



Using and Managing Fonts in Mac OS X

A Guide for Creative Professionals

Technology Overview

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From professional type controls to unlimited open fonts, from cross-platform portability to international language support—these are just a few reasons Mac OS X v10.2 is the ultimate creative platform. Among other things, it opens the door to powerful new ways of using and managing fonts.

An entirely new, multiuser operating system—not simply an upgrade of Mac OS 9—Mac OS X incorporates a new font architecture free from the limitations that plague other operating systems. As a result, Mac OS X provides the most comprehensive support for font formats of any platform. It delivers powerful tools for font organization and navigation. It offers enhanced character coverage for truly professional typesetting. And it enables smooth cross-platform and cross-media portability.

No limits. There are no font limits in Mac OS X. Theoretically, it is possible to place an entire font library in a single folder and use it; because Mac OS X provides virtual memory, the subsystem simply uses more memory when necessary.

More fonts. Mac OS X v10.2 includes more than 50 professional-quality fonts and supports additional non-Roman languages and bidirectional fonts (see Appendix A). Zapfino has been rescaled and includes many more glyphs. Lucida Grande supports Arabic, Hebrew, Thai, and traditional Greek as well as more symbols and Roman glyphs. Numerous other fonts have been updated to include additional typefaces and language encoding.

Richer font support. For more predictable cross-platform and cross-media publishing, Mac OS X supports all of the major font formats, including PostScript Type 1 (with the double-byte PostScript fonts required for non-Roman languages), Multiple Master, TrueType, and OpenType (see Appendix B).

Smoother fonts. Text in Mac OS X looks great and is easy to read on all displays. A new control in the General system preference allows users to select one of four font-smoothing styles to increase readability: Standard (best for CRT displays), Light, Medium (best for flat-panel displays), and Strong. Sophisticated font-rendering technology with subpixel filtering also increases effective resolution.

New Fonts in Mac OS X v10.2

Arabic*

Al Bayan (plain, bold)
Baghdad
DecoType Naskh
Geezah
Kufi
Nadeem

Roman

Cochin

Cyrillic

Charcoal CY
Geneva CY
Helvetica CY (plain, bold, oblique, bold oblique)
Monaco CY
Times CY (regular, bold, italic, bold italic)

GB18030/Simplified Chinese fonts

SinoType Hei
SinoType XiHei
SinoType Song
SinoType FangSong
SinoType Kaiti
GB18030 Bitmap

Devanagari (Indic)*

Devanagari MT (regular, bold)

Gujarati (Indic)*

Gujarati MT (regular, bold)

Gurmukhi (Indic)*

Gurmukhi MT

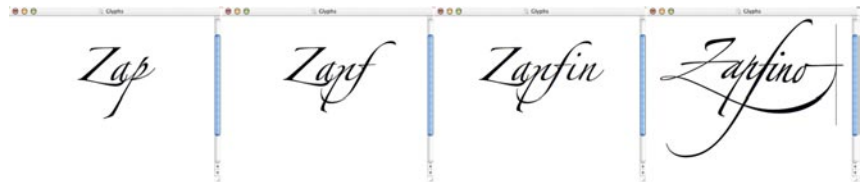
Hebrew*

Arial Hebrew (regular, bold)
Corsiva Hebrew (regular, bold)
New Peninim MT (regular, bold, inclined, bold inclined)
Raanana (regular, bold)

Thai*

Ayuthaya
Krungthep
Sathu
Silom
Thonburi

Typography. Sophisticated typographic capabilities such as kerning and tracking are no longer limited to professional typesetting applications. Mac OS X supports Apple Advanced Typography (AAT) at the system level, so even basic applications such as TextEdit can take advantage of advanced typographic features.



A glyph can be a single character or a series of characters (ligature). The “pf” is a ligature, and the entire font name “Zapfino” is a single glyph. Notice the different letterforms—how the “p” changes when followed by “f,” and how each of the letterforms changes in the final glyph.

Apple Type Services (ATS). Apple Type Services is the technology that enables Mac OS X to rasterize TrueType and Type 1 PostScript fonts. It allows third-party developers to build sophisticated typography features into their products.

Rasterization. Mac OS X eliminates the need for ATM Light because its built-in font rasterizer works for all font formats, including PostScript.

Validation. Mac OS X protects the operating system by checking the integrity of a font when it is displayed or printed and automatically deactivating corrupt fonts.

Organization. Mac OS X includes font capabilities that allow users to work with fonts in a consistent manner. One important distinction between Mac OS 9 and Mac OS X is that Mac OS X provides multiple font locations and different access privileges for each location.

New to Mac OS X is the Fonts panel. In some applications built for Mac OS X (such as Apple’s Mail and TextEdit), the Fonts panel organizes fonts into useful collections. Users can organize their own collections—for example, by client or job—or add fonts to a favorites menu. Professional applications such as Adobe InDesign and QuarkXPress use their own font selection tools.

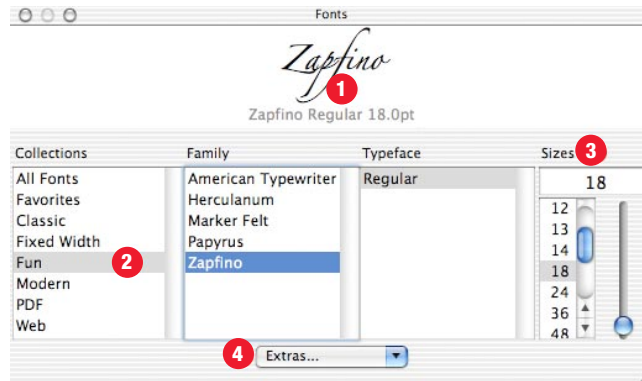
* These fonts are available to applications with Unicode support, including TextEdit.

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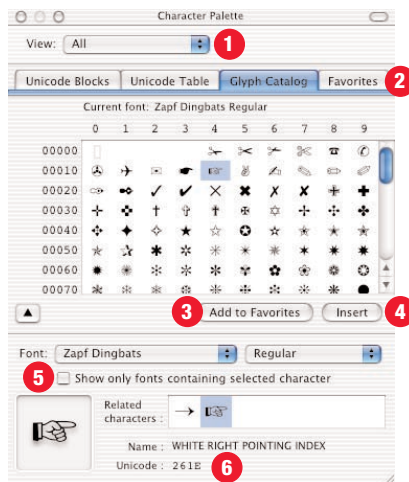
New Font Features in Mac OS X

- Mac OS X v10.2 supports more font types than any other operating system, including Multiple Master instances, Windows-format TrueType fonts, and OpenType.
- There is no limit to the number of fonts you can have open at one time.
- Mac OS X automatically renders PostScript fonts; ATM Light is no longer needed.
- Mac OS X v10.2 recognizes fonts in nested folders in font directories.



Add to Favorites
Edit Collections...
Edit Sizes...
Show Preview
Show Characters
Color...
Get Fonts...

- 1 The Fonts panel provides a preview of a font at a particular size.
- 2 Installed fonts can be grouped in a collection for easier selection.
- 3 Fonts can be sized by entering a value, clicking a size in the list, or using the adjustable slider.
- 4 These options are available via the Extras pop-up menu.



The new Character Palette provides access to individual glyphs.

- 1 It provides several view options.
- 2 View Roman fonts by category or by favorites.
- 3 Adding a favorite glyph is a one-click operation.
- 4 Once you've selected a glyph, you can double-click it, drag it from the well (lower left), or click the Insert button.
- 5 Choose the font you want to search or limit your options to just the fonts that contain the glyph you want.
- 6 See a preview of the glyph and the glyph's name and Unicode ID.

In Mac OS X, fonts can be stored in a main library on one computer or on a network so everyone has access to the same set of fonts for certain jobs or clients. The location of the font controls who has access to it. Mac OS X also supports hierarchical font folders so users can create multiple levels of font folders within font directories. Mac OS X makes all fonts installed in any of the font folder locations, or specific application locations, active. (See Appendix C for details on active font locations.) If users need to activate or deactivate fonts frequently, they may want to consider font management utilities available for Mac OS X.

Best Practices for Font Management

~/ Your Home Directory

The ~/ symbol represents the name for the home directory of the login name you are currently using.

Tip

If you organize fonts by job, create copies of fonts that are in multiple sets. Font aliases are not recognized inside font folders.

Tip

If you manage fonts manually, you might need to quit and restart applications such as Microsoft Word; some applications update their font menus only at application launch. It's not necessary to quit and restart applications such as InDesign, which automatically recognize updated fonts. When the fonts are not in use, place them in an Inactive Fonts folder.

In design and publishing environments where users switch frequently between sets of fonts, there are two recommended ways to manage and organize fonts:

- Manually move font files in and out of font folders.
- Use a font management utility.

Managing fonts manually

Users with a static or small font library can use the built-in font management capabilities of Mac OS X to work with fonts. The first step is to organize the fonts in logical folder sets. Then place these sets in a master folder of fonts labeled "Inactive Fonts." (The "inactive" folder cannot be inside one of the system font folders, or the fonts will be activated.) The sets can be moved in and out of the appropriate font folder. This method is described below.

Organizing fonts manually. Since Mac OS X v10.2 can recognize fonts in folders, you might want to organize your font sets by font name:

~/Inactive Fonts

```
A
    Arial
    Avant Garde
B
C
```

You also can organize fonts by job:

~/Inactive Fonts

```
Client1
    Job 23456
    Job 23457
Client2
Client3
```

To activate the fonts, place the folder in ~/Library/Fonts or in one of the other folder locations indicated below.

Font locations

You can use the different font locations to make the fonts available for personal use only, to all users of a single computer, or to a network of users. Fonts are activated automatically if they are placed in any of six possible locations (see Appendix C). For most users who will use the operating system to manage fonts, fonts should be placed in one of the following locations.

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Font Managers

DiamondSoft Font Reserve and Extensis Suitcase provide professional font management in Mac OS X. Some of their features are highlighted below. Check each developer's website (www.fontreserve.com and www.extensis.com) for specific details and additional features.

- Support for auto font activation through plug-ins for creative applications such as QuarkXPress, Adobe Illustrator, and Adobe InDesign. (Both)
- Support for auto activation of fonts for business applications through Apple programming interface. (Both)
- Quickly activate and deactivate fonts on demand, simply by clicking selected fonts, font families, or font sets. (Both)
- Add and share fonts with a simple drag-and-drop operation. (Both)
- Preview multiple fonts side by side in several different ways: as a single line of type, waterfall (three lines of type in different sizes), ABC 123, or paragraph. (Both)
- Print specimen sheets and customized type books of font libraries. (Font Reserve—built in; Suitcase—built in and through the bundled application)
- Import font and set database directly from ATM Deluxe. (Extensis)
- Remove nonessential fonts from system font folders. (Font Reserve—built in; Suitcase—through the bundled application)
- Scan for and eliminate exact duplicates—fonts with the same name, foundry, version, kerning table, width, and other characteristics. (Font Reserve—built in; Suitcase—through the bundled application)
- Automatically check font files for corruption so they can be removed or replaced. (Font Reserve—built in; Suitcase—through the bundled application)

Both applications are available in English, French, and German. Extensis Suitcase is also available in Japanese.

You can find other font managers and font utilities at www.apple.com/guide by searching for “fonts.”

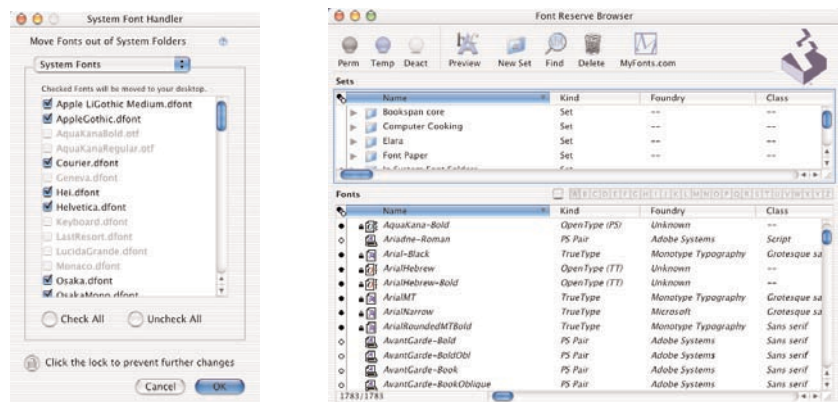
Font Rendering in Classic

Mac OS X eliminates the need for ATM Light because it incorporates anti-aliasing for font smoothing onscreen. If you use Classic applications with PostScript fonts, you'll need ATM Light version 4.6.2 or later. This is a free download from Adobe at www.adobe.com/support/downloads. Users who only run Photoshop in Classic don't need ATM Light; Photoshop 5.5 and later does its own font rendering.

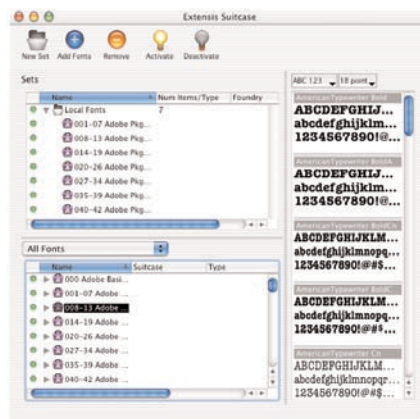
- For single users who run only Mac OS X applications: Store fonts in the user's personal Fonts folder (`~/Library/Fonts`).
- For multiple users of a single computer who run Mac OS X applications exclusively: A user with administrator rights should store fonts in the library at the “root” or top level of the hard drive (`/Library/Fonts`). This provides a common set of fonts for all users.
- For users who run both Classic and Mac OS X applications: Place fonts in the Fonts folder in the Mac OS 9 System Folder.

Using a font manager

Most design and production professionals will continue to organize fonts using a font management utility such as Extensis Suitcase (www.extensis.com/suitcaseten) or DiamondSoft Font Reserve (www.fontreserve.com). Both have solid histories in Mac OS 9 and earlier and have been rewritten for Mac OS X. Both applications, which install easily in Mac OS X, provide a means to manage fonts in both Mac OS X and Classic applications.



DiamondSoft Font Reserve



Extensis Suitcase

Application Font Support

Some applications can automatically respond to the activation and deactivation of fonts by Suitcase and Font Reserve, changing their font menus dynamically; this is called “auto-update.” Other applications cannot auto-update their font menus; you must quit and relaunch the application when you change font configurations, either with a font manager or manually by moving fonts into one of the font folders.

Suitcase and Font Reserve include plug-ins for some applications such as Adobe Illustrator and InDesign. These “auto-activation” plug-ins cause any fonts required by documents opened in that application to be automatically activated. The number of such plug-ins is small but growing. Mac OS X v10.2 has made it easier for developers to implement systemwide auto-activation.

Input Menu

Mac OS X is not limited to Roman alphabets because it takes advantage of Unicode. Applications that support Unicode can select characters from a set of up to 65,636 different symbols. This is almost one glyph for every possible character in every written language. Most fonts don't need so many symbols, but many non-Roman fonts used in Asia and the Middle East can have many thousands of different glyphs.

To make it easy for users to select keyboard layouts that correspond to different fonts, Mac OS X provides an Input menu. This shows different keyboard layouts so you can use the same keyboard to select different glyphs. You can turn different keyboard layouts, including the new Character Palette, on and off through the Input Menu tab in the International pane in System Preferences.

Organizing fonts for a font manager

There are many ways to organize fonts for a font manager. However, most of the industry follows these basic strategies and organizational structures.

Users without a central server for files or a fast internal network may prefer to manage fonts locally. Users with a fairly robust network and a central location for application files are usually good candidates for centralizing fonts on a server.

Keeping fonts local. There are several ways to organize fonts on local drives: by client, by job, and by name. Font Reserve has a special location called the “vault” where users can place fonts, but it's not required. Here are a few best practices used in the industry.

- Organizing fonts by client (useful in a design shop with many clients, where each client has a specific “identity” package):

```
[User's home folder or Shared folder]
Documents
  Fonts
    Client 1
      Font 1 for client 1
      Font 2 for client 1...
    Client 2
      Font 1 for client 2
      Font 2 for client 2...
    Client 3...
```

- Organizing fonts by job (useful in a service bureau):

```
[User's home folder or Shared folder]
Documents
  Customers
    Job 1
      Layout and art files
      Fonts
        Font 1 for job 1...
        Font 2 for job 1...
    Job 2...
    Job 3...
```

- Organizing fonts by name (useful in a design shop that regularly uses an assortment of fonts):

```
[User's home folder or Shared folder]
Documents
  Fonts
    Fonts A-C
      Font A-1
      Font A-2...
    Fonts D-F...
    Fonts G-I...
```


Font Corruption

In Mac OS 9, if two fonts had the same internal ID number, the Mac OS renumbered one of them to avoid conflicts. As a result, sometimes a font file became corrupted, triggering application and system crashes.

Mac OS X doesn't try to alter fonts, so the chances of a font file becoming corrupted are almost nonexistent. This doesn't mean that there are no longer corrupt fonts. Legacy fonts from earlier systems and fonts purchased from nonstandard vendors can still cause problems.

Name Conflicts in Classic

If you manage fonts by putting them in the Classic Fonts folder, watch out for name conflicts with fonts in higher-priority folders (see Appendix C). For example, a PostScript version of Helvetica installed in the Classic Fonts folder works fine for Classic applications, but is overridden by the Helvetica that's in /System/Library/Fonts for all Mac OS X applications. If you were running both QuarkXPress in Classic and Adobe Illustrator for Mac OS X, they would be using different versions of Helvetica.

Centralizing fonts on a local server. Users can create a central font location on one local computer to make fonts available to multiple Mac systems. A central font location also can reduce administrative time. Mount the server volume on the local computer and point the font manager at the fonts in that location to open them. Make sure the network can handle the extra traffic caused by this font sharing. A 100BASE-T switched network or better is recommended for font servers and clients.

Centralizing fonts on a network server. DiamondSoft provides Font Reserve Server and Extensis provides Suitcase Server for Mac OS X. Font Reserve Server is a true server, instantly sharing fonts and sets, opening fonts over the network on the fly, and caching them locally to avoid excess network traffic. It also manages rights for the font, so users don't have more copies open than a license allows.

These servers allow administrators to create sets that all users have access to, to control who can load fonts on the server, who has the ability to create and change sets, and more. Suitcase Server is more like an FTP server, where fonts are synchronized periodically between the server and client systems.

Useful font utilities

An additional utility Apple includes in Mac OS X is Key Caps. If it is used frequently, consider dragging Key Caps to the Dock from its location in the Applications folder so it can be accessed easily. For Symbol and Zapf Dingbats glyphs supported in Unicode fonts (see Appendix D), be sure to use the Character Palette described earlier to access them. In addition to Key Caps and the Character Palette, many other commercial, shareware, and freeware font utilities are available. They fall into the following general categories:

- Key Caps–style viewers let you press a key and see the symbol (glyph) corresponding to that key.
- Waterfall-style viewers display “quick brown fox” or other font samples, sometimes for multiple fonts simultaneously.
- Spec sheet printers print a list of fonts along with sample output from each selected font.
- Analysis and repair utilities locate, report, and sometimes repair damaged font files; some utilities can reorganize your fonts alphabetically or by other characteristics.
- Management (activation) utilities such as Font Reserve and Suitcase let you activate and deactivate fonts on demand.

Two good resources for font utilities are the Macintosh Products Guide (www.apple.com/guide) and Version Tracker (www.versiontracker.com).

Preparing Your System

In Mac OS X, as in Mac OS 9, fonts located in system-recognized font folders are always on and available to applications. To prepare your system for the strict font requirements of design and production, you may want to remove some of the preinstalled fonts in Mac OS X that conflict with versions or formats of the fonts you use in your workflow.

A system stripped of nonessential fonts will keep active only those fonts necessary for system operations (menus, dialogs, and so forth). Many print production shops and printers use this approach. The advantage of working this way is that the possibility of using the wrong font for a job is reduced. When you finish the job, you close its fonts.

Removing nonessential fonts

You can remove nonessential fonts manually or by using a font manager such as Font Reserve or Suitcase. If you're using Suitcase or Font Reserve, follow the directions provided with the application. Suitcase uses Font Doctor to remove system fonts; Font Reserve has a built-in function.

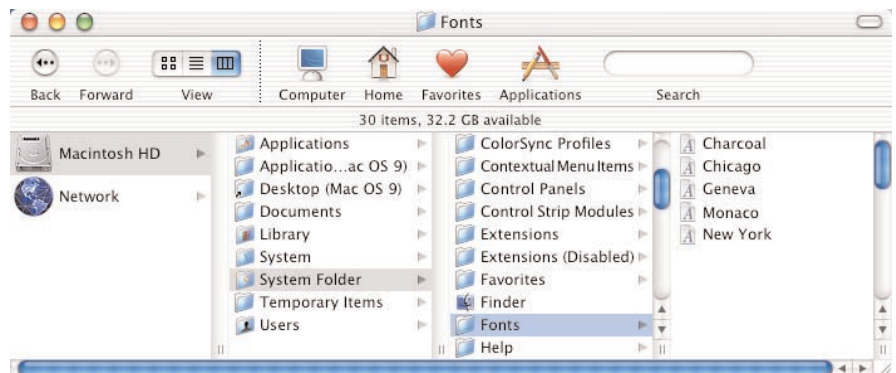
To remove fonts manually, follow these guidelines.

Fonts and Microsoft Internet Explorer

Some applications (notably Microsoft Internet Explorer) add fonts at will to the Fonts folder. If you run Internet Explorer in Classic, you might want to take the fonts it installs, put them in a separate folder outside the Fonts folder, and activate that folder as a set in your favorite font manager.

Removing fonts in Classic

Remember that the System Folder in Classic supports applications that aren't yet built for Mac OS X. But all applications, even Mac OS X applications, can see these fonts. To deactivate fonts with names that conflict with fonts you're going to be using in production, open the Fonts folder in your Classic System Folder. The fonts that are commonly removed are Courier, Helvetica, Times, Symbol, and Zapf Dingbats. Just make sure you leave the fonts shown below; otherwise some of your Classic applications might have trouble. Store the fonts you remove in a safe place, such as a new folder named "Fonts_Removed" in your Classic System Folder.



Keeping Your Preferred Helvetica and Helvetica Neue Fonts Active

Some Mac OS X functions require that Helvetica and Helvetica Neue be active. They include the Sound preference pane, TextEdit, Mail, iCal, and certain third-party menu bar items. If you use these regularly, as soon as you remove Helvetica from the system, activate a version of Helvetica and Helvetica Neue in your font manager of choice or in your user folder. It doesn't matter what font format (TrueType, OpenType, or PostScript) you use.

Replacing Common Publishing Fonts

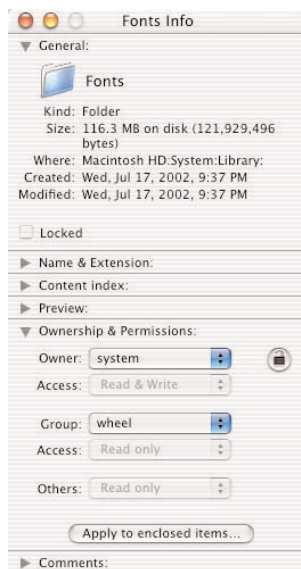
In Mac OS X, five fonts are installed in System/Library/Fonts that you may want to replace with your PostScript version of the fonts. Service bureaus might want to replace fonts with a customer's version on a per-job basis using a font manager. These fonts are Courier.dfont, Helvetica.dfont, Times.dfont, Symbol.dfont, and Zapf Dingbats.dfont.

What Is the LastResort.dfont?

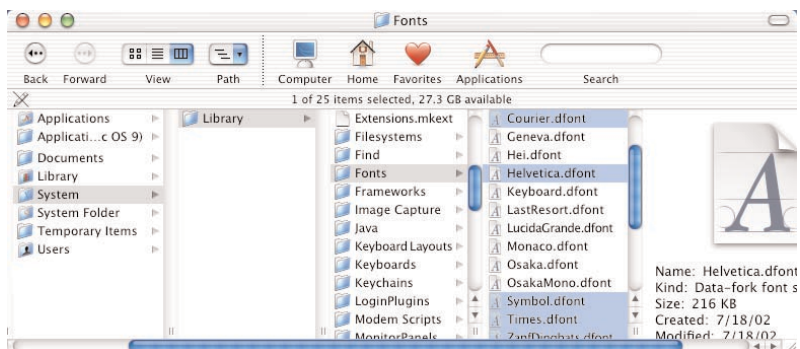
The LastResort.dfont is a collection of glyphs that represent types of Unicode characters. Located in System/Library/Fonts, these characters, or glyphs, are used as a backup, or "last resort": If a font cannot represent a particular Unicode character, an appropriate glyph from the Last Resort font is used instead. This gives users the ability to tell what kind of character it is and provides a clue about what type of font they need to display the characters correctly. This font does not appear in application font menus.

Removing fonts in Mac OS X v10.2

Find and select the Fonts folder that is located in the Library folder in the System folder. Press Command-I. Open the Ownership & Permissions area of the Info dialog and click the Lock icon. In the Authentication dialog, enter your administrator password. Now change the owner from System to the pop-up item with your login name and "(Me)." Now you can make alterations to the Fonts folder.



Select the font you wish to move and repeat the procedure above. Now you can remove that version of the font and replace it with the font you want to use. You also can open the font with your font management tool.



You may have fonts that you don't need ready access to. You can remove these fonts from the root level of your hard drive in Library/Fonts. Log in as Administrator and drag the fonts from this folder to the location from which you manually manage the fonts or the location from which your font manager manages fonts.

Appendix A: Fonts of Mac OS X

American Typewriter: The quick brown fox jumped over the lazy dog.

American Typewriter Light: The quick brown fox jumped over the lazy dog.

American Typewriter Bold: The quick brown fox jumped over the lazy dog.

American Typewriter Condensed: The quick brown fox jumped over the lazy dog.

American Typewriter Condensed Light: The quick brown fox jumped over the lazy dog.

American Typewriter Condensed Bold: The quick brown fox jumped over the lazy dog.

Arial: The quick brown fox jumped over the lazy dog.

Arial Italic: The quick brown fox jumped over the lazy dog.

Arial Bold: The quick brown fox jumped over the lazy dog.

Arial Bold Italic: The quick brown fox jumped over the lazy dog.

Arial Black: The quick brown fox jumped over the lazy dog.

Arial Narrow: The quick brown fox jumped over the lazy dog.

Arial Narrow Italic: The quick brown fox jumped over the lazy dog.

Arial Narrow Bold: The quick brown fox jumped over the lazy dog.

Arial Narrow Bold Italic: The quick brown fox jumped over the lazy dog.

Arial Rounded MT Bold: The quick brown fox jumped over the lazy dog.

Baskerville: The quick brown fox jumped over the lazy dog.

Baskerville Italic: The quick brown fox jumped over the lazy dog.

Baskerville SemiBold: The quick brown fox jumped over the lazy dog.

Baskerville Bold: The quick brown fox jumped over the lazy dog.

Baskerville SemiBold Italic: The quick brown fox jumped over the lazy dog.

Baskerville Bold Italic: The quick brown fox jumped over the lazy dog.

Big Caslon Medium: The quick brown fox jumped over the lazy dog.

Brush Script MT Italic: The quick brown fox jumped over the lazy dog.

Comic Sans MS: The quick brown fox jumped over the lazy dog.

Comic Sans MS Bold: The quick brown fox jumped over the lazy dog.

COPPERPLATE: THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG.

COPPERPLATE LIGHT: THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG.

COPPERPLATE Bold: THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG.

Courier New: The quick brown fox jumped over the lazy dog.

Courier New Italic: The quick brown fox jumped over the lazy dog.

Courier New Bold: The quick brown fox jumped over the lazy dog.

Courier New Bold Italic: The quick brown fox jumped over the lazy dog.

Didot: The quick brown fox jumped over the lazy dog.

Didot Italic: The quick brown fox jumped over the lazy dog.

Didot Bold: The quick brown fox jumped over the lazy dog.

Futura Medium: The quick brown fox jumped over the lazy dog.

Futura Medium Italic: The quick brown fox jumped over the lazy dog.

Futura Condensed Medium: The quick brown fox jumped over the lazy dog.

Futura Condensed ExtraBold: The quick brown fox jumped over the lazy dog.

Geneva: The quick brown fox jumped over the lazy dog.
Georgia: The quick brown fox jumped over the lazy dog.
Georgia Italic: The quick brown fox jumped over the lazy dog.
Georgia Bold: The quick brown fox jumped over the lazy dog.
Georgia Bold Italic: The quick brown fox jumped over the lazy dog.
Gill Sans: The quick brown fox jumped over the lazy dog.
Gill Sans Italic: The quick brown fox jumped over the lazy dog.
Gill Sans Light: The quick brown fox jumped over the lazy dog.
Gill Sans Light Italic: The quick brown fox jumped over the lazy dog.
Gill Sans Bold: The quick brown fox jumped over the lazy dog.
Gill Sans Bold Italic: The quick brown fox jumped over the lazy dog.
HERCULANUM: THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG.
Lucida Grande: The quick brown fox jumped over the lazy dog.
Lucida Grande Bold: The quick brown fox jumped over the lazy dog.
Marker Felt Thin: The quick brown fox jumped over the lazy dog.
Marker Felt Wide: The quick brown fox jumped over the lazy dog.
Optima Regular: The quick brown fox jumpe

Optima Bold: The quick brown fox jumped over the lazy dog.
Optima Bold Italic: The quick brown fox jumped over the lazy dog.
Optima ExtraBlack: The quick brown fox jumped over the lazy dog.
Papyrus: The quick brown fox jumped over the lazy dog.
Trebuchet MS: The quick brown fox jumped over the lazy dog.
Trebuchet MS Italic: The quick brown fox jumped over the lazy dog.
Trebuchet MS Bold: The quick brown fox jumped over the lazy dog.
Trebuchet MS Bold Italic: The quick brown fox jumped over the lazy dog.
Verdana: The quick brown fox jumped over the lazy dog.
Verdana Italic: The quick brown fox jumped over the lazy dog.
Verdana Bold: The quick brown fox jumped over the lazy dog.
Verdana Bold Italic: The quick brown fox jumped over the lazy dog.

Zapfino: The quick brown fox jumped over the lazy dog.

Appendix B: Font Support in Mac OS X

Mac OS X supports tens of thousands of fonts in many different formats. These formats are listed below.

Mac PostScript Type 1	Adobe PostScript fonts launched desktop publishing and are used today by publishers, corporations, and government agencies for high-quality output to laser printers, imagesetters, and platesetters. Each PostScript font requires two files, one for the screen font and one for use by the printer's RIP.
Multiple Master	This special PostScript font allows variation of one or more font parameters (such as weight) to create a large number of custom styles, also known as instances. Mac OS X v10.2 can activate already created instances of this font.
Mac TrueType	Most current RIPs support Mac TrueType fonts, which are typically used in home and office environments. A single file contains both screen and printer font information. Be sure to embed these fonts when making PDFs or PostScript files to avoid problems at the RIP. The extension is .ttf.
System (dfonts)	Introduced in Mac OS X, dfonts are specially packaged TrueType fonts that contain information in the data fork instead of in a separate resource fork. Many dfonts are high-quality fonts with extensive glyph sets that designers will love. Some of these names conflict with existing PostScript or TrueType fonts, so you may want to remove them when you prepare your system (see page 10).
OpenType	OpenType fonts (extension .otf) can contain 65,000 different glyphs, so type can be set in non-Roman languages such as Japanese, Chinese, and Korean. Applications such as TextEdit and Adobe InDesign support OpenType; other applications have to be specially written to use OpenType and Unicode.
Windows TrueType	Same as Mac TrueType, but with a different internal format. The extension is .ttf.

Appendix C: Font Locations in Mac OS X

Mac OS X provides multiple locations for fonts for several reasons:

- Mac OS X is designed to be a multiuser system. It sometimes needs a place for shared resources such as fonts. The `/Library/Fonts` folder serves this purpose.
- Multiple font locations with different access privileges protect critical system resources—for instance, essential system fonts needed for menus and dialogs. The `/System/Library/Fonts` folder lets you see these font suitcases, but you can't easily open, move, or add to them.
- On a computer shared by several users, one user's fonts might not be the same as another's. Mac OS X provides private Fonts folders for individual users.
- Schools and labs may want to put fonts on a Mac running Mac OS X Server and Open Directory for everyone to share; this is the purpose of the `/Network/Library/Fonts` folder. Note that fonts in `/Network/Library/Fonts` are always open; users can't open and close fonts themselves.
- Finally, supporting Classic applications requires the use of the Fonts folder in the Classic System Folder.

When searching for a font, Mac OS X begins with the application's font folder and proceeds down the list in the order shown below. It uses the first font match it finds in this sequence. For example, if you have Helvetica in the Classic Fonts folder and Helvetica in your user Fonts folder, the latter takes precedence over the former when you are working in a Mac OS X application.

Also, in Mac OS X v10.2, any fonts that you put into the various Fonts folders can now be stored in subfolders. Mac OS X v10.2 will activate fonts in a subfolder.

**Application's own font folder
(if it has one)**

Some applications, like Adobe InDesign, have their own font folders. Fonts stored in this folder take precedence over fonts in other folders, but only for that application. This is true for all Classic and Mac OS X applications.

**Your private Fonts folder
`/Users/your user name/Library/Fonts`
(also referred to as `~/Library/Fonts`)**

If you're on a single-user system and you use only Mac OS X applications, this is the place you should put all your fonts. No one but you can use these fonts. If you also run Classic applications, put your fonts in the Classic System Folder Fonts folder instead.

Main font collection Library/Fonts	This is the equivalent of the traditional Fonts folder in Mac OS 9. Fonts in this folder are available to everyone who shares your Mac. However, only a user with administrator access can change the contents of the folder. In a lab environment, common fonts would be placed here by the Mac system administrator. In a design or production environment without a font manager, shared fonts should be placed here.
Network fonts Network/Library/Fonts	This folder is represented by the Network icon in your Computer folder, but it is located on another computer on the network. It can contain a central font collection to which Mac systems in a network can subscribe. This gives everyone a consistent set of fonts. All fonts in this location are always active.
System fonts System/Library/Fonts	This folder contains all fonts used by Mac OS X for menus, dialogs, and icons. You can see the fonts here, but you can't modify this folder. Page 10 describes a method for modifying this folder and its fonts.
Classic fonts Mac OS 9/System Folder/Fonts	If you're running both Classic and Mac OS X applications and you don't use a font manager, this is the place you should put all your fonts. This way, Classic applications can use fonts preinstalled in Mac OS X, because this is the only folder from which Classic applications can use fonts. Mac OS X applications also can use fonts in this folder.

Appendix D: Mac OS X and Unicode

Because it takes advantage of the Unicode Standard, Mac OS X supports multiple languages—including Japanese, Chinese, Traditional Chinese, and Korean—in the same document without requiring additional software. Like ASCII, Unicode is a character encoding system, but Unicode provides a unique number for every character regardless of platform, program, or language. Think of Unicode like assigned seating in a classroom: The person whose last name starts with “A” is always followed by the person whose last name starts with “B,” and they cannot change seats.

The Unicode Standard supports 917,631 characters—enough for all the world’s languages and symbols. The starting point for ASCII, or what was known as Mac encoding, was 256 characters. This was extremely limiting for languages that contain more than a thousand characters, such as Simplified Chinese.

The solution to this limitation has come from the Unicode Consortium, a nonprofit organization that specifies how text is represented in modern software products and standards. Along with Apple, consortium members include HP, IBM, Microsoft, Oracle, SAP, Sun, Sybase, and Unisys. Today the Unicode Standard is supported in many operating systems, all modern browsers, and many other products. It represents one of the most significant advances in global software technology.

As long as an application supports Unicode, this powerful standard allows you to include characters from different languages and different alphabets in a single document or web page and deliver it over multiple platforms, languages, and countries. You do not need to install or reconfigure software to display a wide range of characters and alphabets correctly if you use the default font installation. For example, the extended font set supplied in Mac OS X supports 26 languages, including Central European, Baltic, Greek, Turkish, Cyrillic, and Simplified Chinese. Mac OS X also provides one of the most complete font sets for CJK (Chinese, Japanese, and Korean) fonts—as many as 32,500 characters in the Simplified Chinese font alone.

The Unicode Standard assigns a range of numbers, or “tags,” for a character group. For example, the characters A–Z are assigned the range 65–90. Greek characters are assigned the range 880–1023. In the past, Western font designers wanting to display Greek characters would simply insert the Greek “alpha” in the “a” cell, the Greek “beta” in the “b” cell, and so on. Today savvy font manufacturers use the official Unicode designation for each character. Dingbats and symbols are also used so commonly in multiple languages that the Unicode Consortium assigned these characters their own positions. This means that, in a Unicode font, familiar dingbat characters may not be accessible via the keyboard letter “n.” Access to these characters depends on whether the application manufacturer accommodates the older input method.

When you encounter a Unicode font, use the Character Palette in Mac OS X to select special characters. This type of input method is required for Symbol and Zapf Dingbats characters because they have their own encoding position; it is not necessary for other picture fonts.

For more information about Unicode, visit www.unicode.org.