first time the Mac OS is booted after a Mac OS installation. This alias is deleted once Mac OS Setup Assistant is run for the first time. The assistant helps the user through several aspects of configuration, all of which can be accomplished (or overridden) through various control panels and standard system configuration dialogs.

The following is a list of the areas Mac OS Setup Assistant configures:

- Regional Preferences: keyboard layout, date/time/number format, and script sorting (Keyboard, Date & Time, Numbers, and Text control panels). This panel only appears if multiple preferences

are available for the default system script. These changes take effect when the panel is exited and will not revert to previous settings if the interview is cut short.

- Name and Organization: File Sharing control panel and Internet Config extension user name, Internet Config user organization.
- Time and Date: Daylight Savings Time, Time, and Date (Date & Time control panel). These changes take effect immediately and will not revert to previous settings if the interview is cut short.
- Geographic Location: Time Zone (Date & Time or Map control panel). If the location selected is a US or Canadian city the standard Apple printer drivers are set to use US Letter as the default paper size, otherwise A4 is set to be the default paper size. Default UMich, Info-Mac, and Archie servers are entered in InternetConfig.
- Finder Preferences: Simple Finder (Finder Preferences dialog).
- Computer Name and Password: File Sharing computer name and owner password (File Sharing control panel).
- Shared Folder: turn on AppleTalk and File Sharing, create a folder on the desktop with full guest access privileges (File Sharing, Users & Groups control panels, and Finder).
- Printer Selection/Printer Type: these panels only display printers supported by the Finder Desktop Printers extension. To find the network printers, the assistant searches each available AppleTalk port, starting with the default port, until one or more supported printers are found. If network printers are found on any port other than the default, AppleTalk is redirected to that port.

With the exception of Regional Preferences and Date/Time/DST, no changes are made until the user selects "Go Ahead" at the end of the interview. Any port change made during the network printer search is undone if the user quits the assistant prior to selecting "Go Ahead". If AppleTalk is turned on during the interview but no AppleTalk dependent options are selected in the interview, AppleTalk will be turned off after the interview is completed and serial port connections will be unaffected.

Apple Developer Utilities

Mac OS 8 requires updated copies of the following Apple Developer Utilities:



MacBug 6.5.4

MacBug is Apple's low level debugger providing interface facilities for the disassembly and perusal of assembler and machine level instructions.

COMPATIBILITY NOTE

MacBug 6.5.4 or later should be used with Mac OS 8. Versions of MacBug earlier than 6.5.4 will not work with Mac OS 8.

Related Materials:

- [MacBug](#)

System Picker 1.1

System Picker is an Apple utility providing facilities for switching the active system between different system folders installed on a Mac OS compatible computer.

- System Picker 1.0.1 does not work with Mac OS 8. System Picker 1.1 or later should be used instead.
- System Picker 1.1 allows system folders to be selected by dragging and dropping their icon into System Picker's icon.

Related Materials:

- [System Picker 1.1](#)
-

Items no longer supported

Color control panel

The Color control panel has been removed from the control panels folder as its functionality has been replaced by the [Appearance](#) control panel.

Desktop Patterns control panel

The Desktop Patterns control panel has been removed from the control panels folder as its functionality has been replaced by the [Desktop Pictures control panel](#). The utility patterns feature of the Desktop Patterns control panel is no longer supported (In Mac OS 7.5.x and 7.6.x holding down the option key in the Desktop Patterns control panel would allow you to set the pattern used in in utilities such as the Calculator desk accessory, or the Key Caps utility, et al.).

File Sharing Monitor control panel

Functionality formerly found in this control panel has been moved to the [File Sharing control panel](#).

Finder Extensions

Files known as "Finder Extensions" are no longer supported. These items include: the Network Extension, the Clipping Extension, the Catalogs Extension, the Mailbox Extension, the Mail Folders Extension, the Finder Scripting Extension, the PC Card Extension, and the Desktop Printer Extension. The functionality found in most of these extensions has been built directly into the new [Finder](#).

QuickDraw GX Printing

QuickDraw GX Printing is no longer supported. No GX Printer drivers or printing extensions will work with Mac OS 8.

Labels control panel

The Labels control panel has been removed. Its functionality has been incorporated into the preferences dialog in [Finder](#).

Sharing Setup control panel

Functionality formerly found in this control panel has been moved to the [File Sharing control panel](#).

The Views control panel has been removed. Its functionality has been incorporated into the new "Finder Preferences" and "View Options" dialogs in [Finder](#).

Window Shade control panel

The Window Shade control panel has been removed. Its functionality has been incorporated into the Appearance Manager. Configuration facilities formerly provided by this control panel are now provided by the [Appearance](#) control panel.

Downloadables



[Acrobat version of this Note \(245K\).](#)

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