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## F Keys

F Keys are **keyboard shortcuts** that perform tasks by using a combination of keystrokes rather than using the **mouse**. For example, to **eject** a disk in the **disk drive**, you can use the FKey combination Shift-Command-1. This **command** tells the disk drive to eject the disk. A popular F Key shortcut is Shift-Command-3, which takes a screen shot (or screen capture) of whatever currently is on your screen and saves it to your **startup** disk as Picture 1 (if there isn't already a picture with that name). The screen capture can be viewed in **SimpleText**, or it can be edited in most graphics program that can open a **PICT** image.

### Shortcut Keys on the Mac

| <i>Key</i>                    | <i>Standard Action</i>               |
|-------------------------------|--------------------------------------|
| F1                            | Undo previous action                 |
| F2                            | Cut highlighted item                 |
| F3                            | Copy highlighted item to Clipboard   |
| F4                            | Paste Clipboard item where cursor is |
| Shift-Command-1               | Eject Disk                           |
| Shift-Command-3               | Screen shot of open screen taken     |
| Option-Command while starting | Rebuild the desktop                  |

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|           |              |
|-----------|--------------|
| Command-N | New Folder   |
| Command-. | Stop/Escape  |
| Command-M | Make Alias   |
| Command-Y | Eject Disk   |
| Command-W | Close Window |

Contrary to popular belief, FKeys are not the keys that appear on the top of an **extended keyboard** as F1, F2, and so on. Those are called Function keys. The first four keys have commands assigned to them: F1=**Undo**, F2=**Cut**, F3=**Copy**, and F4=**Paste**. The rest are blank and can be assigned keystrokes with a program such as QuickKeys or any application, such as Adobe Photoshop, that let's you assign function keys to commands from within the application.

## *See Also*

Command; Copy; Cut; Disk Drive; Eject; Extended Keyboard; Keyboard Shortcuts; Mouse; Paste; PICT; Startup; SimpleText; Undo

## **F/A-18 Hornet**

The graphics in **F/A-18 Hornet** are so complete in this new version, that you can actually see blades of grass as you soar through the air. This best-selling high tech military jet flight simulator offers twenty-eight missions

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of flight and multiple viewing options so you can set an arcade-ish or more realistic cockpit view.

A big plus for F/A-18 is that it takes into account that not everyone is already a flight sim pro and includes beginner settings so you can gradually take on more responsibility as you play. F/A-18 comes fully equipped for combat with a complex radar system, four air to air and two air to ground modes. The Korean Crisis Theatre Set adds another twenty-eight missions with enhanced terrain detail. **Network** capabilities let you dog-fight other players across a **modem** or **online**. F/A-18 also incorporates features such as mission replay with multiple views, support for multiple monitors and the capability to set the skill level of your enemy to better match your own.

## *See Also*

A-10 Attack!; Absolute Zero; Out of the Sun; Rebel Assault II; Sim Games; Wing Commander III

## FaceSpan

For all its power and flexibility, **AppleScript** has one major failing: it has no built-in support for creating scripts that have any more than a rudimentary interface. FaceSpan, originally known as Frontmost, overcomes this failing with a flourish.

FaceSpan is an **interface builder** for AppleScripts. Using FaceSpan, you can create AppleScript-based applications that feature a full Macintosh

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interface, including multiple windows, dialogs, menus, and more. You can create your interface by “drawing” it in FaceSpan’s visual editor, and you can attach scripts to interface elements.

Each interface element can include script handlers that are executed for user interactions such as clicking, selecting, or pointing. The handler script can manipulate other parts of the FaceSpan application, or interact directly with another scriptable application. Adding support for Macintosh drag-and-drop is a simple matter, as is adding customized Balloon Help.

Using this rich set of tools, you can create sophisticated applications that act as custom interfaces to other applications or as a client interface for database servers. FaceSpan is a great way for programmers to create quick application prototypes to test user interface ideas.

FaceSpan projects can be saved as stand-alone applications that look and act like applications written in C or Pascal. FaceSpan applications (as well as the FaceSpan extension upon which they rely) can be redistributed royalty-free.

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***See Also***

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AppleScript; Frontier; Interface Builder; Scripting

## Fair Use

A legal doctrine by which courts can avoid rigid application of copyright law when a work is reproduced for purposes of comment, criticism, news reporting, teaching scholarship, or research. There is a lot of gray area, but to decide whether it's fair use, courts are likely to look at the purpose and character of the use, the nature of the copyrighted work, the amount and substantiality of the portion used, and the economic effect on the author. Fair use is especially relevant to material published on the **Internet** , which can be copied easily despite being protected by **copyright** law.

### *See Also*

Copyright; Intellectual Property; Internet

## Family Entertainment

For the most part, when you get away from **education** /**reference** software and “**edutainment** ,” there isn't much out there that appeals to kids and parents alike. Titles like Day of the Tentacle and Sam and Max Hit the Road are non-violent, but when it comes to game-play, they're not something a younger kid can really tackle without parental help. Just recently, a flock of foreign titles including Great Britain's **Foul Play** and Japan's **Yellow**

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**Brick Road I & II** (see the following figure) have added to projects by Philips Interactive and LucasArts' attempts at non-violent, non-educational entertainment that can actually appeal to children without forcing learning down their throats.

One way to justify investing in a family computer has always been that you could learn a lot. There is no question that the extensive resources on the Internet and the multimedia reference titles available are a great reason to get into computing, but who decided that only adults were allowed to play games? The controversy over violence in games, whether or not you want your children blowing things away and wading through dead bodies in games like *Blood Bath* and **Marathon**, really comes from the fact that most games aren't geared for young audiences. LucasArts' *Mortimer* (see the following figure) and Philips' *Masterpiece Mansion* operate on the principle that kids learn by playing.

United States-based companies still seem to be integrating learning into their games on the whole, but in a more fun fashion. However, games like *Foul Play* and *Yellow Brick Road II* show that children's title and family entertainment can be fun without a heavy emphasis on education.

## ***See Also***

Are You Afraid of the Dark?; *Foul Play*; *Masterpiece Mansion*; *Mortimer*; *Yellow Brick Road II*

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## FAQ

Acronym for Frequently Asked Questions, a ubiquitous feature on the **Internet**, usually in file form. Used to present basic information about virtually any topic, from software to **newsgroups** to **Web sites**.

### *See Also*

Internet; Newsgroups; Web Sites

## Fax Capability in Modems

A modem's capability to fax is a useful tool for desktop users and PowerBook users staying in strange hotel rooms. Just how useful depends on the modem—some fax modems can only send faxes, while others can send and receive.

To completely replace a traditional paper fax machine, you'll need a send-and-receive fax modem and a scanner. You need the scanner to fax material that doesn't originate in electronic form, such as contracts, receipts, or maps. You first have to scan the paper to get it in an electronic format before you fax it, a two-step process. Because of this, a fax modem is not always superior to a traditional facsimile machine.

However, there are some things that you can do with a fax modem that you can't do with a paper fax machine. For one, fax modems yield better quality than do paper fax machines in both sending and receiving. In addition, some

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fax modems come with **optical character recognition** (OCR) software, which turns the pictures of characters of a received fax into editable text (you can also buy OCR software). Because the quality of the received fax is good, you'll get fewer OCR errors by converting a fax received electronically than with a paper fax that you have to scan.

The speed at which the modem can transmit faxes varies, but is usually slower than the data speed. Fax modems that support the V.17 standard can transmit faxes at 14,400Bps.

Sending a fax is as easy as printing with most fax software. To fax a document, you usually hold down a key and pull down the File menu of an application. In place of the usual Print command you'll see a Fax command. Choosing it invokes the fax software.

*See Also*

Modem

## Fax Extension

This extension is part of Apple's GeoPort Express Modem Software and enables you to send and receive faxes from Power Macs and AV Macs using Apple's GeoPort feature. The GeoPort feature enables you, through a special adapter, to connect a phone line to your Power Mac or AV Mac. The Fax extension enables you to send and receive faxes through the built-in telecommunications capabilities of your computer, without the use of an



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external modem.

*See Also*

Modems; AV Macs;

## Fax Server

*See*

Server/Fax

## Fiber Channel

*See*

Ports, Future Trends

## File Assistant Extension

This extension, included with System 7.5 and higher, enables PowerBook users to update files on their desktop Mac through a process called file synchronization. By connecting your PowerBook to your desktop Mac, or through a network connection, the File Assistant extension checks the files on the desktop Mac, and, if the corresponding files on the PowerBook have been updated, it updates the desktop Mac's files.

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## *See Also*

Network; PowerBook

## File, Determining Whether it Is Locked

To see if a file is **locked** (meaning it can't be deleted or have its contents edited) you can select the file and choose **Get Info** (Command-I) from the File menu to see if the "Locked" checkbox is checked, but there's a shortcut that saves you a trip to the Get Info box. Click the name of the file (below the icon). If the arrow pointer changes to the I-Beam cursor (enabling you to enter a new name), it's unlocked. But if the arrow pointer stays, the file is locked.

## *See Also*

Get Info; Locked Files

## File Formats

### *See*

File Types, Internet

## File Menu

The File menu, which appears at the **desktop level** and as the first **menu** in

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any application, enables you to open, close, save, and print documents, as well as create new ones. The File menu also provides access to many application-specific commands.

At the Desktop level, the File menu does the following:

- Provides access to the **Get Info** window for any selected file (Command-I)
- Enables you to invoke **Sharing** of files across a **network**
- Enables you to make **duplicates** of files (Command-D)
- Enables you to make **aliases** of files (Command-M)
- Provides access to the **Put Away** (Command-Y) command for **ejecting disks** or putting recently moved files back in their original location

The File menu at the desktop also contains the built-in **Find file** (Command-F) functions of the **System**, as well as access to the **Page Setup** and **Print dialog boxes** .

Within an application, the File menu enables you to do the following:

- Create a new document
- Open or close a document
- Save a document

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- Use the Save As command on any document
- Use a variety of custom commands depending on the application

Printing dialog boxes appear under the File menu in applications. All Macintosh applications list the Quit command as the last entry at the bottom of the File menu.

## *See Also*

Aliases; Desktop; Dialog Box; Duplicates; Ejecting Disks; Find File; Menu; Network, Page Setup; Printing; Put Away; Sharing; System

# File Server

## *See*

Servers/File Server

# File Sharing Extension

This extension is part of Apple's file sharing technology and is loaded into the system at startup. The file sharing extension contains part of the code used by the system for file sharing. If you're going to be using file sharing, leave this extension in your System Folder.

## *See Also*

Extensions; File Sharing; System Folder

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## File Sharing Icon

If **file sharing** is activated and your computer is shared on a network, the **shared folder** icon on your **desktop** will have a small darkened tab added to the top of the folder's icon with network cables attached to the folder. This tells you that File Sharing is turned on.

### *See Also*

Desktop; File Server; Network; Shared Folder; Sharing

## File Sharing Monitor

When file sharing is active, you want to see who is connected to your computer through the File Sharing Monitor Control Panel. When you open the File Sharing Monitor, a window displays the users connected to your computer in the right window and the items that are being shared under **Shared Items** in the left window. A bar graph below these windows shows the amount of file sharing activity that goes from idle at the far left to busy at the far right side of the graph. You can disconnect users from your system from this **control panel** and choose how much time elapses before they are disconnected. When you type in a number, users accessing your computer receive an on-screen dialog box warning them that they will be disconnected soon. This gives them a chance to **save changes** to their open documents. If you want users disconnected immediately with no warning, type "0" in the Minutes Till Disconnect dialog.

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To use the File Sharing Monitor Control Panel, follow these steps:

1. Choose the File Sharing Monitor from the Control Panels submenu on the Apple menu (or System Folder).
2. A window displays a list of connected users and a list of shared folders and disks.
3. You can disconnect users from your computer by clicking Disconnect and entering the number of minutes before users are disconnected. Users receive a disconnect warning, giving them a chance to save their documents. If you enter "0," they will be disconnected immediately.

## *See Also*

Control Panel; File Sharing; Shared Items

## File Transfer Protocols

The transfer of files between computers using modems is governed by File Transfer Protocols. These protocols manage the actual transmission of the files and reassembly at the remote end. They are normally used when you upload (sending a file to a remote computer) or download (retrieve files from a remote computer). Several different transfer protocols have evolved over time. Each was designed to insure reliability and maximize transmission speed for particular situation (see the following table).

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**TIP** The term file transfer protocols is used in a different sense than the File Transfer Protocol (FTP) commonly referred to when speaking of the Internet. The Internet's **FTP** refers specifically to the UNIX-based File Transfer Protocol, which is part of the TCP/IP's set of network protocols.

The most basic style of transmission is called a "straight ASCII transfer" or a "Blind Transfer". Essentially this tells the computer to use no protocol at all—it sends files as straight **ASCII** characters as fast as the hardware allows. When transmitting in this fashion, the computer never stops to insure the accuracy or completeness of incoming data. Thus, although fast, this protocol isn't of much use except for the transfer of small files.

More recent protocols have added features such as error correction, but do potentially slow transmission over the theoretical maximum of a blind transmission. Many protocols now support "batch transmission" which allows you to specify multiple files to send and/or receive in advance of the transmission.

The **MacBinary** protocol is used when transferring Mac files to other Macintosh users. This protocol makes sure that all of the Macintosh specific information, such as Icons and resources, are kept intact. In nearly all file transfers, you'll make use of MacBinary. The only major exception is when you're sending files to DOS/Windows users. In this case, the extra information can make the file unreadable on their machines.

**TIP** File transfer protocols are used in addition to any error

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correction protocols and hardware handshaking already negotiated between the local and remote modem. More advanced protocols such as Zmodem take this into account, and leave error correction solely to the hardware, speeding the overall transfer by preventing double checking of each piece of information.

If you are using an error correcting modem and the remote computer supports it, Zmodem is the protocol of choice. Zmodem's capability to resume interrupted transfers is extremely useful. In situations where Zmodem isn't available, try Ymodem-G. If you don't have an error correcting modem, use Ymodem or Xmodem-IK.

Generally the remote system will ask for your protocol preference before beginning a file transfer. After telling the remote system what you'd like to use, then it will then ask you to begin the transfer. At this point, your computer will begin automatically (with Zmodem) or will issue a command to tell your computer to begin (most other protocols).

## Protocol Speeds

speed - error correction - notes

ASCII("Blind Transfer")

As Fast as the hardware allows - None - Text only.

XModem

Slow - Simple Checksum - Most widely used.



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## XMODEM-IK

Medium - CRC - Sometimes called Ymodem.

## YMODEM

Medium - CRC - Xmodem-IX with batch transfer.

## Ymodem-G

Fast - none - Use only with error correcting modem.

## ZMODEM

Fast - none - Use only with error correcting modem. Allows canceled download to be restarted.

## MacBinary

none - none - Used for Mac-Mac transfers to insure the Mac-specific information is properly transferred.

### *See Also*

FTP; Modem File Transfer Protocols

## File Types, Internet

Users who download software from the **Internet** from **FTP** or other sites will encounter a number of different file types that have been created by any

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number of different computers using a variety of software.

Each file type can be deduced from the three-letter extension at the end of its filename. The most common on the Internet is the extension “.hqx,” which denotes a file encoded with BinHex so that it can be transported easily across the Net.

The following table lists common file type extensions, the software that was used to create that particular file type, and the software needed to process it, if necessary.

## Common File Formats

| <i>Extension</i> | <i>File Type</i>                 | <i>Software to Process</i>     |
|------------------|----------------------------------|--------------------------------|
| .aiff            | Audio Interchange File Format    | Sound App, SoundMachine        |
| .au              | Ulaw                             | UlawPlay                       |
| .cpt             | Compact Pro                      | Compact Pro, StuffIt Expander  |
| .dd              | DiskDoubler                      | Disk Doubler, Expand Now       |
| .gif             | CompuServe GIF                   | Web browser, Giffer, JPEG View |
| .hqx             | BinHex                           | BinHex, StuffIt Expander       |
| .jpeg            | Joint Photographic Experts Group | JPEG View, Web browser         |

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|         |                              |                               |
|---------|------------------------------|-------------------------------|
| .mpeg   | Motion Picture Experts Group | Sparkle                       |
| .pdf    | Adobe Acrobat                | Acrobat Reader                |
| .ps     | PostScript                   | GhostScript                   |
| .sea    | Self-Extracting Archive      | (double-click to launch file) |
| .sit    | StuffIt                      | StuffIt Expander              |
| .txt    | Text                         |                               |
| .uu     | uucode (UNIX)                | UULite, StuffIt Deluxe        |
| .Z      | Compress (UNIX)              | MacCompress, StuffIt Expander |
| .z, .gz | Gzip (UNIX)                  | MacGzip                       |
| .zip    | WinZip (Windows)             | Unzip, Zipit, StuffIt Deluxe  |

## ***See Also***

Acrobat, AIFF File, .AU File, Decoding/Decompressing files, Encoding Files, File Transfer Protocol, GIF, Helper Applications, JPEG

## **File Is in Use Message**

If you try to delete a file being used by the system or by an application by

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emptying the Trash, a message box alerts you that, "The file cannot be erased because the file is in use." This protects your system and important application files currently in use. If you want to delete the file, quit the application, and the file can be deleted. System files on the startup disk, such as the Finder file and System file, cannot be deleted and will display this message. Also, any file that is open, such as a document open in an application, cannot be deleted, and if you put the file in the Trash and choose Empty Trash, you'll get the alert box stating, "The file cannot be erased because the file is in use." This is to protect you from deleting important or unsaved files.

To delete a file that is in use (besides Finder or System files on a startup disk), you can close the open file and then delete the file by placing it in the Trash and choosing Empty Trash.

## *See Also*

Customizing; Extensions; Extensions Manager; QuickTime; Restart; Startup; System 7

## File Is Locked Message

If you try to delete a locked file by emptying the **Trash**, you get an **alert box** stating, "The Trash cannot be emptied because it contains items that are **locked** ." Files are locked to keep them from being accidentally deleted. This alert box tells you a locked file is in the Trash.

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If you want to delete a file in the Trash that is locked, you have two options: you can hold the Option key while choosing Empty Trash from the Special menu to delete the file, or you can open the Trash, select the file, and choose Get Info from the File menu (⌘-I). In the Get Info window, uncheck the option marked "Locked" in the lower-left corner (unlocking the file) and close the Get Info window. You can then choose Empty Trash and the file will be deleted.

## *See Also*

Alert Box; Locking Files; Trash

## Filename Extensions

A three-letter code at the end of a filename that indicates what sort of file it is. Essential in non-Macintosh environments such as the **Internet** where **client** software often lacks icons or other methods of identifying files. A **World Wide Web browser**, for instance, can be set up to recognize filename extensions of files it encounters so that it can perform specific actions on them, such as opening them with a **helper application** or save them to disk.

Some common filename extensions are listed in the following table.

Filename Extensions and File Types

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## *Extension File Type*

### *Encoding Formats*

- .hqx BinHex 4.0 encoded document
- .uu uucode

### *Compression Formats*

- .sit StuffIt compressed document
- .cpt Compact Pro compressed document
- .sea Self-extracting archive
- .Z Compress (UNIX)
- .tar tape archive (UNIX)
- .dd DiskDoubler
- .x SuperDisk
- .pit PackIt
- .zip PKZip (Windows, DOS)
- .gz Gnu ZIP

### *Text Files*

- .txt ASCII text file

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.html HyperText Markup Language document

.rtf Rich Text Format file

.etx setext

## *Graphics Files*

.gif Graphics Interchange Format

.jpeg Joint Photographic Experts Group

.eps Encapsulated PostScript

.tiff Tagged Interchange File Format

.pict PICT

.bmp bitmap (Windows)

## *Sound and Video Files*

.au Ulaw (UNIX)

.aiff Audio Interchange File Format

.ra RealAudio

.mpeg Motion Picture Experts Group

## *Other Files*

.pdf Portable document format (Adobe)

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.ps    PostScript

## *See Also*

Client, Helper Application, Internet, World Wide Web Browser

## Fill, Spreadsheet

Most **spreadsheets** let you **paste** the same data or **formula** into a group of adjacent **cells** quickly, by filling. As an example, imagine an expense report with individual expenses entered in **rows** 1-10, and different categories for them in **columns** A-F. We put a formula in A11 that adds up the expenses in that category. To total the other categories, we'd **select** a horizontal line of cells starting with A11 and extending through F11 and choose the Fill Right command, usually ⌘-R. If we wanted to paste the same material into a vertical range of cells, we'd select an area with the desired information in the top cell and choose Fill Down, usually ⌘-D.

Microsoft **Excel** lets you fill by selecting a cell and dragging its boundary to cover the cells to be filled. It also can guess how you'd like a series of cells to be filled: for example, if you select a cell with "January" and extend its boundary, its neighbors will become "February", "March", and so on.

## *See Also*

Absolute/Relative Addressing; What-If Calculations



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## Filmstrip

A file format for editing multiframe movies, filmstrip is supported by Adobe **Premiere**, **Photoshop**, and **After Effects**. **QuickTime** movies are exported from Adobe Premiere (choose Export from the File menu) in the filmstrip format. The file can then be opened within Photoshop and edited. The file appears in Photoshop as a single document containing each image of the video in sequence. The file can be painted and edited just like any other graphics file. This makes it possible to add special effects, draw over video, or add Photoshop effects to QuickTime movie files. The Filmstrip file can then be imported back into Premiere and turned back into a QuickTime movie.

While filmstrip files make it possible to add short special effects or manually fix **drop-outs**, they are not the best way to create lengthy **rotoscoping** effects. Because the file is uncompressed, it quickly becomes large when exporting long movie segments. You will need a lot of RAM to edit even short segments. Consider using a program like Strata **MediaPaint** if you want to paint on long segments of video.

## Final Draft

Final Draft is a **word processor** for screenwriters from MacToolkit.

Screenwriters who want to sell their scripts in Hollywood find that there are so many formatting rules and standards for margins and styles that they can

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easily get confused. When this happens, the script will usually be tossed aside. Final Draft, from MacToolkit, solves this problem by keeping track of formatting rules, leaving the writer free to be creative.

Final Draft has style sets that can be entered with just one or two keys on the keyboard, so that a writer can go from perfectly set action lines to character names to dialogue instantly. The style sets can also be user defined for your own standards, or can switch back and forth between film and TV formats easily.

Final Draft also has a built in spell checker and a thesaurus for breaking writer's block. It is fully integrated with **drag-and-drop** editing, and can import and export text to and from any other word processor.

The built-in character list saves time by having Final Draft enter characters names from a user-defined list as soon as the first letters of the name are typed. ScriptNotes also save time by letting users take notes as they write in separate windows that are attached to sections of text. Final Draft then enables you to jump to each ScriptNote and shows the corresponding text, letting the user review comments quickly and easily.

For use by rich producers and starving writers, Final Draft will run on everything from a Macintosh Plus to a Power Mac, and on system 6.0.7 or higher. Final Draft is published by MacToolkit:

***See Also***

Drag-and-Drop; Word Processor

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## Finance Programs

If you asked a hundred people what chore they were happiest to have the computer do for them, chances are that at least half would answer “balancing the checkbook.” Financial programs run the gamut from fairly simple check writing and checkbook reconciliation programs all the way to full-fledged accounting programs worthy of a CPA

Personal accounting programs are designed to help individuals and families manage their budgets and daily expenses. These programs are designed with a very simple check register-like interface. When you write a check, you enter the amount, the date, and the payee, and you assign it to a category. It might be food, or rent, or utilities, or medical expense, or entertainment. Set up as many categories as you want. The accounting program keeps track of the money you spend in each category, and can easily show you where your paycheck is going. You can print out reports and graphs to show how you’re doing this year as compared to last year, or how well you’re staying within your budget. Some programs, such as Intuit’s **Quicken**, will let you tie into electronic banking facilities, too.

Small business programs are almost as simple to use. These are usually based on a double-entry system of debits and credits. Unlike the traditional bookkeeping systems with journals and ledgers and many items to keep track of, the software makes it easy to record payables and receivables as the bills come in and go out. You can use the same programs to track inventory and to keep the business checkbook up to date. These programs will also print

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invoices, purchase orders, and checks. Some programs will figure payroll deductions and taxes, too. Others will work with a payroll program or tax program, supplying the necessary input, but letting the other software do the specialized calculations. The most popular program at this level is **MYOB Accounting**. The initials stand for Mind Your Own Business, and imply, quite correctly, that you don't need to hire an accountant to mind your business for you. With a program this intuitive, you can do it yourself. **Peachtree Accounting** is another modestly-priced and extremely popular package for small business use. In addition to the basic books, it can do Job Costing, Inventory, and Payroll. It also features a Custom Forms design module that will let you produce any kind of paper work your business needs. You can set up whatever kind of system you require to track the paper work, too.

Accounting software for larger businesses can get expensive and complex. The best known high-end accounting package is *Great Plains Accounting* from Great Plains Software. It uses a set of modules that work together (but can be purchased separately) to handle all kinds of transactions and produce all kinds of reports and ledger pages. By the time you've put together a functional accounting and bookkeeping system with Great Plains software, you've spent several thousand dollars and many hours. The Macintosh software is based on the PC version and has an extremely non-Mac-like interface. It's not a good choice for the beginner or for a small business, but given the cost, it's an unlikely choice, too. **Big Business**, from Automatic Software, is a better choice for a young, growing company. It combines sales,

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inventory, marketing and finance into one interactive package.

In addition to financial programs, there are some specialized programs to figure your taxes. Intuit's MacInTax helps you fill out those 1040's and state forms correctly, by providing on-screen worksheets and calculating the numbers for you. You'll still have to fill out the forms yourself, but by following the steps in the program, you'll be sure they're done correctly, and that you haven't overlooked helpful deductions.

## *See Also*

Big Business; MYOB; Peachtree Accounting; Quicken

## Financial Planning Software

The hardest part of making money in the stock market isn't guessing which stocks to buy. It's keeping track of the ones you've bought and sold, and the purchase price, gain or loss, income—all those details that suddenly become relevant at tax time. You can use financial planning programs such as **Quicken** or *Managing Your Money* to maintain investment accounts (portfolio accounts and mutual fund accounts). They'll help you track of what you own in stocks, bonds, mutual funds, and other types of investments that fluctuate in price. Investment accounts are for investors who want to track investment transactions, see the performance of their investments, update current market values, and create tax reports. When you use investment accounts, you can see immediately whether you are making or

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losing money on each investment, compare the performance of your investments, and report on investment income and capital gains when you need that information to prepare your income taxes.

Investments can be entered in either an asset account or a portfolio account. To track an investment in a portfolio account, you must know the share price and dollar amount for each purchase or sale transaction. If you don't have this information, use an asset account instead. Portfolio accounts can track multiple securities. Mutual Fund accounts track just one mutual fund. If you have investments in several different mutual funds, you'll need to open separate accounts for them.

Although financial planning programs can handle most common investment needs, their investment tracking does have limitations. While programs such as Quicken can provide basic tax reports, they don't keep track of changes in tax laws. Use them to supply the numbers your accountant needs for your tax returns, but don't rely on them to tell you how much you owe.

## Find Dialog Box

The Find File dialog box offers you options for files. When the Find File command finds files that match your search criteria, a separate window opens called Items Found. It lists all the items it encountered, as shown in the figure. It shows the **file name**, **size**, **kind**, and **modification date** of the files to help you see if it is the file you're looking for. If you click a file, the path to reach that file is displayed in the lower half of the Items Found window. It may show, for example, that the file you selected is in a folder

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called “utilities” inside your applications folder on your **hard drive** . You can then **close** the dialog box and follow that path to the file in question.

You can also double click the item in the Find File dialog box. This **launches** the program that created the file and opens the file. It’s also handy to double-click the folder that contains the file you searched for to see what else is in that folder.

You can search by:

- Name
- Size
- Kind
- Label
- **Date created**
- Date modified
- **Version**
- **Comments**
- Lock attribute
- Folder attribute
- File type

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- Creator

## *See Also*

Close; Comments; Creator; Date Created; File Name; Hard Drive; Kind; Launch; Modification Date; Size; Version

## Find File

To find any file on your hard drive or on a selected disk, choose Find File from the **Apple menu**. The Find File **dialog box** offers you a wide range of options for searching for your selected files. When the Find File command finds files that match your search criteria, a separate window opens called "Items Found" and it lists all the items it encountered. It shows the filename, **size**, **kind**, and **modification date** to help you see whether the file is in fact the one you're looking for. If you click a file, you'll see the path to that file is displayed in the lower window of the "Items Found" window. It may show, for example, that the file you selected is in your hard drive, inside your applications folder, and is inside a folder called Utilities. You can then close the dialog box and follow that path to the file in question.

You can also double-click the item in the Find File dialog and if that document can be opened, it will launch the program that created it and open the file.

You can search by: name, size, kind, label, date created, date modified, version, comments, lock attribute, folder attribute, file type, and creator.



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If you know the name of the document, a name search might bring you the fastest results. But the other search criteria are helpful as well. If you don't know the name of the file, but remember that it's over 4MB, you can search for all files greater than 4MB. Or you might not remember the name of your file, but if you knew you created it last Thursday, you can use the date created search to list all the files created on a particular date. The date modified is excellent if you need to see which files need to be **backed-up**. There's a lot of flexibility to help you find misplaced files.

When you select a search criteria, such as name or size, the Find File dialog gives you a pull-down menu with options to help you narrow your search. For example: If you know the name of the file you're looking for contained the word Red, but you didn't remember the full filename, you can search for files that contain the word Red. But if you knew for certain that the file started with the word Red, you can search for files that start with the word Red. You'll see the button "More Choices" in the Find File dialog. This enables you to set more specific details for your search and is helpful in narrowing your search. Each time you click the More Choices button, another layer of choices pops up (until you reach ten lines of criteria for your search). This way, rather than finding every file on your hard disk that starts with the word Red, if you know some details about the missing file, you can narrow your search to the most likely file. If, for example, you knew the file size was small, and you knew you created it on Feb. 11th, and you knew it was a font; you could set a search up that would find only the file's that are: less than 50K (you insert the size), that were created on Feb. 11th, and that are fonts.

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After you've decided which search criteria you're going to use to get the fastest, most effective search, you need to decide where you want to search. The Find File dialog enables you to search a particular disk, all disks, or even over a network to a **server**.

To find a file, follow these steps:

1. On the File menu, choose Find (⌘-F).
2. When the Find File dialog box appears, enter the search criteria (name, size, and so on) for the file you're looking for, and indicate where you want the Find File command to look for your files.
3. Click Find to begin your search.
4. If the Find comes up with any files that match your criteria, it will list those files in a new window entitled "Files Found" displaying the filename, size, modification date, and so on.
5. To see the path of an individual file, just click the filename and the lower portion of the Files Found window will display the path to the file you've selected. You can also double-click to launch the file (it's a launchable document).

## ***See Also***

Apple Menu; Back Up; Dialog Box; Find File Search Options; Kind; Modification Date; Server; Size

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## Find File Search Options

The **Find File DA** has **keyboard shortcuts** that enable you to increase or decrease the number of search options displayed in the Find File window. Press Command-M to see more options and Command-R to see fewer.

### *See Also*

Find File DA; Keyboard Shortcuts

## Find File Tricks

In Apple's Find File DA, there is a series of find attributes hidden beneath the surface. When you open the Find File dialog box, the first field contains a pop-up menu that lets you search by Name, Size, Kind, Label, Date Created, Date Modified, Version, Comments, Lock Attribute, Folder Attribute, File Type, and Creator. But if you hold the Option key before select this field, you find four more attributes have been added to the list: Contents, Name/Icon Lock, Custom Icon, and Visibility.

Probably the most important search criteria added by holding the Option key is the Contents search, which searches your hard disk for items that contain the key word you're searching for as a text item. If, for example, you were writing about Spain but didn't use the name Spain in the title of the document, by using a Contents search, you can search for documents that contain the word Spain.

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Searching by Custom Icon brings you a list of files that have had their original icon replaced by a custom icon. This can help you narrow the scope of your search if you know that you either did or did not replace the original application's or document's icon with a custom icon.

The Visibility attribute lets you search for invisible items and is especially helpful for finding invisible files that some applications put in your **System Folder** when you install the program from an installer.

In **System 7.5** , you can drag a file into the third search field (right above the Find button), and the attributes of that file are entered into the find fields. If, for example, you choose a find attribute from the pop-up menu, such as Size, the file's size is already inserted. If you choose Kind, that file's kind appears in the Kind field. This is helpful when searching for a similar file based on that type and/or creator information.

When you do a search with the Find feature, the window that appears with the listing of files that match your search criteria has many of the same features as the Finder. The files in this window can be double-clicked and launched, just as in the **Finder** . You can also click an item on the list and use the **Get Info** command (Command-I) to see the file's information. To print an item, you can press Command-P, and to open an item you can press Command-O.

Although the Find File function is greatly enhanced in System 7.5 and higher, you can still access the **System 7** Find File function (which many users are still very fond of) by pressing Command-Shift-F. This will bring up

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the old Find File dialog box introduced in System 7.

## *See Also*

Find File; Finder; Get Info; System 7; System 7.5; System Folder

## Find Command

To find any file on your hard drive or on a selected disk, choose Find from the **File menu** at the Desktop (⌘-F). This brings up the Find File dialog box.

The Find File dialog box offers you a wide range of options for searching for selected files. When the Find File command finds files that match your search criteria, a separate window opens called "Items Found," which lists all the items it encountered.

This window shows the **filename**, **size**, **kind**, and **modification date** to help you decide if it's the file you're looking for. If you click a file in the window, the path to reach that file is displayed in the lower window of the "Items Found" window. It may show, for example, that the file you selected is in your **hard drive**, inside your applications folder, and is inside a folder called "Utilities." You can then **close** the dialog box and follow that path to the file in question.

You can also double-click the item in the Find File dialog, and if that document can be open, the program that created it is **launched** and the file is opened. You can search by: name, size, kind, label, **date created**, date

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modified, **version** , **comments** , lock attribute, folder attribute, file type, **creator**.

If you know the name of the document, a name search might bring you the fastest results. But the other search criteria are helpful as well. If you don't know the name of the file, but remember that it's over 4MB, you can use the Find File command to list all files greater than 4MB. Or you might not remember the name of your file, but if you know you created it last Thursday, you can use the date created search to list all the files created on a particular date. The date modified is excellent if you need to see which files need to be **backed-up**. There's a lot of flexibility to help you find misplaced files.

When you select a search criteria, such as name or size, the Find File dialog gives you a pull-down menu with options to help you narrow your search. If, for example, you know the name of the file you're looking for contained the word Red, but you don't remember the full filename, you can search for files that contain the word "Red." But if you knew for certain that the file started with the word Red, you can search only for files that start with the word Red. The More Choices button in the Find File dialog enables you to expand your searching capabilities by giving you more choices and more criteria selections with which to search .

After you've decided which search criteria you're going to use to get the fastest, most effective search, you need to decide where you want to search. The Find File dialog enables you to search a particular disk, all disks, or even over a **network** to a **server**.

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To find a file, follow these steps:

1. From the File menu, choose Find (⌘-F).
2. When the Find File dialog box appears, enter the search criteria (name, size, and so on) for the file you're looking for, and indicate where you want the Find File command to look for your files.
3. Click Find to begin your search.
4. If the Find comes up with any files that match your criteria, it lists those files in a new window displaying the file's name, size, modification date, and so on. This is the “Items Found” window.
5. To see the path of an individual file, click the filename and the lower window displays the path to the file you've selected. You can also double-click to launch the file.

## *See Also*

Backing Up; Close; Creator; File Menu; Filename; Hard Drive; Launch; Modification Date; Network; Server; Size; Version Number

## Find Again Command

This command was used in the **System 7** and **7.1** version of Apple's Find function. When you choose the **Find** command, the first object found in its search appears in an open window. If the found file is not the file you were

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looking for, you can continue your search by selecting Find Again (⌘-G) from the File menu at the **desktop**. This was designed as a time saver in case you want to continue your search using the same word. Bringing up the Find File dialog box every time when you are continuing the same search is time-consuming and unnecessary.

Because of improvements to the Find File function in **System 7.5**, Find Again is used only to repeat the same entire search cycle again. Find File Again is not as necessary as it once was because the Find File function now displays all matches at once in the Find File window, rather than bringing you each match one by one.

To use Find Again to continue a search, follow these steps:

1. From the File menu, choose Find Again (⌘-G).
2. The search for the file continues using the last word entered in the Find File dialog box.

### *See Also*

Desktop; File Menu; System 7; System 7.1; System 7.5

## Finder Scripting Extension

This System 7.5 extension adds the capability to use **AppleScript** to automate repetitive tasks at the **Finder**.



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## *See Also*

AppleScript; Finder

## Finder Shortcuts

There are many keyboard shortcuts available at the Finder. A list of these shortcuts appear in under the **Help menu** (The question mark icon, to the left of the **Applications menu** on the far right of the menu bar. When you pull down the help menu at the Finder, the last item is named Finder Shortcuts. If you select Finder Shortcuts, a **dialog box** will appear with a brief explanation of the command along with its keyboard shortcut. Many of the commands listed in Finder Shortcuts are hidden commands, meaning they can only be executed through the keyboard, and a menu with the command does not appear anywhere in the Macintosh Operating System. An example would be: **Rebuild Desktop**. There is no pull-down menu for this command, so a keyboard command is used instead, and they are listed in the Finder Shortcuts command.

## *See Also*

Applications Menu; Dialog Box; Help; Help Menu; Keyboard Shortcuts; Rebuild Desktop

## Finder, Speed Tips

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There are a number of preferences you can set at the **Finder** that can help to speed up your work. The first speed enhancement comes from understanding that everything that appears on your Mac in a window takes time to redraw on the screen, and certain items redraw faster than others. Some of these preferences are controlled from the **Views Control Panel** .

In the Views Control Panel, you can select what font you want to use for displaying filenames in the Finder. If you want to have the fastest screen redraw, leave this font at the default choice of Geneva. If you choose a font other than Geneva, it takes slightly longer to display. Another speed enhancement from the View Control Panel is making sure the "Calculate folder sizes" checkbox is not checked. When you have this feature on, the Mac calculates the size of each folder and displays this info in list view windows. This calculation is memory intensive and tends to slow things down. For folders with a large number of items in it, such as your fonts folder, you have to wait for the calculation to take place, and it can slow redraw down considerably. By unchecking this, the folder still appears in all list views, but the size of the folder is not calculated. Note: If you ever need to know the size of a folder, you can always select the folder and choose Get Info (Command-I).

Another way to speed up performance is caused by the fact that color objects take longer to redraw than black and white objects. If you switch your monitor setting to black and white in the **Monitors Control Panel** , for example, you feel an instant jump in speed because the screen redraws more quickly if it doesn't have to use color.

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## *See Also*

Finder; Monitors Control Panel; Views Control Panel

## Finding Files on the Internet

### *See*

Archie

## Finding Out A Device's SCSI ID Number

If you have an external hard disk or any other peripheral connected to your Mac through a SCSI port, you can find the SCSI ID number without looking on the hardware itself. You do this by selecting the device and choosing Get Info (Command-I) from the File menu. In the Get Info window, beside the heading "Where:" you'll see the name of the disk, which software was used to format the disk, followed by the SCSI ID number.

### *See Also*

Get Info; Hard Disk; SCSI

## FinePrint

### *See*

Printers, PostScript Lasers

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## Finger

An Internet protocol used to provide information about host computers; also, the name of a scriptable application by Peter Lewis that is used to look up individuals or other information on the **Internet** .

Finger gains access to a **host** computer via **port number** 79 using the Finger protocol. What finger finds depends on the information stored in a Plan file set up by the server administrator. Some servers let you see the names of users who have connected to their site, and the times they connected. Others provide a variety of personal information about the administrator.

Finger is scriptable with AppleScript, and the following figure shows the results of an AppleScript that activated Finger automatically and connected to a remote **Web server** to reveal who has visited it recently.

### *See Also*

Host; Internet; Port Number; World Wide Web, Searching

## FireWire

### *See*

Ports, Future Trends, 1394 FireWire

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## First Person Perspective Shooters

The first Doom-like game, Wolfenstein 3-D showed up for the Mac in 1994. Even though it took two years to move from the PC to the Mac, it was clear that id software was onto something and Mac gaming would never be the same again. The Doom phenomena consists mainly of this: a guy running through corridors, shooting everything in his path. If the game is network compatible, then you can play with a friend and shoot him too. **First Person Perspective Shooters (Shooters)** are logical extensions of standard "shoot to kill" theme, but tend to incorporate a bit more of a plot. In Wolfenstein 3D you are a soldier fighting the Nazis, while in LucasArts' Dark Forces, you seek and destroy the Empire's newest bad guy, the Dark Trooper. Especially when primed for the **Power Mac**, Shooters are a joyride of sight and sound with lots of repetitious button punching and rapid-fire. The Power Mac's faster processing and advanced video puts you in the middle of the action. However, many of the games are violent and tend to stir up a bit of controversy.

Regardless of its "gore quotient", **Doom II**, distributed by GT Interactive, sold millions of copies on both the PC and the Mac. Shooters incorporate a first person perspective that makes you feel like you are actually tramping through corridors or through the underbrush. Instead of looking at a character that you guide across the screen, your line of vision is what it would be like to really be there. Some titles accomplish this better than others with great graphics and sound, but all tend to have the same elements

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including a menu bar along the bottom of the screen that lets you know how injured you are and what guns you've got.

Shooters that model themselves after arcade video games like *Mad Dog McCree*, where you shoot video images of actors on a large screen with a toy gun usually tend to fall flat on smaller platforms. Neither *Mad Dog*, *Blood Bath* or the disastrous *Crime Patrol*, all distributed by American Laser Games, have been able to match the sales success of the *Doom* phenomena. Id Software is the leader in making these titles with *Wolfenstein 3D*, ***Doom II*** and *Ultimate Doom* to their credit, as well as the new ***Hexen: Beyond Heretic***. Other First-Person Perspective Shooters worth checking out include *Sensory Overload*, *Marathon*, and *Marathon II* from Bungie Software and the LucasArts *Star Wars* game *Dark Forces*. Even a level of the LucasArts game ***Rebel Assault II*** incorporates the first person perspective.

## ***See Also***

*Descent*; *Doom II*; *Hexen: Beyond Heretic*; *Marathon*; *Violence in Games*

## **First Things First**

Visionary Software's *Organizer/Personal Information Manager* isn't the easiest one to use, but it's extremely powerful and optimized for the **Power Mac**. It combines a calendar—daily, weekly, monthly, or yearly—with a very good outliner, and a floating clock/calendar page that also can be anchored to the menu bar. *First Things First* can be networked and shared by co-

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workers, but you can determine whether they can change calendar items or just look at them and be reminded of group meetings and tasks you've delegated.

Use the outliner first to develop your goals and plans. Use the outline's hierarchy to decide what's most important, then add the sub-set of things to do to reach the goal. When you're ready to set a time to accomplish specific tasks, drag them to the calendar. Set dates and times for meetings, appointments, and reminders. FTF's calendar can do as much as any other calendar can to keep you on a schedule. It reminds you of appointments with a burst of music, unless you tell it to use one of your other system sounds. You also can use voice annotations on your calendar if you have a microphone.

The First Things First toolbar toggles back and forth between the outline and calendar views and gives you quick access to the linking and sharing features. It can print your calendar in any of the standard formats, including FiloFax, Day-Timer, Day Runner, and Franklin Planner, as well as on standard sheets of paper. It prints your outlines in any format you want, with or without hidden items, or only text you've selected.

First Things First is available as a demo program from **online services and bulletin boards**. The demo can be upgraded to a full working version by calling the publisher, Visionary Software, with your credit card in hand and buying a registration number. It's an ecologically sane way to distribute software. There's no wasted packaging. The program includes excellent help files, so you have no real need for a printed manual. Best of all, you can try

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out the software for as much as a month before you buy it—an excellent policy.

## *See Also*

Personal Information Manager

## FirstClass

BBS (**Bulletin Board System** ) software by SoftArc. With FirstClass and a special add-on gateway to the **Internet** , a Macintosh BBS can include a clean graphical interface and an **email** and **Usenet** news connection.

Most of these sorts of Internet connections are handled through UUCP gateways, which means the FirstClass BBS calls an Internet **host** every few hours to transfer email and news.

It's also possible for a FirstClass BBS to be accessible over the Internet. You can come in by way of a standard **Telnet** session or via the graphical FirstClass software, configured to use a Telnet tool, if you have a **MacTCP**-based connection to the Internet. To find a Telnet tool you might use a telecommunications package such as MicroPhone, by Software Ventures Corp.

To configure the FirstClass client software to use Telnet:

1. Click the “Setup” button in the main screen and the “Change” button in the “Connect Via” part of the “Connection Settings” dialog.



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2. In the “Communications Setup” dialog, choose “CommToolbox” from the “Connect Via” pop-up menu.
3. Click the “Configure Tool” button to choose your Telnet tool, and configure it with the Internet address of the host BBS. After you connect to a FirstClass BBS over the Internet, it looks just like any other FirstClass BBS that you’d call via modem.

FirstClass can receive Usenet newsgroups via the Internet gateway, which is an excellent way to bring more information into a fairly small BBS.

To send email on a FirstClass system, go to the “Message” menu and choose “New.” FirstClass presents you with a message window. To send a message to the Internet, type the Internet address and append ,Internet to it.

You can get more information about the FirstClass software from SoftArc by sending email to [sales@softarc.com](mailto:sales@softarc.com). You can download the free FirstClass client software from any FirstClass BBS, or on the Internet at: <ftp://ftp.tidbits.com/pub/tidbits/tisk/bbs/first-class-client-209.hqx>.

## *See Also*

Bulletin Board System; Email; Internet; Telnet; Usenet

# Fixed Storage Capabilities

## *See*

Disks and Drives

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## Flagging

A way of finding a message more easily the next time a user is searching through a **Usenet** newsgroup without actually saving the message to disk. The “Flag Messages/Unflag” command on the “Message” menu in **Netscape Navigator** either adds or removes the Flag icon under the “Mark” column.

### *See Also*

Lurking, Netscape Navigator, Subscribing, Thread, Usenet

## Flaming

Sending a “heated” message to a fellow electronic mail correspondent, mailing list member, or **newsgroup** user in regards to a breach of “**netiquette**” on their part. Any thought, opinion, or feeling expressed is subject to a response calling into question your intelligence, common sense, and parentage. People often flame companies or large organizations, particularly the government. This often starts a “flame war” if other people don’t share your opinions on a major topic. Avoid flaming other people as good **netiquette** .

### *See Also*

Mailing List, Netiquette, Newsgroups, Spam, Usenet, World Wide Web

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## Flash It

Flash it is a third-party **shareware** program for System 6.0.3 or higher, that enables you to take **screen captures** , but adds features and functionality that Apple's Shift-⌘-3 screen-capture command doesn't offer. For example, when you activate Flash It, your cursor turns into a cross hair cursor, and enables you to drag a selection around any item and save just that selected area as your screen capture, rather than saving the entire screen. This makes for smaller-sized captures, and requires less editing or cropping of your screen capture if all you want is a portion of the screen.

Flash It is a **Control Panel**, and its preferences are set within the control panel, as shown in the following figure. In the control panel you can select a hot key that will activate Flash It, you can select which type of **file format** to save the capture in, and you can set where on your **hard disk** you want the screen captures saved. Flash It can be found in the Macintosh Utilities Forum on America Online and a variety of Mac FTP sites on the Internet.

### *See Also*

Control Panel; File Format; Hard Disk; Screen Capture

## Flat Shading

### *See*

Rendering

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## Flat-File Database

A flat-file database is one that contains only one file of data. There may be many individual records in the file and many fields in the record, but they're accessible only from the file, and aren't shared with any others.

A cookbook is an example of a flat-file database. Each recipe is a record, and the ingredients and instructions are fields. A HyperCard address stack like the one in this example is a flat-file database. In order to transfer the name and address to a letter, you'd have to copy it.

### *See Also*

Database; HyperCard

## Flatbed Scanners

Flatbed scanners are the most commonly-used kind of scanner in desktop publishing. In the mid-90's, high-end flatbed scanners can produce scans that are nearly as good as drum scans, and fairly inexpensive flatbed scanners are perfectly adequate for comps, artwork for Web pages, and many printing projects.

Flatbed scanners are also useful for optical character recognition (OCR) tasks. Using OCR, you can quickly enter printed documents into word-processing documents, rather than retyping the text of the documents.

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Flatbed scanners can handle a wide range of materials: photographic prints, pages from books or magazines—you can even scan flat objects, like coins, directly. Many flatbed scanner handle large-format transparencies, or can be equipped with adapters to handle transparencies and even slides. Some desktop scanners also support sheet-feeder attachments for multi-page OCR jobs.

Flatbed scanners look like a small, personal copier. Artwork is placed face-down on the scanner's glass plate and the scanner moves a light bulb and sensor beneath the art. Some scanners pass a bulb *over* large-format transparencies, shining the light through the art and into the sensor.

**Advantages** Flatbed scanners range widely in price and quality, but good scanners are fairly inexpensive. A flatbed scanner adequate for comps, Web pages and OCR can be purchased for a few hundred dollars. In 1996, a high-quality flatbed scanner that can be used to produce scans for print can be purchased for as little as \$2000.

Flatbed scanners are fairly easy to operate. It takes some practice to get consistently good scans from any scanner, but flatbeds are substantially easier to use, and faster, than drum scanners.

**Drawbacks** Flatbed scanners use CCD's to record artwork's light and dark values. (See the discussion of drum scanners.) Often, this can result in loss of detail in highlight and shadow areas of the scan.

Scans from flatbed scanners are very rarely in as sharp focus as drum scans.

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It's possible to compensate for this with software (such as Photoshop's "Unsharp Mask" filter), but such corrections may cause unwanted side-effects in the scan.

## *See Also*

Drum Scanners; Handheld Scanners; Office Scanners; Slide Scanners

## Flattened Movies

Macintosh files contain two parts or **forks**: a data fork and a resource fork. The resource fork stores icons, palettes, and so on, while the data fork usually contains the major portion of data, such as the text in a word processing document. The PC operating system does not support this structure, so it is necessary to create a *flattened QuickTime* movie for distribution to PCs. A flattened file contains only a data fork. Utilities such as Who's **MovieShop** and Who's **MovieCleaner** provide this option, as well as Adobe **Premiere** .

## Flight Simulators

### *See*

Sim Games

## FlipBook

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S. H. Pierce and Company's FlipBook is dedicated printer software that allows you to create traditional paper flip books from your digital animation files. A QuickTime or PIC movie is loaded onto the screen, along with a playback controller that shows each frame in the sequence (not in frames per second rate).

Your printers specs are indicated, and you are allowed to format the flip card printout in the Flip Setup dialog. From there, you print out the frames of the loaded movie file to the flip cards loaded in the printer. FlipBook comes with a small stack of flip cards and an order form for more.

## Floating Point Coprocessors

*See*

Coprocessors, Types of, Software FPU

## Floppy Disks and Disk Drives

All Macintosh storage media is composed of an iron-oxide (rust) coating on some type of substrate. Floppy disks consist of iron-oxide coated plastic (like that in a cassette tape) platter with a hole in the middle, that is surrounded by a protecting case of hard plastic.

Floppy disks simply hold information. They need a mechanism to use this information. That machine is called a *disk drive*. Disk drives read or write

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data from a floppy disk in a several step sequence. The disk first spins to where the data is located. Then the read-write arm moves out or in to that spot and touches the disk to change the magnetic coating. The floppy disk drive motor must spin the disk and move the arm each time a read or write is requested by the Macintosh, making data access times slower than that of the hard disk drive. When floppy drives are being written to or read from they spin at a rate of approximately 390 to 600 revolutions per minute.

There are three types of disk drives: single-sided disk drives that are capable of reading only one side of the older, single-sided 400K floppy disks; double-sided disks drives that are capable of reading both sides of an 800K floppy disk; and the Super Drives, which are capable of reading two sides of a high-density 1.4MB disk.

The older 400 and 800K disks have a variable rotation speed, this is because the outer tracks are longer than the inner tracks. Using a different speed to turn the disk to information stored on the outer tracks than that used to access data on the inner tracks enables the disks to hold more information. Out of a total of 80 tracks, the outer 16 tracks have 12 sectors each; the next 16 tracks contain 11 sectors each, descending in sector quantities to the inner 16 tracks that have 8 sectors each. Each sector holds 512 bytes of data. High density disks use a fixed rotation speed to enable them to be interchangeable with MS-DOS-based computers.

***See Also***

Disks and Drives; Formatting; Hard Disks; Initialization



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## Flow Control

When an **RS-232** connection is made between your Macintosh and a modem, both devices need to be ready to send and receive information simultaneously. However, in real-world situations the Mac occasionally has data ready to send faster than the modem is able to accept. And along the same lines, there are times that Mac is temporarily unable to receive data from the modem, possibly because it is busy performing another task, such as printing. Obviously if either side simply “loses” the information being transmitted, the communication as a whole could fail, leading to unpredictable results. To prevent data loss, the modem and the computer make use of Flow Control to keep both sides informed of each other’s readiness.

Older, slower modems were able to handle flow control through software, in a process known as **XOn/Xoff**. This “Software Flow Control” functioned by inserting characters into the stream of data being transmitted to indicate when to pause and resume. When the modem wanted the computer to stop transmitting (pause), it would send ASCII code 19 (Control-S, XOFF) When the modem was ready to resume transmission, it would transmit the XON character (ASCII 17, Control-Q) to inform the computer that it was ready to resume transmission.

As modems speeds grew and modem users began transmitting binary files that actually contained the XON and XOFF characters as a part of the files, this type of flow control became less practical.

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Today's high speed modems perform the function of flow control by using the **RTS** and **CTS** pins in the modem cable, through a process known as **Hardware Handshaking** . These modems require a particular type of cable, which supports hardware handshaking. When the computer needs the modem to slow down, it drops the power on the RTS pin, signaling the modem to pause. In the opposite scenario, when the modem has fallen behind the computer, perhaps because of a temporary influx of line noise, the modem drops the CTS line to ask the computer to slow down and stop transmitting data.

One additional pin of interest for handshaking in a RS-232 serial cable is the **DTR** pin. This pin is used by the computer to signal the computer's overall readiness to the modem. Modems are generally configured to hang up when the computer drops the DTR pin, thus assuring the computer that a telephone line doesn't stay connected for an unexpectedly long period of time, and quickly preparing the modem for another call (after DTR is raised again).

In most computers the story stops here: the modem simply watches for the DTR and RTS pins to keep an eye on the computer, and the computer watches the CTS pin to keep an eye on the modem. A drop in RTS signals the modem to slow down, a drop in DTR signals the modem to hang up, and a drop in CTS signals the computer to slow down.

Unfortunately, the Macintosh makes use of these pins in a somewhat different way than in other systems. The **DIN-8** RS-232 connector used in the Mac's serial ports has only one signal control pin, allowing it to provide the

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modem with either a DTR or a RTS signal — but not both. To accommodate this, Macintosh hardware handshaking cables tie together the DTR and the RTS lines coming from the Mac, meaning that DTR and RTS lines will always be the same from the perspective of the modem. Therefore, when connecting a Mac to an RS-232 modem, you need to configure the modem to monitor either the RTS pin (to provide full hardware handshaking) or to monitor the DTR pin (to watch for the computer's desire to hang-up the modem).

Because both DTR and RTS will always be the same from the modem's perspective, it is very important to configure the modem to ignore one or the other. Generally, terminal software used to connecting to on-line services will make use of the Hardware Handshaking feature (RTS), and therefore your modem should be configured to ignore DTR (usually done via the **AT &D0** command). In this case, if you do not configure the modem to ignore DTR, when the computer needs the modem to slow down, it will drop its signal control pin, resulting in the modem seeing a drop RTS **and** DTR. The drop in the RTS pin will tell the modem to slow down as expected, but because DTR is also dropping, the modem will drop the line instantly!

Nearly all modem software today is configured to make use the RTS pin of the modem cable. However, in some cases, software is specifically designed to make use of the DTR line instead of the RTS line. Most notably, **Apple Remote Access 2.0 (ARA)** specifically configures the Mac not to provide RTS signals, and leaves the modem set to hang-up on drop of DTR. Since ARA provides its own compression and correction, Apple's engineers feel that the computer would rarely, if ever, need the modem to slow down, and thus the

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ability to quickly hang up and reset the modem is more valuable. Fortunately, your **ARA CCL** string will take care these settings for right for Apple Remote Access, so beyond technical curiosity, you needn't be excessively concerned about what ARA is doing with DTR.

If you are installing a new high-speed modem, be sure that you use a hardware handshaking cable. Otherwise, it won't work properly and you can spend days trying to figure out what's wrong.

*See Also*

Networking

## Flush Left

*See*

Printing Terms

## Flush Right

*See*

Printing Terms

## Flying Games

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*See*

A-10 Attack!, Sim Games

## Flying Nightmares

*See*

Sim Games

## FM Screening

*See*

Stochastic Screens

## Focal Length

This measurement indicates how much of a scene the lens captures. Expressed in millimeters (mm), it is the distance from the optical center of the lens to the film plane when the focus of the lens is set to infinity. The smaller the number, the wider the field of view of the lens. The wider an area is visible, the smaller objects will appear in the picture.

For a 35mm camera, a 50mm lens is considered a standard or normal lens, while a 28mm is a wide angle and a 150mm is a telephoto. However, this changes depending upon the size of the film (or CCD in the case of digital

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cameras) being used. For example, medium format (2 1/2") cameras use 80mm as the equivalent standard lens, while a CCD camera with a detector less than an inch in size may have a standard lens of less than 40mm.

## *See Also*

Digital Still Cameras; Range Finder; SLR

## FocolTone

Providing designers 763 ink spot colors, the FocolTone spot color system also allows all its colors to be converted to CMYK with reasonably accurate results (unlike the more popular Pantone color system).

## *See Also*

CMYK; Pantone; Spot Color; Toyo; TruMatch

## FotoTune

Agfa, a maker of high-resolution imagesetters and scanners, has its own solution to **color management**, called FotoTune. This package can produce **device profiles** for monitors and RGB scanners; it supports the use of the Colortron II spectrophotometer (a **color measuring** device) to create monitor profiles. A large selection of printer profiles is provided for desktop printers, printing presses, and film recorders.

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## *See Also*

Color Management; Device Profiles; Measuring Color

## Folder

### *See*

New Folder Command

## Folder Icon

The Folder icon, which by default looks like a file folder, is used to let you know that files and other folders can be placed within this folder, as shown in the following figure. **Folders** are used as an organizational tool for keeping files in the computer separate from each other, much the same way real file folders keep files separate in a traditional file cabinet.

The System Folder has a number of folders with special icons on them to help you distinguish these folders from other folders. The Apple Menu Items folder, for example, has a small Apple logo to help you distinguish it from the dozens of other folders in your System Folder. The fonts folder has a capital "A" on the folder to alert you, and the Control Panels folder has an icon of a slider and some buttons to help you visually locate it as well. The Extensions folder, Startup Items folder, Launcher Item folder, Preferences folder, and Print Monitor Documents folder all have this added visual cue to help you

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locate them in the System Folder.

*See Also*

New Folder Command

## Fondler

*See*

Font Utilities

## Fonts

More than any other type of software, fonts offer users an incredible variety and quantity to choose from. The Precision Type Font Reference Guide, an extraordinarily complete type specimen book, lists more than 13,000 digital typefaces, and that's not complete by any means all. For one thing, **shareware** fonts aren't included in the guide.

Mac users will find there's a font for their every mood, and they're as easy to use as choosing a name from a menu. There are some format, compatibility, and management issues to consider, but for the most part using fonts is strictly fun.

Type has come a long way since Gutenberg. Originally, printers cut their own type from metal, and in the 16th century type designers, such as Claude



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Garamond, began to manufacture and sell their typefaces all across Europe. Over the next few centuries, type foundries formed an industry all to themselves. The word “font” (or “fount”) is derived from the word “foundry,” where, originally, type was cast. Today companies that create fonts are still called foundries, but those fonts are more likely to be digital than metal.

**Type foundries** range from huge companies like Adobe—which along with selling thousands of fonts is also the creator of the **PostScript** page description language that’s the basis of desktop publishing—to tiny one-person shops that distribute their fonts as **shareware** .

Over the centuries, type has mutated into many categories: oldstyle, transitional, modern, slab serif, sans serif, script, cursive, brush, graphic, display, decorative, blackletter, uncial, pi, symbol, logo, ornament—there are more, but these cover most typefaces available today. Some of these names come from the history of type (oldstyle, for example), while others describe the design of typefaces (brush) or their use (symbol). For most users, though, the categories to be concerned with are serif (like Times), sans serif (like Helvetica), and ornament fonts (like Zapf Dingbats).

The Mac’s system software comes with certain fonts. Some vary from version to version (System 7.5 comes with some **GX fonts** that other systems don’t have, for example). But every Mac comes with the following:

- Geneva—This is used primarily for display of file names and information within windows in the Finder. It was originally based on

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Helvetica (the name Helvetica comes from the Swiss name for their country, of which Geneva is the capital).

- Chicago—This is used for menu and window titles.
- Monaco—This is a sans serif font that's **monospaced** —each character takes up the same width as every other, like typewriter letters. It's also used by the Mac system software.
- Times—Originally created for the London *Times* newspaper in the 1930s, Times is widely used in all sorts of publications. It's the closest thing to a generic serif font that there is; it falls into the transitional category of typefaces, because it's similar to the transitional typefaces of the 17th century.
- Helvetica—The closest thing to a generic sans serif typeface, Helvetica is probably even more widely used than Times.
- Courier—This is a monospaced font designed to look like typewriter letters.
- Symbol—This font contains symbols used for typesetting mathematical equations, including mathematical operators and most of the Greek alphabet.
- New York—Based on Times, New York is preferred by many for screen display, because it's larger and more open, therefore easier to read onscreen.

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- Palatino—An elegant but much over-used font, Palatino was designed by Herman Zapf, a famous 20th-century type designer whose name is widely known even outside the world of typography because of the next font in this list.
- Zapf Dingbats—These are ornamental characters useful for replacing bullets in bulleted lists and for other decorative applications.

Mac fonts come in more than one format: **PostScript** , **TrueType** , and **GX** (which can actually be PostScript or TrueType). Often, a typeface is available in more than one format, so users can choose which best meets their needs. Font formats are important under the following circumstances:

- In desktop publishing, most high-resolution output devices don't work well with TrueType fonts, even though the output quality of TrueType is essentially the same as that of PostScript. For this reason, most desktop publishing is done with Type 1 PostScript fonts.
- If you have a typeface in more than one format, you should only have one format installed at any given time. Graphics applications and output devices can be confused when they encounter two conflicting font formats.
- If you don't have a PostScript printer and your files aren't destined to be printed on one at a service bureau, you can't use PostScript fonts. TrueType fonts are a good alternative in this case.

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Buying Fonts is easier today than ever. They are available at retail stores, by mail order from Mac catalog companies, from the individual foundries themselves, and from distribution companies like Precision Type. A welcome innovation in the past few years is the introduction of font libraries on compact disc, like Adobe's Type On Call, which contain entire catalogs of fonts from particular foundries. Users call or fax the CD's publisher to order fonts, and in return they receive (within a few minutes, usually) a code that allows them to copy the fonts from the CD. Before buying, users can view samples of all the fonts on a disc, as well as historical and design information.

Shareware fonts are an alternative to commercial fonts. Generally much less expensive than commercial fonts, they have the potential to be of just as high quality, and the variety available is incredible. Let the buyer beware, though: Many shareware fonts don't contain all the special characters, ligatures, and  **Kerning** pairs that can make commercial fonts worth the money.

## *See Also*

Buying Fonts; Font Formats; Foundries; GX Fonts; PostScript; Shareware; TrueType; Type Foundries and Distributors; Typesetting Terms

## Font Conflicts, Numbering

Each font has a font ID number assigned to it by its developer. If you have two fonts installed on your Macintosh that have been given the same font

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number by their developers, you have a font ID conflict. The conflict occurs when the Macintosh doesn't know which font you want to **print**. If, for example, you want to use a font called Tribeca, which has a font ID number of 9070, and you also have a font installed on your system called Fisheye, which also has a font ID number of 9070, the Mac doesn't know which font to print. To resolve this conflict, the Macintosh prints the first one it comes to, regardless if it's the font you wanted or not. If you selected Tribeca, Tribeca is displayed on your screen, but the font FishEye prints instead, that's a font ID conflict

**Font utilities** such as **Suitcase** (from Symantec) and **Master Juggler** (from Alsoft) warn you if you're about to open a font that has the same ID number as a font you already have open. The new version of Suitcase (version 3.0) automatically renumbers fonts for you when necessary, but it only renumbers them temporarily (in RAM) and does not change the permanent number of the font.

Both utilities offer to automatically renumber the new font for you so it has a distinct number from any other font you have open. You can also choose to leave the numbering as is and instead close the font with the same ID number on your drive. If you're going to output your files at high resolution through a service bureau or digital imaging center, it is generally recommended that you do not renumber your fonts. That is because renumbering only works on your machine. When you take your files to a service bureau, your renumbered fonts won't match up with their fonts, and you'll again have a font ID conflict. In other words, your fonts will not

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correctly match up.

## *See Also*

Fonts; Font Utilities; Master Juggler; Printing; Suitcase

## Font/DA Mover

This is an Apple utility that was necessary in **System 6** for installing **fonts** or **desk accessories** (DAs) into your system. Back then, all fonts and DAs came in little suitcases, and by using the Font/DA Mover (whose icon looked a little truck) you would move these fonts and desk accessories in and out of your system. Installed DAs appeared under what is now called the **Apple menu**.

To install a font with the Font/DA Mover, you would double-click the Font suitcase and it would launch the Font/DA Mover and open the suitcase, revealing its contents in a window on the left side of the dialog box. You would then select the fonts or desk accessories you want to install and click the Copy button, and it would copy the selected items into the System.

**System 7** and higher have made the Font/DA Mover obsolete, as you can now install fonts by just dragging them into the Fonts folder (within the System Folder) or by dragging fonts onto the System Folder icon, which places it into the Fonts folder for you. You can add DAs to the Apple menu by dragging the DA, or an **alias** of the DA, into the **Apple Menu Items folder** , also within the System Folder.

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## *See Also*

Alias; Apple Menu Items folder; Desk Accessory; Font; Font Utility; System 6; System 7

## Font Distributors

### *See*

Type Foundries and Distributors

## Font Formats

The original Mac fonts were **bitmapped fonts** , named after cities (remember Venice and London?). There were no **outline fonts** , only bitmapped fonts, and the original Mac printers were dot-matrix, so when these were **printed** they showed the dots the letters were built from. Bitmapped fonts only look reasonably decent when they're used in the specific sizes users have screen fonts for.

Adobe's **PostScript** page description language, used in laser printers, allowed fonts to be described by their outlines, rather than in terms of a set of dots. Each font still had a bitmapped component, called a screen font and used only for screen display, but the outline font, also called a printer font, was what got sent to the printer. The printer was in charge of rendering that outline, or turning into printed dots, at the highest possible resolution.

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**PostScript Type 1 fonts** , as these were called, are still the standard for desktop publishing, but they've been joined by fonts in other formats.

TrueType is an outline font format created by Apple; it doesn't use PostScript to describe outlines, but the printed results are the same—high quality, smooth type printed at the printer's highest resolution. There's only one piece to a TrueType font—the suitcase file, which contains both the screen fonts and the outline fonts sent to the printer. This makes installation somewhat simpler. TrueType fonts can only be used with System 6.0.5 or later.

TrueType fonts are also available for PCs, and they've been adopted as a de facto standard in much of the business world. Home users also use TrueType fonts, particularly because they don't require a PostScript printer, as PostScript fonts do. Desktop publishers have generally rejected the TrueType format because it's not entirely compatible with PostScript output devices and because it takes longer to print.

Refinements of these two formats offer users greater type quality and the ability to create their own custom versions of fonts.

**Multiple Master fonts** from Adobe have built-in “design axes,” created by the fonts' designers, that allow users to make custom versions of fonts that vary in weight, width, or other characteristics. **QuickDraw GX** , the print technology Apple unveiled with System 7.5, includes a **GX font** format (GX fonts can be either PostScript or TrueType) that can include much more information than standard fonts. This will allow for more complex use of type, including making alternative characters more accessible and



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improving the level of  **Kerning**  and  **hinting**  .

*See Also*

Bitmapmed Fonts; Fonts; GX Fonts; Hinting; Kerning; Multiple Master Fonts; Outline Fonts; PostScript; Printing; QuickDraw GX; TrueType; Type 1 Fonts

## Font ID Numbers

*See*

Font Utilities

## Font, Installing

*See*

Installing Fonts

## Fonts, Unique Types

There are thousands of  **TrueType**  and  **PostScript**  fonts available. Typefaces of every description can be had for a few dollars, and sometimes for pennies. Not only do  **fonts**  appear on disks and CDs, but there are fonts available on the Web as well, sometimes for a charge and sometimes for free. Most computer font enthusiasts receive at least six mailings a year that advertise new font library collections, and newly designed typefaces. The temptation to

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own more than we need is always there, because fonts give emotional character to the displayed message, no matter the medium.

It's always a little dangerous telling someone else what fonts should be considered for inclusion in their library, rather like proselytizing a religious point of view. With that in mind, there are some general categories you might consider, based upon the expectations of clients and the trends of the design profession. First, it is vital to include both Helvetica (the most common sans serif face) and Times (a common serif face). Times and Helvetica come in slightly different flavors based on the type house they come from, so the specific choices are up to you. Added to this is the necessity of having some knowledge of other common faces, like Futura, Franklin, Dom Casual, Palatino and others. Taken together, this is a good basic group of representative fonts.

Next, it is suggested that you include faces that are most common (and in fact demanded) by the software you plan to use. A specific interface is usually designed to look its best with targeted fonts. Unless that software comes with the fonts it needs (which is becoming less and less common), you should not delete large numbers of fonts from your library. To do so risks having to load the fonts again. You may be asked to reinstall them if you do. Third, include some fonts that are outside of the common sans serif/ serif category, like a script and brush font. Keep an eye on the design industry and on the trade magazines to see what fonts and font families are currently being touted. Become aware of your own tastes, your favorite fonts, and seek them out. Fonts are as much the personality of the designer as they are utilitarian ways

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to craft a message.

Keep an eye out for novel typefaces. They can often help you distinguish your message from that of the competition. As an example, here are a few font families and collections worthy of investigation.

**The Deniart Collections**— Deniart (at 416-941-0919 in Toronto, Ontario, Canada) offers seven font collects in the Mac and PC formats: Castles and Shields, Egyptian Hieroglyphics (three volumes), Signals and Signs, Ancient Writing, and Meso Americans. These are not really for use as headlines or body copy, but as graphic embellishments, just as is the more common Zapf Dingbats. You can, of course, use these fonts as interpretable text if your audience is able to read the messages. Egyptian hieroglyphs, for instance, would be very useful if your task was to write a scholarly work on Egypt, and other Deniart fonts (Aztec Sun Signs, Morse Code, American Signing Alphabet for the hearing impaired, Old Persian Cuneiform, to name a few) might also serve to communicate various texts. Deniart fonts come in both **TrueType** and **PostScript Type 1** on floppy disks.

**Expresiv Fonts: Brush Script Collection**— World Art (One Datan Center, Suite 1500, 9100 S. Dadeland Blvd., Miami, FL 33156) markets these TrueType and PostScript fonts. The CD contains hundreds of brush script typefaces, and each is unique. If you are looking for a softer approach to type, this is a CD font collection that you should own.

**Kidbag**—If you'd like to expand your font library with the most novel collection of fonts available, look no further than this offering from DS

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Design (919-319-1770). Leave the adult world behind, and write your message with children's crayons and other explorative media. KidArt, a collection of kids artwork in both black and white and color in the PICT format, is included as a bonus. KidType includes four font families that mimic the following media: crayon, marker, paint and ruled print.

*See Also*

Fonts; Typography

## Fontmonger

*See*

Font Utilities

## Fontstudio

*See*

Font Utilities

## Fontographer

When the fonts you have just aren't quite what you need, Fontographer can help you create your own custom fonts.

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Starting either from scratch or from an existing font, Fontographer allows you to modify font outlines, using **Bézier curve** controls similar to those found in **PostScript drawing programs** like **Illustrator** and **FreeHand**. Other drawing features include “Snap to point” and “Snap to guides,” which simplify creating clean outlines. Once the outlines are complete, users can draw their own bitmapped screen fonts for any size desired, or Fontographer can create them automatically.

The program can also merge two existing fonts to come up with one that’s somewhere in the middle (watch out—results are unpredictable), and it can import **EPS** files created in drawing programs as characters.

A common use for this sort of application is to add special characters (such as fractions or diacritical marks) to existing fonts, or to create logo fonts that contain all the different logos a company uses in different situations. Another handy feature is the ability to print keyboard maps.

Fontographer works with **PostScript Type 1**, **Type 3**, **TrueType** and **Multiple Master** fonts, and it can export **EPS** and **PICT** files for use in draw programs.

## *See Also*

Bézier Curves; Bitmapped Fonts; Draw Programs; EPS; FreeHand; Illustrator; Multiple Master Fonts; Outline Fonts; PICT; PostScript; TrueType; Type 1 Fonts

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## Font Substitution

If you open a document and a **font** that is included in the document is not present in your system, a number of applications have a font substitution feature that will enable you to substitute a font of your choice to "stand in" for the font that is missing. Some applications also have automatic font substitution, which picks the closest matching font from your installed fonts to match the missing fonts.

Font substitution is also very valuable when you are working with files created on a PC. For example, if you are given a document that was created with the Windows version of **PageMaker**, you can open that file with PageMaker for Macintosh. Unfortunately, you can't be sure that you'll have the same fonts installed on your Mac that used in their document, which was created on a PC. That's where font substitution comes in handy, because PageMaker will look in its built-in **database** and find the installed Mac font that most closely resembles the PC font, and offer to substitute it instead. If it can't find a reasonable substitution, it enables you to pick a font from a pop-up menu to substitute temporarily or permanently any time it encounters that font, by adding that font match to the application's built-in database.

### *See Also*

Database; Font; PageMaker

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## Font Utility

There are a number of **utilities** that are designed to help you work with and better manage your **fonts**. Apple's own font utilities include the **Key Caps DA**, which helps you find special characters within any given font, and the **Font/DA Mover**, which was a necessary utility back in **System 6** that you had to use any time you wanted to install a font to your system. With **System 7** and higher, you can install fonts by just dragging them into the System folder, so this utility is no longer necessary.

There are also a number of third-party font utilities that add features to your Mac's font management capabilities, like the capability to open sets of fonts and to store and use fonts outside the Fonts folder. There is also a popular shareware font utility called **PopChar** that acts as a replacement for Apple's Key Caps DA by adding a pull-down menu to your menu bar, displaying all the special characters of the currently selected font. To choose a character to insert, you select the special character in PopChar's display window, release the mouse button, and that character will appear at the insertion point in your document. Very handy.

Font management tools enable you to create sets of fonts, and add fonts from locations other than the font folder within the System Folder. The two most popular font management tools are Suitcase (now on version 3.0) from Symantec (10201 Torre Ave, Cupertino, CA, 95104-2132, Phone (800) 441-7234 ) and Master Juggler from Alsoft, Inc. (P.O. Box 927, Spring, TX 77383. (713) 353-4090)

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One of the most popular Font Utilities is Adobe Type Manager, from Adobe System (1625 Charleston Rd. Mountain View, CA 94043. <http://www.adobe.com>) which eliminates jagged type on screen and on the printed page at any size; and makes Type 1 fonts available to any printer.

The Type Book (from Rascal Software) enables you to view samples of your entire font collection either on screen or by printout. It displays the font in a variety of sizes, and uses each font in a paragraph of sample text to enable you to see the font in use.

## *See Also*

Font; Font/DA mover; Key Caps DA

# Football

## *See*

Sports Games

# Footer

A footer is a line of information placed at the foot of consecutive pages of a document. It may contain the title, author, date, page number, and/or other information. If you wish, you can use a different first footer for the first page of a mullet-page document. You may also choose to create a first footer and leave it empty, so that page numbering will begin on page two. Headers



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and footers are handled differently on various word processors. Microsoft Word 6 sets both from a single dialog box. Nisus has separate menu items for headers and footers, but both create them in a separate window from the main document. MacWritePro places the header or footer directly on the page so that you can see its position relative to the rest of the text.

## Force Finder to Quit

When the Finder is the active application, **⌘-Option-Escape** is used to force the **Finder** to quit. This is used to enable you to **rebuild your desktop** without having to restart your computer. When you use the force quit keyboard combination, a dialog box appears asking, "Force Finder to Quit? Unsaved changes will be lost."

To initiate a force quit, click **Force Quit** or click **Cancel** if you don't want to force quit. If you select **Force Quit**, click and hold the **Option** and **Command** keys, and as the Finder starts to display the desktop again (this only takes a couple of seconds) you get a dialog box asking, "Are you sure you want to rebuild the desktop on the disk "(your start up disk's name appears here)"? **Comments** in info windows will be lost." If you want to rebuild the desktop, click **OK**, and the desktop is rebuilt on your startup disk.

*Note:* Any comments that you have placed in the **Get Info** box of any files are erased. In System 7.5.3, Apple has updated the system to preserve any **Get Info** box comments when you rebuild the desktop.

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To rebuild the desktop using Force Finder to Quit, follow these steps:

1. At the Finder, press Option-⌘-Esc.
2. A dialog box asks, "Force Finder to Quit? Unsaved changes will be lost." Click OK.
3. Hold down the Option and Command keys until you get the dialog box that reads, "Are you sure you want to rebuild the desktop on the disk "(your startup disk's name appears here)"? Click OK and the desktop is rebuilt without having to restart your drive.

## *See Also*

Cancel; Command Key; Comments Box; Finder; Get Info; Option Key; Quit; Rebuilding the Desktop

## Force Quit Command

This keystroke combination (⌘-Option-Esc) is used to force the current application to **quit**. This can be used if you have experienced a **software crash** while running an application and the application no longer responds to your commands. Rather than restart the machine, often times you can force quit the application and return to the **Finder**. It is recommended that you then restart the machine, because the situation that caused your application to freeze may still exist, but by force quitting, you can **restart** from the **Special menu** properly. Force quitting also gives you an

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opportunity to save any documents that may be open in other applications before you restart.

To force quit an application, follow these steps:

1. If the program freezes or refuses to respond to your commands, press the ⌘-Option-Escape key sequence. You get a dialog asking, "Force (the name of the application appears here) to Quit? Unsaved changes will be lost." (They were lost anyway at the point the application got hung up.)
2. Click OK and you return to the Finder where you can Restart from the Special menu.

## *See Also*

Finder; Quit; Restart; Software Crash; Special Menu

## Forcing Items to the Top of a List

The Mac sorts items alphabetically by name as a default. If, for example, you put items into your **Apple Menu Items** folder, they appear in alphabetical order. When you're in an Open or Save dialog box, the items in the list window appear in alphabetical order. However, there are instances where you want a particular file, or group of files, to appear at the top of a list. Many people, for example, like to keep all their aliases of applications at the top of the Apple menu, with the less-used items at the bottom, so they force

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these application aliases to the top of the Apple menu by adding a character to the beginning of the name of each application.

If you add a space (by pressing the space bar once) in front of the name of an alias, for example, and put it in the Apple Menu Items folder, it appears at the top of the list.

Apple's code for sorting items is as follows: Numbers come before letters, so any filename starting with a number would appear before filenames with letters. The top most item's name would start with a space, followed by items with names that start with: !, ", #, \$, %, &, ', (, ), \*, ÷, ., and /. By using these characters at the beginning of filenames, you can group files together, or at the top of the list, by knowing how Apple sorts items alphabetically.

## *See Also*

Apple Menu; Naming a File

## Foreign Games

### *See*

Eastern Mind, Foul Play, Yellow Brick Road II

## Foreign File Access

Foreign File Access is a System Extension used to handle non-HFS disks. **HFS**

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is the file system the Macintosh operating system uses. Foreign File Access comes with several plug-ins that enable it to recognize foreign disks. The standard plug-ins are **High Sierra** , **ISO-9660** , and **Audio CD Access** . There is also one for the **QuickTake** camera called QuickTake Access.

Foreign File Access and the ISO-9660 extension are used along with the extension **Apple Photo Access** to provide support for Kodak's **Photo CD** -format discs.

## *See Also*

Audio CD Access; Apple Photo Access; HFS; PC Exchange; Photo CD; QuickTake Access

## Foreign File Access Extension

This is another standard extension installed for use with Apple CD-ROM players. It enables the use of certain CD-ROMs in formats that were not designed specifically for the Macintosh. It also is an important extension for accessing audio CDs, which can also be played from Macintosh CD-ROM players.

## *See Also*

Apple CD Audio Player; CD-ROM; Extensions

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## Foreign-Language Page Layout

Desktop publishing in languages other than English brings up some special issues: spellchecking, assuring proper hyphenation, and using alternative alphabets.

When the second language in question uses the Latin alphabet used by English, users must deal with spellchecking, assuring proper hyphenation, and using diacritical marks such as accents. These are all fairly simple issues, since most page layout packages today include foreign-language spelling and hyphenation dictionaries. As for special characters, most are accessible in common fonts; a utility such as Apple's Key Caps or Symantec's KeyFinder will come in handy when trying to locate these symbols, but they're in there.

Budget and shareware fonts, however, may *not* include special characters, so beware.

The really interesting problems come up when dealing with other alphabets: Cyrillic, Arabic, Hebrew, Japanese, Chinese. Apple's Language Kits are intended to facilitate this process.

There are two basic elements to the Language Kits:

- Foreign-language system software
- The ability to use foreign alphabets

The Apple WorldScript extension allows your Mac to use non-Latin

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languages, both two-byte languages such as Japanese, Chinese, and Korean, and one-byte right-to-left languages such as Arabic and Hebrew. Language Kits also include special fonts and keyboard layouts (along with keyboard overlays) for different alphabets.

Language Kits are available in the following versions: Japanese, Chinese (traditional and simplified), Arabic, Hebrew, and Cyrillic.

Not all applications are WorldScript-savvy, and some have only a degree of compatibility with WorldScript, so shop carefully. For example, Photoshop can handle traditional Chinese characters, but not simplified ones.

Desktop publishers can use non-Latin fonts with any program, although without Apple's special software the right-to-left languages need to be set left-to-right and fonts with larger character sets (primarily Asian fonts) aren't supported. There's a wide variety of foreign typefaces, ranging from those based on Latin typfaces (Minion Cyrillic, Times New Roman Greek) to those created especially for use with other languages (Rashi, a Hebrew font, and NewSeoul, a Korean one).

***See Also***  
Fonts

## Fork

*See*

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Resource

## Formatting Disks

*See*

Disks, Initializing

## Formatting Text

Formatting is the term for defining the appearance of text on a page. It includes setting margins, defining the number and width of columns on the page, setting indents and tab spacing, and defining the font, size, line spacing and alignment of characters. Formatting can be accomplished in any of several ways. You can format text from the word processor's ruler or tool bar, or from dialog boxes accessible under the Format menu, or by using keyboard command shortcuts on selected text blocks.

Different word processors set margins and perform other text formatting functions in slightly different ways. Microsoft Word 6, shown in the following figure, sets margins in the Document Layout dialog box. To change the margins, put new values in the windows. Columns can be defined in the Columns dialog box, shown in figure f-2-cr, or by clicking on the toolbar's columns icon and selecting 1-4 columns. The latter method doesn't give you a choice of column width.



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Tabs and indents can be defined either by entering numbers in a dialog box, or simply by selecting the type of tab and clicking on the document ruler at the place where you want to insert a tab. By default, tab stops are set every half inch. When you define a tab, the default tabs to the left of it are automatically cleared. To set an indent, drag the indent indicator to the place where you want it. To change the indents or tabs in previously formatted text, select the block of text to be changed, and then make the change on the ruler. Text not selected will not be changed.

The Format menu (found in most word processors and DTP programs) gives you lots of options for text formatting. The Font dialog box lets you select a font, size, color, style (plain, bold, italic, invisible, etc.) and may give you additional choices regarding kerning, spacing and position on the line. SimpleText and other basic text programs may require that you choose fonts and their attributes from a menu, rather than a dialog box or toolbar. In general, simpler programs will give you fewer options.

## Forms in HTML, Creating

Forms are a feature of HyperText Markup Language (HTML) documents that permit two-way communication between **Web page** authors and individual readers. Forms enable Web users to make purchases on the **Internet**, fill out surveys, subscribe to publications, or submit other data to remote **Web servers**.

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Forms consist of two parts, one visible on-screen, the other invisible:

1. The visible parts are the text entry fields, buttons, and checkboxes that an author creates with HTML commands.
2. The invisible part is the Common Gateway Interface (CGI) or **AppleScript** that processes the form data that a reader submits to a server and presents that data in a useable form to the Webmaster.

The following table lists some of the basic HTML commands used to create form input fields.

## Common Form Tags in HTML

| <i>HTML Element</i>                     | <i>Attributes</i>  | <i>Description</i>  |
|---|--|---|
| <code>&lt;FORM&gt; &lt;/FORM&gt;</code> | <code>ACTION=" "</code><br><code>METHOD=" "</code>                       | Identifies URL of script to process form data<br>Possible values are GET and POST. Specifies how form input will be sent to server.                                     |
| <code>&lt;INPUT&gt;</code>              | <code>TYPE=" "</code><br><code>NAME=" "</code><br><code>VALUE=" "</code> | Values can be CHECKBOX, TEXT, SUBMIT, RESET, IMAGE, HIDDEN.<br>Names the input item.<br>Specifies default text or hidden value, button label, or values of check box or |

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radio button.

SIZE=" " Gives size of text field.

<TEXTAREA> </TEXTAREA>

NAME=" " Name to be submitted to gateway script.

ROWS=" "Number of rows.

COLS=" " Number of columns.

<SELECT> </SELECT>

NAME=" " Name to be submitted to gateway script.

SIZE=" " Number of items to be displayed. If a value is given, the selection is a scrolling list. If no value is specified, the selection is a pop-up menu.

<OPTION>

SELECTED=" " The SELECTED item in the pop-up or scrolling list will be selected by default.

VALUE=" " The value to submit if this list item is selected when the form is submitted.

A guest form is created with the following HTML:

<html>

<head>

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```
<title>Guest Book</title>
```

```
</head>
```

```
<body>
```

```
<h4>Please sign my guest book.</h4>
```

Next, add the tag `<FORM>. . </FORM>` to tell your browser that what should be displayed as a form comes between the start and end tags.

```
<FORM METHOD="POST" ACTION=". . /cgi-bin/GuestBook">
```

The start tag of the `<FORM>` command includes two elements: the `METHOD` and the `ACTION`. The `METHOD` attribute can either be `GET` or `POST`. (The end tag `</FORM>` comes at the bottom of the form.) `"cgi-bin"` is a folder or directory that holds the computer scripts (Common Gateway Interface (CGI) scripts that are used to process information received from Web pages.

The `ACTION` attribute designates what action is to be taken when someone submits the form—in this case, put the data in a directory called “GuestBook.”

Next, enter the `INPUT` tag. This specifies fields where data will be input:

```
<p>My name is:<INPUT NAME="guest"></p>
```

`INPUT` usually has two attributes: `NAME` and `TYPE`. `NAME` is the name of this element. By default, a box will be created where the reader can enter data.

The last form element, also an `INPUT` element, is a standard button that

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submits information to your server:

```
<p><INPUT TYPE="submit"></p>
```

```
</FORM>
```

```
</body></html>
```

**Forms, CGIs to Process** Once the data is submitted it would be processed on the receiving server by a CGI script written in PERL, AppleScript, or another language. Some ready-made CGIs such as Forms.acgi and Email.cgi work with the WebStar server and can be found on the Web at: <http://www.starnine.com/development/extendingwebstar.html>.

The **Frontier** scripting environment for the Macintosh also provide AppleScript CGIs, some of which parse data automatically: <http://www.webedge.com/frontier/formprocessing.html>.

## ***See Also***

AppleScript, CGI, HTML, Internet, URL, Web Page, Web Server

## **Forms and Reports, Custom**

Most financial programs enable you to customize the look and content of such common business forms as printed checks, invoices, statements, purchase orders and mailing labels. You can add your company logo or other art work, move **fields** or change their size, change the overall size of the

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form or change the number of forms printed on a sheet of paper or label stock. You might decide that you need additional text fields, or fewer fields than the default format gives you. Your company may use a particular **font** or style of type. You could re-design the form to fit window envelopes you already have, or to make it more like the non-computerized ones your customers and employees were used to working with.

Some programs make the job easier than others.

If you're working with **MYOB** (Mind Your Own Business), you can customize your forms by telling the program to print a particular form, such as an invoice, then clicking the Customize button at the bottom of the Forms Selection dialog box. (For reasons known only to MYOB's programmers, you must ask to print the form before you can modify it.) Customize... opens a copy of the existing format, with some (very limited) drawing tools. You can add text boxes here, choose your type, draw vertical or horizontal lines, and place graphics from the Clipboard.

**Peachtree Accounting for Macintosh** uses a Forms Designer module that can be reached from the Maintain... menu. You may create a new form from scratch, or modify an existing one. The Peachtree manual warns users to be careful when modifying forms, lest they break the links that allow the program to place data in the fields. They advise using an existing Form Design as a template for a new form, to maintain linked operations.

In the Peachtree system, items you put on the form, such as placeholders for text, are called *objects*. There are text, data, shape, command, and paste

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objects. Data objects are linked to data fields in the program by command objects. Text objects print a non-changing piece of text on the form, for example “Invoice number \_\_\_\_\_.” A data object would be placed next to it, along with a command object telling the program to, “read invoice number.” A shape object might be a gray filled box behind the text and data objects that make up the invoice number block. Use a paste object to import a graphic, such as the company logo, from the Clipboard.

Reports also can be customized. The figure shows how to do it in MYOB. Use the Reports menu to get an index of reports, and after selecting one, click the Customize button to get the dialog box shown in the figure. Set the text in any font and size you like and change the margins if necessary. Peachtree doesn't give you any graphic control over your reports, but you can choose whether to display items by name or by number.

## ***See Also***

Financial Software; MYOB (Mind Your Own Business); Peachtree Accounting

## **Formula**

A formula is a set of instructions in a **spreadsheet cell** that tell it where to find data and how to process it. The result is displayed in the cell, but the formula itself is readable in the **formula bar** whenever the cell is **selected**.

Formulas may contain text or numeric data, cell **references**, mathematic

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**operators** , and **functions** . In most programs, they must begin with an equals sign.

For example, if the formula for cell C1 is “=A1\*3+B1,” it will multiply the number in cell A1 by three, add the result to the number in cell B1, and then display the sum in cell C1. Because either of the referenced cells can also contain a formula, elaborate chains with one operation feeding another can be built easily.

**Order of operations** Our example does the multiplication first and then the addition. If A1 contained 3 and B1 contained 2, the example would yield 11. If you want to do the addition first, you can write the formula “=A1\*(3+B1)” and get an answer of 15.

Spreadsheets—and most other Mac programs—always perform math operations in a specific order as follows:

- 1 Any operation in parentheses
- 2 Exponentiation
- 3 Identification of negative numbers (so that the - sign is interpreted correctly and not as subtraction)
- 4 Multiplication and division
- 5 Addition and subtraction
- 6 Equality tests (such as <, >)



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If more than one operation is contained in a parenthetical set, the same rules apply within it. Parentheses can also be *nested* with multiple sets of operations to be carried out in a specific order, and the innermost set will be evaluated first. For example, “=A1^((3+B6)\*B4)” will first add 3 to the contents of B6, then multiply that by the contents of B4, and finally raise A1 to that power.

If you're a non-mathematician and can't think why anyone would ever care about the above, you might find nesting handy to make sure that spreadsheet **string** operations come out the way you'd expect. You can't have too many parentheses in a formula. If you're not sure that one is required to process data in the order you want, put it in anyway: “=(A1\*3)+B1” means the same thing as “=A1\*3+B1.”

## **See Also**



Circular Reference; Spreadsheet Notation

## **Formula Bar**

A formula bar is a horizontal field across the top of a **spreadsheet**, identified by a cell reference, where you can enter numbers, text, or formulas for that cell. The bar always displays any formula for a cell, even though the result of that formula appears in the cell itself. You can use this feature to see whether a cell was entered as data or a formula: **select** the cell, and the original entry will appear in the formula bar.

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Some spreadsheets enable you to enter data or a formula by typing directly into a cell, but most require you to select a cell and then type in the formula bar that appears. The bar always has the selected cell reference displayed on the left, and usually has buttons marked X and  on it: click  to put the data in the cell, or X to undo what you've typed and to restore the previous data.

To access a formula bar, click on the cell you want to change. In the figure below, you can enter a formula in cell E52 to compute ten percent of the amount in cell E51.

## *See Also*

Absolute/Relative Addressing; Circular Reference; Function; Spreadsheet Notation

# Fortran

The very first high-level **programming language** .

Fortran, short for FORMula TRANslator, was designed to enable scientists and engineers to solve complex mathematical problems using computers without having to deal with **assembly language** . As the first high-level language, Fortran (or FORTRAN, as it was known then) rapidly became the language of choice for much programming.

Fortran has evolved over the years through three standard versions. The first, known as FORTRAN 66 (or Fortran VI), was much like the original

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version developed in the 1950s. It showed its roots in the days of punchcards by requiring strict column formatting (labels had to be in columns 1-5, statement bodies had to be in columns 7-72, and so on). FORTRAN 66 relied heavily on GOTO statements to control program flow rather than more sophisticated block-structuring.

Fortran 77 built upon the foundations of FORTRAN 66 and added support for block-style conditionals (IF-THEN-ELSE) and improved handling of input and output and text strings. Finally, Fortran 90 further modernized the language with the addition of powerful data structure and modular programming features, and the standardizations of many extensions to Fortran 77. Most modern Fortran **compiler** s support Fortran 77, but more are adding Fortran 90 support every day.

Throughout its history, Fortran has remained true to its roots. It is still best suited to programs that are heavy in computation and calculation. As a result, very little general-purpose Macintosh software is written in Fortran, but a great deal of scientific software is.

To give you a taste of the language, this simple program displays the words "Hello, world." indefinitely:

```
C
```

```
C     Hello, world.
```

```
C
```

# F

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Program Hello

implicit none

logical DONE

DO while (.NOT. DONE)

    write(\*,10)

END DO

10 format('Hello, world.')

END

On the Macintosh, Fortran compilers are available from Motorola, Absoft, and Fortner Research. All three of these compilers are hosted by the **MPW** environment.

Motorola

Fortran SDK (Fortran 77)

Motorola RISC Software

6501 William Cannon Dr. West

MD: OE112

Austin, TX 78735-8598

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Email: [ppcinfo@risc.sps.mot.com](mailto:ppcinfo@risc.sps.mot.com)

Fax: (512) 891-3798

Phone: (800) 347-8384 or (512) 891-2999

Web: <http://www.motorola.com/SPS/PowerPC/>

Absoft

Absoft F77 SDK

Absoft F90 SDK

Absoft Corporation

2781 Bond Street

Rochester Hills, MI 48309

Email: [sales@absoft.com](mailto:sales@absoft.com)

Fax: (810) 853-0108

Phone: (810) 853-0050

Web: <http://www.absoft.com>

Fortner Research (formerly Language Systems)

LS FORTRAN

Fortner Research LLC

100 Carpenter Dr.

Sterling, VA 20164

Email: [sales@fortner.com](mailto:sales@fortner.com)

Fax: (703) 689-9593

Phone: (800) 252-6479

Web: <http://www.langsys.com/langsys/>

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## *See Also*

Assembly Language; Compiler; Programming Languages

## **Foul Play: Mystery at Awkward Manor**

Foul Play from The Armchair Traveler Company, a British game company, is the brain child of designers William Beckett and William Donelson. The premise is much the same as that of the board game Clue. Sir John Stiffney invites six guests to dinner. In between the arrival time of 7:40 (or 7:25 if you pick a higher difficulty level) and 8:00 p.m., someone disposed of Sir Stiffney and it's your job to find out who. Up to six players take on the role of dinner guests (there's even a maid for real Clue die-hards) and take timed turns exploring the mansion.

As you wander about looking for clues, you get the chance to ask various guest you meet about common things like their whereabouts at the time of their murder and what weapons they might be more likely to use if they were going to kill someone. As in Clue, when you think you've got the killer, you can make a guess. Just click the phone to dial the police and make a guess. If you're wrong, you lose a turn. Foul Play mixes live actors against the beautifully filmed background of Holker Hall, a mansion in England's spectacular Lake District. If this game is your bag, you really don't get tired with more than four thousand possible outcomes programmed. Foul Play offers a fun family evening of whodunit with a lot of great multimedia enhancements.

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## *See Also*

Are You Afraid of the Dark?; Family Entertainment; Masterpiece Mansion; Mortimer; Yellow Brick Road II

## Foundries

### *See*

Type Foundries and Distributors

## FPO (For Position Only)

FPO refers to the use of a proxy image in a page layout to indicate the final position and size of a graphic. In paper **mechanicals** (paste-ups), an FPO image might be nothing more than a keyline with "FPO" scrawled across it in nonreproducing colored pencil, or it might be a rough sketch of the intended image or even a xerox copy. The actual image, usually a halftone, is then stripped-in during the prepress process of film assembly.

The use of FPO images is a key part of digital prepress production schemes such as **APR (Automatic Picture Replacement)** and **OPI (Open Prepress Interface)**. In these output systems, high-resolution digitized images automatically replace low-resolution images embedded in an electronic publication file. The benefit of using FPO images when constructing an electronic publication is that the low-resolution images

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require less storage memory and speed up processing.

*See Also*

Automatic Picture Replacement; Open Prepress Interface; Prepress

## FPU

*See*

Coprocessors, Types of

## Fractal Design's Poser

There are a number of art and animation packages that allow you to design realistic “hard” objects (reflective spheres, cars, buildings, spaceships) that can be wrapped with spectacular textures and animated across “other-worldly” backgrounds, seducing us into thinking that the world is made of only hard-edged objects. There are only a few software programs, however, that allow us to develop organic forms, at least at prices that can be afforded by the majority of computer artists and animators. Fractal Design's Poser is one such unique package.

Poser is an absolutely addicting software environment for altering and rendering variations of the human form, and doing it in a manner that is so easy and fun to learn that more experienced computer graphics artists will only need about five minutes with the documentation. Beginners may need



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an hour or two. Poser was designed to minimize non-visual interfacing, so that moving Poser models gives users a sense of engaging in a virtual 3D world. Clicking on any part of the human forms Poser uses as models makes the chosen elements instantly available for modification and movement.

Poser's interface has the inviting design of MetaTools' **Kai's PowerTools** , with 3D buttons and attenuators that have the feel of real world 3D devices. The attenuators do different things depending upon your main selections, of which there are four: **Pose, Body, Camera, and Light** .

- **Pose**—Sets the attenuators to taper, twist, side-side, bend, and scale any selected element of the model that is chosen. The model responds instantly to assume a new pose.
- **Body**—A global option, sets the attenuators to adjust scale, rotation, and translation of the entire model. The model on-screen responds instantly, allowing you to set global rotations and views.
- **Camera**—Enables you to use the attenuators to modify camera positions and focal parameters.
- **Light**—Targets any of the three lights for adjustment of the parameters associated with their color and position, while a visual display shows each light's area of influence and how the model will be colorized accordingly.

**Altering the Figures** You can select a variety of ways that the initial Poser data sets (models) appear on-screen: Silhouette, Outline, Wireframe,

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and Flat Shaded. For those with PowerMacs, flat shading is the best option. It allows you to see an accurate preview of appendages and light interactions as the model is set in positions. Choosing “Depth Cued” causes elements of the Poser model closest to the camera eye to become darker and those farther away to become lighter (a great help when moving body parts in 3D space in a complicated pose). Systems with less memory can choose to work with “Bounding Box Only” figures, which change the on-screen data to a connected system of cubic objects. Poser even allows you to see how the measurement system called “seven heads” alters the models when “Head Lengths” is toggled on. Even before you alter body part shapes and sizes, Poser models can be rendered as a Man, Woman, Adolescent, Child, Toddler, Baby, Ideal Adult, or Heroic type (male or female). Models can also be textured with various default effects, such as lizard skin or leotards.

**Rendering Options** Poser allows Guides to be added to a scene for effect: Ground Plane, Horizon Line, and four “props” (Ball, Box, Cane, and Stairs). You can also select a backdrop picture as part of the rendering process, or choose any background color (great if you plan to do image compositing in Fractal Design painter, Photoshop, or other 2D rendering software). Dots per Inch (DPI), resolution, and image size can also be set. The rendering can be saved as a PICT file or as a Poser data file. The two main selections are “smooth” and “muscle,” and each can be rendered as quick or detailed. Smooth will suffice for most needs, while muscle rendering creates anatomically correct muscle bulges on the figures. Muscle rendering is especially effective if you are going to paint clothing on the rendering in a

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paint package, or if the model is the Heroic type (great for comic book illustrations).

**Export** Poser renderings can be saved as PICT files, DXF 3D models, or RIB (Poser native) format. DXF files are saved with only the polygon data, so all Poser rendering options (like muscle maps) are lost. There are advantages, however, to exporting DXFs. You can import DXF into most 3D rendering/animation software. DXF exports can be rendered in dedicated 3D software (Strata Pro, Infini-D, Alias, RayDream Studio, ElectricImage, and so on) with all of that software's unique texture mapping capabilities, producing human figures that shine like glass or steel. When you are saving to the DXF format as an intermediate step for rendering in a 3D package, pump up the polygon number in the rendering software to get rid of polygonal faceted edges in the model (unless you want that look).

**Libraries** Poser has four library lists that are important to keep in mind. The first is a listing of poses. If a specific pose is chosen from this listing, it will hold for whatever figure type is assigned to it. As you explore your own model poses, perhaps by altering one of the poses in the library, you can save original posed creations. The danger here, because the software is so much fun to use, is that you will be tempted to save hundreds of new poses a week. That's OK if you have the hard drive space.

The second library is dedicated to loading and saving models whose body features have been altered. Poser allows you to choose any element of a model and resize it, leading to interesting human and non-human characters.

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Already in the library are obese and anorexic models, and a good selection of what appear to be alien beings. Here again, the temptation will be to alter models and save every one.

The third and fourth library deal with the camera and Lights. Default Camera positions allow you to snap to a screen view or to turn on telephoto or fish eye lenses. Light library listings have default selections like “summer,” “from Below,” and more. You can save your own Camera settings and Light configurations to these lists.

There are dozens of Poser paintings saved to Fractal’s Web site (<http://www.fractal.com>). You can expect animation capability and more design components in the next revisions.

## Fractal Painter 4.0

Fractal Painter is the most ambitious painting program available, and offers hundreds of unique tools and effects for digital painting. Fractal Painter is used by artists and animators throughout the world as a primary creative collection of digital tools. The documentation is clear and concise, but the program is so multifaceted that the documentation alone can only present the basic possibilities. You must experience it for yourself to appreciate it.

**Painting Tools** Fractal Painter utilizes all of the plug-in FX painting options Adobe’s PhotoShop program accesses and adds the following: **Fill** (allows you to fill a targeted graphic with color, with another graphic,

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gradation colors, or a patterned layer), **Tonal Controls** (Correct and Adjust Colors, Brightness/Contrast, Equalize, Negative, Posterize, imposing Printable Colors, imposing Video Legal colors, and Posterizing using the current color palette), **Surface Controls** (applying Lighting, Screen and Surface Textures, Color Overlay, Dye Concentration, Expressing a Surface Texture, Warping and Quick Warping), **Focus** (Glass Distortion, Motion Blur,... motion blurs can create an infinite array of cloud-like backgrounds... Sharpen and Soften...), **Esoterica** (seven different image altering options: Marbling, Auto Cloning, Instant Van Gogh, Blobs, Grid Paper, Growth, High Pass Filter), and **Objects** (creates Drop Shadows and Alignments).

**Make Mosaic** Under the "Canvas" menu, this operator allows you to build a mosaic tiled graphic from your original art or photo in a step by step process. Mosaic tiles applied in Painter follow the contour of the image. This effect is also useful for making textures that map to floors and walls in a 3D scene, as well as creating backgrounds for title/credit text in video.

**Painting Tools** Twenty-two brush varieties, five airbrushes, nine distortion brushes, twelve special "cloner" brushes, five chinks, six masking brushes, burn, dodge, seven famous artist brushes, nine wet brushes, ten pens, five markers, two crayons, six pencils, fourteen erasers, and three charcoals. All of these can be adjusted by opacity sliders and up to nineteen separate application options.

**The Image Hose** This tool paints a series of images saved as "nozzle" files, which may be either user developed and saved or tapped into from the

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extensive Painter CD-ROM libraries. A CD-ROM of dozens of natural image nozzles is available. With the image hose nozzles, exquisite paintings of the natural world can be created. Once completed, these digital paintings can be processed through other media effects in Painter, resulting in pencil sketches, oil paintings, watercolors, mosaic tiled reproductions, charcoal drawings and more. If none of the nozzles in Painter's library are found suitable for a task, you can take your own sequence of images or photographs and create unique image hoses. From time to time, Fractal Corporation releases separate image hose nozzle CD-ROMs packed with alternate sets of nozzles.

A large library of **textures** can be placed over/under any graphic to produce paper, cloth and other looks, all variable by opacity. Textures include paper grain and 3D brush strokes, and all textures can be adjusted as to amount, shine and reflection by sliders in a full featured dialog. manipulation of the light source as far as direction, brightness, concentration, exposure and color is also available.

Painter has the ability to input **vector graphics** , like those output by Freehand and Illustrator, translate them into raster graphics, and open them up to all of Painter's tools and processes. **Live Picture** files can also be imported. Painter can even create **pages for the World Wide Web** , complete with "hot spot" data that can take you to other Web sites.

Painter can help you editing and overpaint video animation files. Both **Quicktime (MAC)** and **AVI (Windows)** formatted animations can be

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loaded into Painter. Once in, each frame can be painted with any of the tools mentioned above. So many effects are possible, Painter 4 can be called a post-production FX engine. Painter has a full-featured **movie creation module** that allows you to create a movie of as many frames as your memory will support. You input the frames and toggle to each as you paint moving graphics with any of the tools we've already covered. Objects loaded in can appear on all frames at once. Movies can be saved as Quicktime/AVI files or as sequential frames. Painter can help you create **Clone Brush Animations**. Painters "Clone" brushes allow you to manipulate an underlying graphic in a step-by-step process. When animated, these tools produce color flows and distortions not possible by other graphic or videographic methods.

Painter can also create **Image Hose Nozzle Animations** . Want to create moving leaves and branches as they reveal or cover your logo? Perhaps you'd like to use natural object growth as a segue between two animated frame sequences. Painter fosters this and more with the Image Hose and the dozens of nozzles, either from the on-board library of samples or from your own saved work. Each step can be saved as a frame of an animation. **Process Animation** allows you to see a process unfold before your eyes. Painter has a special facility that allows you to record a script of your creative movements as they progress step by step, recording movements to a script file. These scripts can then be played back, so that the same tools used to create an image magically appear to duplicate the whole process in real time. Process animations are often used to tell a story, and are effective for CD-ROM

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multimedia as well as for broadcast.

## Fractal Terrain Modeler

Fractal terrain Modeler is a plug-in extension for Strata's **StudioPro** (version 1.5 and above). Once StudioPro is on screen, Fractal Terrain Modeler is accessed by going to the Modeling menu and choosing "Fractal Terrain...". A rectangular surface representing the top view of the scene is presented, along with a selection of five tool icons, the arrow selector and four elevation placement symbols. The four elevation placement symbols represent high mountains, low mountains, medium depressions and river channels. A global slider at the left is used to adjust the overall exaggeration of the terrain, from low rolling geography to high sharp mountain ranges. As a default, the slider is set at the midpoint.

As a part of the Fractal Terrain process, a group of associated menu items are used to fine tune the modeling. The Edit menu allows you to undo the present operation, while a clear command clears the whole terrain grid. A "Detail" menu listing includes Average, Good, High, Fine and Excessive as options for applying the amount of detail that will be present in the finished model. Average detail in the model causes polygonal surfaces to be more apparent. On the other end, Excessive detail smoothes out the polygonal edges. Higher detail increases rendering time. Contour settings, with a default of 1.00, can be customized according to user input, and shape the terrain to less or more overall contouring. Smoothness adjustments can also be customized by the



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user.

The design process in Fractal Terrain is simple. Select one of the four elevation icons from the list and place it on the grid. If you want to move it to another location, use the selection arrow to relocate it. Place as many mountains, hills, depressions and rivers as desired on the grid. When you are satisfied with the map view, use the “preview” option to see how the scene appears as an elevation model. Select OK to place the model in the main Strata editing window.

Once the model appears in the main editing window, you can apply any of the Strata StudioPro operations to it allowed for any 3D object. Textures can be dragged and dropped on the terrain, and the model can be point adjusted with Strata’s bevy of point movement and alteration tools. Final rendering obeys all of the standard Strata settings.

## Frame Accurate

Refers to a video tape player and recorder that can accurately display video by the frame (video is made up of a sequence of frames). These decks are usually very expensive.

### *See Also*

SMPTE; Time Base Corrector; NTSC; Animaq

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## Frames, Creating in HTML

A feature that enables authors of **World Wide Web pages** to divide a page into separate frames within the overall “frame” of the **Web browser** window. Each frame has its own **URL** and behaves independently of adjacent frames. Frames, however, can also be linked so that a mouse click a **hypertext link** in one frame can bring to screen a document in an adjacent frame.

Frames were created by **Netscape** for use in the Web browser **Netscape Navigator** . Although other browsers such as Internet Explorer have begun to recognize frames, it should be noted that many browsers will not display frames and another alternative should be provided using other **HyperText Markup Language (HTML)** commands.

Frames can be specified using HTML, and the overall commands take the place of the `<BODY>` `</BODY>` tags usually found in an HTML document, as indicated:

```
<HTML>
```

```
<HEAD>
```

```
<TITLE> </TITLE>
```

```
<FRAMESET>
```

```
</FRAMESET>
```

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</HTML>

In order to create frames, an author needs to be familiar with three or four basic HTML tags: <FRAMESET ROWS="value">, <FRAMESET COLS="value">, <FRAME>, and <NOFRAME>.

The following table lists the tags and attributes needed to create frames.

Frames: The Basic HTML Tags

## *HTML Tag Description*

<FRAMESET> </FRAMESET>

Contains an entire set of frames or "frameset." Used in place of the <BODY> tag in an HTML document that has frames.

<FRAMESET ROWS="n, %, \*">

Specifies the height of each horizontal row within a frameset. Height is expressed as n, a number of pixels; %, a percentage of the page height, or \*, a variable that lets the browser determine size based on current size of browser window.

<FRAMESET COLS="n, %, \*">

Specifies the width of each vertical column within a frameset. Width is expressed as n, %, or \*, as above.

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|  |  |
|--|--|
| <code>&lt;FRAME&gt; &lt;/FRAME&gt;</code>          | Describes the size and contents of each frame within a frameset.   |
| <code>&lt;FRAME SRC="URL"&gt;</code>               | Specifies the URL of the document that will be contained within the frame.   |
| <code>&lt;FRAME NAME="frame_name"&gt;</code>       | Names a frame so it can be linked to another frame and respond to hyperlinks.  |
| <code>&lt;FRAME MARGINWIDTH&gt;</code>             | Determines the size of the left and right margins between frame border and contents of frame.  |
| <code>&lt;FRAME MARGINHEIGHT&gt;</code>            | Determines the size of the top and bottom margins between frame border and contents of frame.  |
| <code>&lt;FRAME SCROLLING="Yes No auto"&gt;</code> | Determines whether or not a frame has a scroll bar. Auto leaves it to the browser to determine if a scrollbar is needed. Default=auto. |
| <code>&lt;FRAME NORESIZE&gt;</code>                | Prevents the frame borders from turning into “handles” that can be resized by the user. Default=NORESIZ.                               |
| <code>&lt;NOFRAMES&gt; &lt;/NOFRAMES&gt;</code>    | Specifies an alternative page layout not   |

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using frames for non-frames-friendly browsers.

`<TARGET="window_name">`

Enables a link in one frame to open in a new window using the TARGET attribute. The targeted window has to be named with NAME.

Frames can bring several benefits to a Web page or Web site:

- They act as organizers, providing easy access to a site's contents.
- Nonscrolling frames called *ledges* remain on-screen providing advertising value.
- They add interactivity to a site and make it reduce the need to navigate back and forth between windows.

Steps involved in creating frames on a Web page include:

1. Map out your page. Make a rough pencil sketch of the frames you want to add and their approximate sizes;
2. Size rows and columns. Specify approximately how wide or how deep you want rows and columns to be (keeping in mind that they can be changed later). Remember that 72 pixels equals one inch.
3. Add `<FRAMESET>` and `<FRAME>` tags to specify how many frames your page will have, and what documents will serve as contents for each

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frame. Remember to accurately specify an absolute or relative path to the source documents for each frame.

4. Provide a `<NOFRAMES>` alternative. Using tables or other, more conventional HTML, arrange the contents of your frames within the `<NOFRAMES>` `</NOFRAMES>` tags to provide an alternative for browsers that do not display frames.

Web page authors might also consider specifying hypertext links to documents that open in a separate targeted window using the `<TARGET>` attribute. A number of predesignated values to `<TARGET>` can be used. For example, in the following HTML line,

```
<A HREF="info.html" TARGET="_blank">Click here</a>
```

the file named “info.html” will open in a new blank window when the user clicks the words “Click here”.

## *See Also*

Hypertext Link; HyperText Markup Language; HTML tags; Netscape; Netscape Navigator; URL; Web Browser; World Wide Web Page

## FrameMaker

While many desktop publishers have never used FrameMaker, it has a large and devoted following among those who write and publish technical materials. Designed to automate as much as possible of the page layout

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process, FrameMaker is not for those who are pursuing the most beautiful pages—but it can be extremely efficient.

Billed by its publisher (originally Frame Technology, now Adobe Systems) as an all-purpose document creation program, FrameMaker can be used as a word processor as well as a page layout program. Its search-and-replace capabilities are strong, and since each document opens with a text box already in place on the page and default **style sheets** already set up, it's easy to jump right in and start writing.

But FrameMaker is also used to compose math and science textbooks, mainly because of its built-in **equation editor**. Math equations can be created and edited right in the main document window, with a full range of symbols and operators available to users. A floating palette shows math operations such as radicals, integrals, and matrices, so users can point and click to set up an equation, but a full set of keyboard shortcuts speeds up the process for the experienced user. Typgraphically, FrameMaker's equations aren't perfect—they need a lot of micropositioning—but this disadvantage is outweighed for many users by the convenience of having the equation editor built in.

The program also contains a powerful table editor, which offers custom ruling and shading, straddle cells, and automatic continued lines. Automated page layout features include running heads (text can be picked up from anywhere in a document); automatic index, table of contents, cross-reference, and footnote generation; inline graphic boxes that float to the top

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or bottom of a page, as specified; and automatic numbering—useful for headings, lists, and equations.

Conditional text allows users to create multiple versions of a document by choosing to show or hide text marked with “condition tags.” This comes in handy for projects like catalogs with European, American, and Asian versions.

Electronic publishers make use of FrameMaker’s **hyperlink** feature, which allows readers of an on-screen document to click on a word to move to another document or another location in the present document. A FrameReader utility allows users to read FrameMaker documents without having the application. FrameMaker can also create **Acrobat** and **HTML** documents.

Master pages, style sheets, and tools work much the same as in other page layout applications, albeit less smoothly. Elements of other documents (master pages, style sheets, equation preferences, and so on) can be imported and applied to the present document, and styles in documents collected into a group called a book can be updated all at once. FrameMaker can also update page numbers in a book group.

Another reason for FrameMaker’s popularity is that it’s available not only for Mac, but also for Windows, Sun, and Unix systems. Documents created on any of these platforms are complete compatible with the other platforms (barring font problems and incompatible graphics formats).



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## **See Also**

Acrobat; Equation Editor; HTML; Hyperlink; Master Pages; Page Layout Applications; Style Sheets

## **Framework**

In programming, a framework is a set of predefined code to “do the basics” and upon which you can build other programs.

Most programs do many of the exact same things. For example, no matter what a program’s purpose is, it probably has to manage menus, respond to mouse clicks, and open and close windows. Rather than rewriting all of this functionality for every program, you can use a framework. Frameworks enable you to concentrate on those things that differentiate your program from others, so that you don’t have to worry about all the things that stay the same.

Frameworks are the scaffolding upon which you can build your own programs.

Because this idea of reusable code that is easily extended meshes well with **object-oriented programming** techniques, many of the most popular application frameworks are written in object-oriented languages (typically C++). These include Symantec’s **Think Class Library** , Metrowerks’ **PowerPlant** , and the grandfather of them all, Apple’s **MacApp** . These object-oriented frameworks are often called *class libraries*, because they use

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object classes to implement and augment the default behavior.

However, frameworks need not be object-oriented. Procedural frameworks are often called *shells*, because they are the empty shell of a program. This class includes TransSkel, Jim Trudeau's **EasyApp**, and DropShell, a framework for creating small drag-and-drop applications.

Frameworks can also be written for more specific purposes. For example, Grant Neufeld has written an excellent framework for creating CGI (Common Gateway Interface) applications for Macintosh Web servers, and a number of shells have been written that focus on writing Extensions, Control Panels, and other smaller bits of code. Apple has even created a framework targeted exclusively at **OpenDoc** parts, the **OpenDoc Parts Framework** (OPF).

Programming using frameworks can take much of the “grunt work” out of development. **Interface builder**s can make the job even easier. These programs enable you to edit visually the human interface of your program. The visual interface can then use the services of a framework to provide the expected behavior for each type of element automatically. All you need to do is write the parts of your program that do the real work!

## **See Also**

EasyApp; Interface Builder; MacApp; Object-Oriented Programming; PowerPlant; THINK Class Library

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## Frankie Virus

Not a Macintosh virus, but one that infects Macintosh emulators on Atari computers.

### *See Also*

ANTI Virus; CDEF Virus; CODE 1 Virus; CODE 352 Virus; INIT 17 Virus; INIT 1984 Virus; INIT 29 Virus; INIT 9403 Virus; INIT-M Virus; MacMag Virus; MBDF Virus; MDEF Virus; nVIR Virus; Scores Virus; T4 Virus; WDEF Virus; ZUC Virus

## Free-Form Modeling

### *See*

Modeling

## Freedom

Freedom is a simple **HyperCard** stack for people who are temporarily, or permanently, unable to speak. It is particularly useful for persons with neurological disorders, such as Amyotrophic Lateral Sclerosis (Lou Gehrig's disease), and was originally developed for a young man with ALS.

Although not as sophisticated as **Talk:About** , it enables the user to convey basic wants and carry on a simple conversation by pointing and clicking the appropriate preprogrammed phrases. Freedom uses mouse clicks and

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minimum mouse movement to enable users to type and select phrases to be spoken. It can also be configured to work with a **sip and puff switch** or single-click switch and **scanning**, so that even the most severely motion-limited user can communicate.

In the figure shown here, you see a page of phrases for ordering breakfast. Adding new phrases is simple for users who can type or who can use a mouse and scanning software with an on-screen keyboard. Because it's written in HyperCard, anyone with a copy of the HyperCard application (not the player) can resize the buttons or add icons or pictures for a user who doesn't read.

**TIP** Freedom is **shareware** and can be downloaded from many sites, including Apple's Disability area at:

<http://www2.apple.com/disability/shareware.html>.

Shareware fees go to the S. Nathaniel Woodruff Memorial Fund (c/o The Family Center, 15 W 5th Street, Emporium PA, 15834). Tax-deductible donations help to finance the Toy and Resource Lending Library, which provides a library of toys and books, as well as long-term loans of special needs equipment—car seats and such.

## Freehand

Offering professional artists the tools to create everything from complex technical illustrations to short, design-intensive multi-page documents (like

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brochures), Freehand combines precision **PostScript** drawing tools with a plethora of other useful features.

The basics: Freehand lets users create any shape—Freehand or geometrical, with straight lines or **Bézier curves**—and apply a stroke (or border) and fill to it, in any color. The program supports **CMYK** color, as well as **Pantone spot color** and other color matching systems such as **Toyo** (common in Japan).

Objects can be moved, scaled, and skewed, while grouping allows multiple objects to be modified as a unit and layering allows objects to be easily hidden or shown, as well as moved backwards or forwards in the drawing. Precision is easily achievable, with numerical control over the positioning and movement of each object. Even **guides** can be placed and moved by typing in coordinates, as well as pulling them out from **rulers**. Documents can consist of one or several pages (and they can be of varying sizes).

Following in **Illustrator's** footsteps, Freehand now supports the competition's **add-on software** as well as its own **Xtras**: **Illustrator** and **Photoshop plug-ins** add extra features to Freehand. Its own Xtras are fairly interesting, too, including third-party add-ons that can create bar codes, import QuarkXPress documents, and estimate distances on maps created in Freehand.

Freehand now lets users convert a **vector** image into a **bitmapped** one by rasterizing it and saving it as a **PICT** file. These two capabilities can be combined to allow users to create shapes, rasterize them, and then apply

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special effects with Photoshop filters that won't work on Freehand's original vector images.

Photoshop Acquire plug-ins work, too, allowing users to scan images directly into Freehand.

Freehand has strong text-handling features, including paragraph **style sheets** and floating palettes for changing text attributes. Text can be entered in Freehand or imported from a word processing file, and its text box can be a specific size or an autoexpanding box that grows larger as text is entered. An especially nice feature brought over from **page layout applications** is the ability to paste imported images or Freehand graphics into a line of text so that they move with the text when it's edited.

Style sheets for graphic items are a helpful feature, allowing users to keep elements consistent throughout one or many documents. Attributes affected include stroke width, stroke color, and fill color. Freehand's interface uses several floating palettes that can be displayed, hidden, or folded up so that only their title bars show.

## ***See Also***

Add-On Software; Bézier Curves; Bitmapped Graphics; CMYK; Drawing Applications; Guides; Illustrator; Page Layout Applications; Photoshop; PICT; Plug-Ins; Postscript; Rulers; Spot Color; Style Sheets; Toyo; Vector Graphics; Xtras

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## FreeStyle

FreeStyle is a low-cost, easy-to-use music **sequencer** that enables you to record and edit music. You will need an external **MIDI keyboard** to work efficiently with the software.

FreeStyle includes support for musical notation, a feature not found in all sequencing software, but the program does not support lyrics, dynamics, or articulation marks. Professionals must export the music file to another program using the MIDI format, and output the music from there.

Mark of the Unicorn

Price: \$200

Phone or Fax: 617 576-2760

Web: <http://www.midifarm.com/midifarm/motu/freestyle.htm>

## Freeze

*See*

Crashes, System

## Frequency Modulated Screening

*See*

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Stochastic Screens

## Frequently Asked Questions

*See*

FAQ

## Frontier

Frontier, a system-level scripting utility from UserLand Software, was the first **AppleEvents** -based scripting system for the Mac. In the days between the release of System 7 and the long-delayed introduction of **AppleScript** , system-level scripting on the Macintosh would have been a promise largely unfulfilled, if not for Frontier. When Apple finally did release AppleScript, it stole some of Frontier's thunder. Frontier had a tough time competing with AppleScript, especially after Apple began distributing AppleScript with the System Software. Rather than give up in the face of such adversity, Dave Winer, the creator of Frontier, decided to take a different approach. He re-christened Frontier Aretha, added a handful of **Internet** -related features, and began distributing it for free on the Internet.

Although Frontier and AppleScript are both scripting systems, they take radically different approaches to the same problem. Unlike AppleScript, Frontier runs as an application. As a result, no Extensions are needed to



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enable Frontier to do its magic, but the Frontier application must be running for scripts to execute. In addition, Frontier is native on the Power Macintosh and supports multiple threads, so more than one script can execute simultaneously. Combined, these give Frontier a significant speed advantage over AppleScript.

At the heart of Frontier is the *object database*, a central storage facility shared by all Frontier scripts. At its highest level, called the *root*, the object database consists of a table of objects. The objects can be scripts, variables, word processing documents, or even other tables. This table-within-a-table structure creates a hierarchy similar to folders on a Macintosh hard disk (see the following figure).

Objects below the root level are specified using a dot notation similar to Internet domain names. Thus, the active window in the previous figure is `system.verbs`, and the highlighted object in that window is `system.verbs.constants`.

Virtually all activity in Frontier takes place in the object database. Scripts that are currently running and their variables reside in the database, as do scripts that define much of Frontier's own functionality. This makes Frontier extremely flexible and easy to customize. In fact, you can edit Frontier's menus and attach scripts to any menu item. You can even add entirely new menus.

This capability of editing menus doesn't stop with Frontier itself. Through *menu sharing*, Frontier enables you to create custom menus in applications

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written to support the menu sharing protocol, including Stuffit Deluxe, Eudora, and Netscape.

Frontier scripts are written in *UserTalk*, Frontier's own language. The following figure shows a simple script written in UserTalk. UserTalk includes a full complement of flow control constructs (if/then, loops, and so on) and a rich set of verbs to control the Finder, other applications, and the Frontier environment itself. You can use any script you've written just as you would a built-in verb.

Editing UserTalk scripts is a joy in Frontier. Script editor windows are actually outlines, so any segment of code can be collapsed as you would collapse the subtopics of an outline. For example, the highlighted line in the previous figure could be collapsed to hide the lines indented under it. This feature can make the flow of a script much clearer by hiding the details when you don't need to see them.

As the preceding figure shows, Frontier can also accept scripts written in AppleScript, or any other scripting language compatible with Apple's **Open Scripting Architecture** (OSA).

Extensive information about Frontier is available on the World Wide Web at the UserLand Web site (<http://www.hotwired.com/staff/userland/>). The Aretha release of Frontier is available for download there as well.

## **See Also**

AppleScript; CGI; Internet; Open Scripting Architecture; Scripting

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## Frontmost

See

FaceSpan

## FTP

Acronym for File Transfer Protocol, a method of transferring files to and from remote computers on the **Internet** . A *protocol* is a set of standard settings or rules recognized by different computers connected by **networks** .

More data is transferred via FTP than by any other method on the Internet. The capability to enable users to download software and transmit files is one of the Internet's biggest assets. FTP, therefore, is a protocol recognized by virtually every machine connected to the Internet.

(This entry discusses File Transfer Protocol in general. A number of specific file transfer protocols related to modems that connect to either local area networks or the Internet are discussed in **File Transfer Protocols, Modem.**)

In the Macintosh world, several FTP sites with many gigabytes of disk space store a large number of freeware and shareware programs, along with commercial demo versions of software and types of Macintosh-related information. These Macintosh software archives are made available to anyone connected to the Internet. Some of the best known are:

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mac.archive.umich.edu

sumex-aim.stanford.edu

These sites are so popular that their contents have been mirrored by other sites around the world so users in other countries can obtain files more quickly.

A user who wants to download files from a software archive needs an FTP **client** program such as **Anarchie** or **Fetch**. **Anarchie**, for instance, eliminates the need to search through long lists of files by letting the user enter a keyword to search for in an Archie database. **Anarchie** then returns a listing that provides full filenames and all the address information needed to retrieve the file via FTP.

A good FTP client will allow a user to create shortcut for frequently used FTP sites. The client will also facilitate navigation between folders in a site. Some clients fail to present the user with complete information about a file's name, size, or date of creation; make sure the client you use shows the complete information as an option.

You will come across a variety of **file types** on FTP sites. Each file type can be deduced from the three-letter extension at the end of its filename. The most common is the extension “.hqx,” which denotes a file encoded with BinHex so that it can be transported easily across the Net. Other common file extensions are “.txt” for an ASCII-text file, “.sit” or “.cpt” for files compressed with **Stuffit Expander** or **Compact Pro**, respectively, of “.sea,”

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which is a Self-Extracting Archive that launches and expands when you double-click on it.

Keep in mind that files with suffixes such as “.zip” or “.gz” are not Mac files and you may not be able to do anything with them after you decode them.

## *See Also*

Decoding/Decompressing Files; Encoding Files; File Transfer Protocols; Modem

## Full Throttle

Designed by Tim Schafer who created both Maniac Mansion games, Full Throttle combines fluid animation with killer action. Instead of jerky cartoons and that dreaded wait between animated sequences, **Full Throttle** is seamless. You play Ben, a biker out to clear his name of a murder he didn't commit.

The real murderer is a corporate big shot who's trying to get rid of you and your motorcycle gang so he can have a monopoly on the biking industry. Full Throttle is full of puzzles and character interaction, in the same vein as **Return to Zork** . The animated scenes are fun to watch and the overall ambiance of the game makes you feel as if you are participating in a well-done cartoon. LucasArts-style humor adds a light touch to the generous amount of actionAs you play, you become quite fond of the characters in the game and are sad to see it end. Thank goodness (and LucasArts) for a well-

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produced game with a plot.

## FullTilt! Pinball

*See*

3-D Ultra Pinball, Pinball Games

## Function Keys

The 15 keys that appear at the top of extended keyboards are function keys that enable users and software developers, through use of a **macro** program such as QuickKeys to add certain **commands** to each key. The first four keys already have commands assigned to them: F1=**Undo**, F2=**Cut**, F3=**Copy**, F4=**Paste**, but they can be reassigned new commands. Any of these Function keys can be assigned keystrokes with a program such as QuickKeys or any application, such as Adobe Photoshop, that enables you to assign function keys to commands from within the application's preferences.

*See Also*

Commands; Copy; Cut; Macros; Paste; Undo

## Function, Spreadsheet

A function is a set of **spreadsheet operators** to perform a complex

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calculation, callable by a command that can be inserted in a **formula** . It can also be non-mathematic commands to be used in formulas, including text manipulations, **lookup table** substitutions, and program-specific operations.

Functions are built into the software, and the selection varies among programs. But almost all functions include a variety of these handy shortcuts to solve financial, statistical, engineering, and text problems. Most programs have a menu or **palette** arrangement to simplify picking the proper function and adding it to a formula, but you can also type them directly into the **formula bar** .

Functions require **arguments** , expressed in parentheses after the command. For example, the PV function in most programs computes the present value of an investment based on periodic payments and a specified interest rate. It's expressed "PV(payment,interest,term)". To use it, substitute the three arguments with **cell** references or numbers: "=PV(A1,.08,20)" would use the payment amount in A1, and figure the compound value after 20 annual payments with an 8 percent annual rate.

Most functions are derived from standard formulas, so you can also calculate PV with "=payment\*(1-(1+interest)^-term)/interest," but having it as a function makes things a lot easier.

Text functions are similar to the **string** commands in **BASIC** or **HyperTalk** , and let you perform operations like substituting specific characters or deleting from the front or back of a string. Logical functions allow

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**branching** , and take the form “IF(condition,x,y)”: if the condition is true the formula will execute whatever operation or function is in x; otherwise it will execute y.

Some programs require an @ sign before a function, so they are also sometimes called “at-functions”.

## FutureBASIC

FutureBASIC is a complete **integrated development environment** (IDE) for creating Macintosh programs using the **BASIC** programming language. Traditionally, BASIC is viewed as a beginner’s language. It’s name is even an acronym for *Beginner’s All-purpose Symbolic Instruction Code*. Development environments like FutureBASIC could change that perception for good.

Unlike many versions of BASIC, FutureBASIC is a first-class Macintosh development environment. Not only does it create **compiled** , stand-alone applications, it can also be used to create **code resources** such as Extensions or plug-ins. Applications created with FutureBASIC are relatively small and fast—comparable to programs written in **C** or **Pascal** .

The FutureBASIC IDE includes a source code **editor** that supports automatic indenting and syntax highlighting; a source-level **debugger** ; and a **compiler** and **linker** . It also includes an excellent interface builder and code generator, “PG:PRO,” that takes much of the routine drudgery out of creating an applications’ interface.



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Because Apple does not document the Toolbox from a BASIC perspective, it can often be difficult to make full use of new system software features in BASIC. Staz Software has overcome that problem by including a conversion program that generates BASIC interfaces from the Pascal ones Apple supplies.

Although BASIC is not likely to regain the position it once had for commercial development, programmers who want to move beyond HyperCard or AppleScript might save themselves much of the learning curve of C or Pascal by starting with FutureBASIC.

FutureBASIC is published by Staz Software:

Staz Software

3 Leisure Time Drive

Diamondhead, MS 39525-3215

Email: [Staz@aol.com](mailto:Staz@aol.com)

Fax: (601) 255-7086

Phone: (601) 255-7085

Web: <http://www.ids.net/~paumic/FutureBasic/>

## ***See Also***

BASIC; C; Code Resource; Compiled; Compiler; Editor; Integrated Development Environment; Linker; Pascal

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## **FWB SCSI**

*See*

Ports, Future Trends