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## Oasis

Oasis is the painting program included in the Corel6 package for the Mac. Oasis accepts all Photoshop plug-ins, and searches their path out automatically when the program is installed. Plug-ins, Acquires and Exports can be selectively turned on and off from a displayed list, a feature that can save precious time and memory. Oasis, perhaps because it comes to the Mac from another platform, does some minor things that make a Mac artist's life a lot easier. One of these is to allow you to toggle the menu bar off and on, expanding the work area just enough. In the same vein, you can also use a hot-key combination to switch the palettes off and on. The Lasso and Brushes palettes, normally accessed from the toolbox, can be torn off and placed on the screen for easier access.

Oasis has a gradient fill option that allows for the adjustment of cycles (repetitions) from 1 to 10. The result, when radial is turned on, is wave-like ripples in the gradated color selected. It's also possible to pre-determine the density of any applied effect or fill, making transparent compositions easier. The lasso selection tool can either be set to choose only the static area, or it can expand or contract to include all other similar colors as those in the selected area, or all other appearances of the background. Support for HSV, RGB, CMYK and HLS color palettes are included, and you may also add the "Video Colors" option so that only "legal" video colors are displayed with any palette choice.

Oasis offers five brushes: Artist (normal painting tool), Soften (Blurs edges),

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Smear (smears edges) Pull (pulls the targeted colors along with the brush) and Stretch (stretches the selection to a new area). You can also effect the graphics with brushes for Tint, Colorize, Valuate and Saturate. An "Image Effects" window works differently than an effects application in other software. It contains a list of image operations like posterizing, brightness, and colorization. Setting the sliders causes it to apply the effects to the next selected (or present selected) area of the graphic. Experienced electronic painters will take a while to get used to this way of working. Everything considered, this is a good intermediate level paint program.

**File Save / Load Conventions**    Oasis loads the following formats: PICT, Apple Scrapbook, BMP, CGM, GEM IMG. GEM, IFF, JPG, PBM, PCX, PGM, Photoshop 2 and 2.5, PICT Resource, PixelPaint, PPM, RAW, RIFF, Scitex CT, TIFF, XPM. Save formats include BMP, GIF, PCX, Photoshop 2 and 2.5, PICT Resource, Scitex CT, Targa, TIFF. In addition, Oasis can acquire Anti-aliased PICT, Blank TIFF, EPS-DCS, Extensis Twain, Live Picture, Make Collage CMYK Table, Photo CD, Photoshop 3.0, PICT Resource, Plug-in Digitizer, QuickEdit, QuickTime (Painter and Photoshop), Scitex CT, Twain Acquire and Select Source, and Video Snapshot. It can export Amiga HAM, Cybermesh Demo and Cybermesh, EPS-DCS, Dummy Export, ImageWriter Color, Live Picture, Paths to Illustrator, Photoshop 3.0, QuickTime (Photoshop and Painter), Scitex CT, and Collage CMYK Table.

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## Object

*See*
Object-Oriented Programming

## Object Code

Object code is another term for **machine language** code. Any program that can be directly executed on a computer without further intervention from a **compiler** or interpreter is object code.

Object code is frequently used to describe individual parts of a program after they have been compiled but before they have been converted into a complete application by a **linker**.

*See Also*
Compiler; Linker; Machine Language

## Object and Image CD-ROMs

No digital artist or animator can ever collect too many 3D objects or graphics for texture mapping. There are hundreds of CD-ROM object and image collections available, and each contains hundreds of 3D objects and/or images. Though we don't have enough space to cover anywhere near all of these CD-ROMs, we can mention a few that you might find interesting for art

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and animation work. Remember that the Mac (System 7.x and later) can read PC CD-ROMs as easily as native formats, so Mac artists and animators can take advantage of most of the CD-ROMs on the market as far as 3D objects and images are concerned.

**Aris Entertainment** Aris Entertainment has come up with a CD-ROM that stands out as both unique and useful. The CD-ROM is called "Batiks", and the images are photos of dozens of Batik fabric designs, which make alluring backdrops for animations. Formats include large and small BMPs, PCX, TIFF (TIF), and WAV files. The CD is Windows and MAC compatible. There is a slideshow and an image browser included.

Contact:

Aris Entertainment

4444 Via marina, Suite 811

Marina Del Rey, CA 90292

(310) 821-0234

(310) 821-6463 FAX

**Aztech New Media Corporation** Watermarks and Ghosted Backgrounds by artist David Hushion, Visual Rhythms 1 and 2, and Fashion 1 and by photographer Joaquin Compta are some of the highly recommended Aztech graphics CD-ROMs. Each of these CD-ROMs gives artists and animators high quality visually startling data to interweave with their work. The

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Watermarks CD is great for adding high quality backgrounds for text applications as well (multimedia text screens). The 25 backgrounds come in three TIFF sizes and formats: CMYK 32-bit for DTP, 24-bit for RGB video, and 8 bit grayscale (great for bump maps and alpha channel compositing). The second volume of the Visual Rhythms sets has 100 original photos by photographer Paul Smith, consisting of a variety of unique forms. All are suitable as backgrounds, though some might also serve for texture mapping purposes as well as DTP work. The Aztech CD-ROMs Fashion 1 and 2 consist of fashion models in various poses. For animators, these would be great tuck-in-the-corner shots, or in some cases might be composited into product related backgrounds.

Also noteworthy from Aztech are the following:

**SpaceViews 1 and 2:** Each CD contains over 50 of the most awe inspiring images of space objects and planetary phenomena. Each image comes in Lo-Res (6 x 8 x 72 DPI) and Hi-Res (5 x 4 x 300 DPI) Tiff format.

**Jurassic Dinosaur:** 96 royalty free images of dinosaur fossils in two resolutions: 32 bit non-compressed color-corrected CMYK 300 DPI Tiff, and 24 bit non-compressed RGB Tiff at 72 DPI.

**Gems:** 99 photo images of precious gems from around the world, in two formats: 32 bit non-compressed color-corrected CMYK 300 DPI Tiff, and 24 bit non-compressed RGB Tiff at 72 DPI.

**Floral Tapestry:** 100 photos of flowers from around the world, in two

resolutions: 32 bit non-compressed color-corrected CMYK 300 DPI Tiff, and 24 bit non-compressed RGB Tiff at 72 DPI.

**Underwater Realms:** 100 photos of fish, reefs and underwater phenomena by nature photographer Joel Auerbach, in two resolutions: 32 bit non-compressed color-corrected CMYK 300 DPI Tiff, and 24 bit non-compressed RGB Tiff at 72 DPI.

**Africa: African Traditional Peoples:** 75 annotated images of head and body shots, groups in tribal array, villages and the African environment, in two formats: 32 bit non-compressed color-corrected CMYK 300 DPI Tiff, and 24 bit non-compressed RGB Tiff at 72 DPI.

Contact:

Aztech New Media Corporation

2255 Markham Road

Scarborough, Ontario, Canada

M1B 2W3

(416) 449-4787

(416) 449-1058 FAX

**Digital Wisdom** "GlobeShots", produced by Mountain High Maps, is both IBM and MAC compatible, and contains over 250 colored bitmaps of global terrain shots in high relief. Included are 60 high resolution globes on a white

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background and another 21 images on colored backgrounds, all in 24-bit TIFF format. The images come in a variety of subject areas, including clouds, starburst hi-lights, and saturated ocean floors. The images can be resized to fit digital art and animation needs, and are especially intended for those "pull-back" animations of the Earth. GlobeShots sells for $195.00. The Mountain High Maps full relief set of two CD-ROMs sells for $895.00.

> **TIP:** If your globe is just going to sit in a non-animated space, here's a trick you can use with the GlobeShots collection. Cut out a selected globe with a rectangular brush, getting as close to the edges of the globe picture as possible. Then select a 3D globe and use a frontal planar map for projection in your favorite 3D rendering software. The extraneous background picked up with the globe will disappear, and you'll have a nice 3D globe (as long as you don't intend to animate it). This is sometimes easier than cutting out a perfect circular brush, and it works just as well.

Contact:

Digital Wisdom Inc.

P.O. Box 2070,

Tappahannock, Virginia VA 22560-2070

Tel: 1-804-758-0670

Fax: 1-804-758-4512

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CompuServe: 72673,3360

In Europe: Digital Wisdom Publishing Limited

7 Wellington Court, Cambridge

CB1 1HZ, United Kingdom

Tel: +44 223-566-250

Fax: +44 223-566-246

**Image Club** Image Club markets a number of CD-ROMs, "Photogear" (a collection of organic backgrounds and textures) and "Objectgear" (EPS format objects). The Objectgear graphics can be cut out with the help of the "magic wand" tool in Photoshop. The objects also come with a file of drop and cast shadows for each image, enhancing their 3D realism. 3D users might want to experiment by placing these 2D objects on 3D surfaces in a post-production painting process. The CDs are Windows/MAC compatible.

Contact:

Image Club, Inc.

729 Twenty Fourth Avenue Southeast

Calgary Alberta Canada T2G 5K8

Phone: 403 262 8008

Fax: 403 261 7013

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Applelink: CDA0573

CompuServe: 72560,2323

America Online: imageclub

Internet: imageclub@aol.com

**Mary and Michael** Question: What are the most useful backdrops that all animators lust for? Answer: Clouds. The CD-ROM is called Cloud Gallery. These are all 750 x 490 Tiffs, a collection of 32 excruciatingly beautiful images for a mere $69.00. Each of these photos is like a painting with a personality, and the emotions range from light to dark. Clouds set a mood in artwork like no other image can, making us dream and believe. There's a demo version of Fractal Design Painter for Windows included on the CD.

Contact:

Mary and Michael

(No address available for public, use phone)

(415) 326-9567

http://www.commerce.digital.com/palo-alto/CloudGallery/home.html

http://www.commerce.digital.com/palo-alto/WeddingPhoto/home.html

**Accents Images** You may not like to roll, but if you like to rock (textures, that is) you'll love the 115 stone images in both Windows and MAC (Photo CD

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format) on this CD-ROM ($49.95). These stone images are very high quality photos. Use one of the higher resolutions if you want to take advantage of extreme close-ups in your animations. These images also make excellent wrap-arounds for texture mapping, or you may want to use them in an animation to planar map a surface that emulates ground cover.

Contact:

Accents Images

3123 Lee Place

Bellmore, NY 11710

**BeachWare**   Ah, nature! This CD-ROM called the "Nature Collection" has 100 photos of the natural world ready for your next art or animation application. They come in both DOS and MAC. The DOS images are presented in both 8- and 24-bit formats. Many of the images are in a vertical or "portrait" format, so that they would have to be cropped for the standard video or "landscape" use, unless of course you want to composite several of them together as a backdrop. Included as an extra is a powerful browser utility that shows both the name of an image file as well as a thumbnail of the picture. The 24-bit files are large, resolved more for print media, and should be reduced before using them as a background image or a texture map. All imagery is original, sharp, and highly detailed. ($49.95).

Contact:

# O

BeachWare

9419 Mt. Israel Road

Escondido, CA 92029

(619) 735-8945

Applelink: BEACHWARE

Internet: tomg@powergrid.electriciti.com

**Cascom, Inc.** This selection is for Mac only. The name of the CD-ROM is "5000Plus", and yes, there are over 5000 image files and more goodies on this CD-ROM. The images are separated into thirty separate folders, each with its own descriptive heading (Aerials, Foods, Mountains, and so on). All are quarter screen sized (320 x 200), so DTP use is limited. Video, however, is much more forgiving regarding size and resolution. Something can always be resized and still look good (especially within the NTSC framework). Although the image sizes are small, they are excellent in both variety and content, containing adequate material for both backgrounds and object texture maps. There's a browser on-board, and you can copy the database (24 megs) to your hard drive if you have the room. Cascom is one of the largest suppliers of professional footage to the broadcast industry, so this CD-ROM is very high quality. There are other non-graphic files on the disk as well, and of special importance is the inclusion of a selection of multimedia effects files. Cascom also has a three volume set of multimedia effects in the QuickTime format.

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Contact:

Cascom, Inc.

806 4th Ave. South

Nashville, TN 37210

(615) 256-7890

**Digital Stock**  The subject of the Digital Stock "A la Carte" CD-ROM is food elements, and the images are good enough to eat. All of the super-sharp graphics are on a pure white background, which means that they can be cut out or "magic wanded" with Photoshop. Richard Embry, the photographer responsible for this CD-ROM collection, is a nationally known photographer in the cookbook arena, with loads of national credits. The images should find a wealth of uses by both digital artists and animators (how about morphing one food element to another, just for the effect?). The A la Carte CD can be purchased directly from Mr. Embry for $250.00.

Contact:

Digital Stock

3117 E. Northridge

Mesa, AZ 85213

(602) 924-0909

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**LightRom 3**  This 3 CD-ROM set is from Graphic Detail. Volumes two and three contain items useful to the Mac artist and animator. Volume one contains 3D models in the NewTek LightWave format. These either have to be translated to a Mac 3D program compatible format, or the user can wait for the rumored time when a PowerPC version of LightWave will be released. Volume two contains about a thousand objects in the 3D Studio format which a few Mac 3D programs can interpret. It also has 700 JPEG textures, applicable to Photoshop or other Mac wares. Volume three is the most useful. It has about 1000 DEMs (Digital Elevation Models) for use with Natural Graphics Scenery Animator for the Mac.

Contact:

Graphic Detail

4556 S. 3rd Street

Louisville, KY 40214

(502) 363-2986 voice and FAX

Internet: michael@iglou.com

**Model Masters, L.L.C.**  Model Masters produces CD-ROMs of 3D object collections in a variety of file formats, predominantly DXFs. Subject matter ranges widely, from organic objects to furniture. All models are high quality. All of the models are well designed and can be zoomed in on for detail when needed. For organic creations, they use spline based tools and "blob"

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modeling.

Contact:

Model Masters, L.L.C.

420 Frontage Road

Northfield, IL 60093

(800) 306-6357

**Schatztruhe** "The beauty of Chaos" is the name of their CD-ROM. Created with Fractal software in Germany, this CD-ROM contains 507 Mandelbrot images in the GIF 256 color format in three resolutions (1140 x 890, 1024 x 768, and 640 x 480). Another 20 Tiff images are included in 24-bit format. An excellent CD-ROM for the study and use of Fractals.

Contact:

Schatztruhe

Gesellschaft fur Software mbH

VeronikastraB 33

45131 Essen, Germany

**Select Effects** If you enjoy viewing QuickTime movies, animated clips that you can learn from, then this CD-ROM was made for you. It has 100 QuickTime movies and fifty sound effects. Studying the QuickTime animations will give

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you ideas on how to craft your own animations. The effects represented in these small films offer a wealth of creative suggestions to multimedia designers and digital animators. The CD is Mac and Windows compatible.

Contact:

Toucan Studios

19672 Stevens Creek Blvd.

Suite 230

Cupertino, CA 95014

(408) 255-3291

(408) 253-8961 FAX

**Specular Replicas** This CD-ROM contains over 600 3D objects and their surface maps, and is ready made for users of Specular International's Infini-D software, as well as being portable to other 3D wares (as DXF models). Included are the following libraries: Office Furniture objects, Lamp and Chair objects, Procedural Surfaces for Infini-D, Exotic Woods image maps, packaging objects, Pattern image maps, Transportation objects, marble image maps, Dinosaur objects, Star Ship objects, Humanoid objects, and Human Character objects. The CD-ROM does not need to be unlocked.

Contact:

Specular International

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330 Townsend Street, #208

San Francisco, CA 94107

(413) 253-3100

(413) 253-0540 FAX

**Strata Clips**  Strata Clips CD-ROM ships with many of the Strata products, but each library it contains has to be opened with a keyword that is charged for. The CD-ROM contains both 3D objects and textures, and all items are high quality and ready for animation. There is a total of 1,300 items on the CD. Many of the models are from Viewpoint Data Labs, one of the most respected 3D object developers in the country. Many of the textures were used in the famous Myst game, which was designed and animated with Strata's software.

Contact:

Strata Corporation

2 West St. George Blvd.

Suite 2100

St. George, Utah 84770

(801) 628-5218

**Valis Group**  The developer's of MetaFlo and other Mac software also market a high quality texture CD-ROM called Materia Prima for Mac and PC users

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(browsers are included). These images are organic-like paintings, and make wonderful textures wraps on 3D objects as well as backgrounds. There are 100 512 x 512 24-bit Tiff tileable textures, 100 512 x 512 8-bit tileable grayscale textures for use as bump maps, and 100 640 x 480 Tiff non-tileable color backgrounds.

Contact:

Valis Group

PO Box 831

Tiburon, CA 94920-0831

(800) 825-4704

(415) 435-9862 FAX

**Vivid Details**  These CD-ROMs represent some of the highest quality imagery available. There more than a dozen titles at this point, and all are categorized into subject areas that are applicable for both video and print. Two worthy of special attention are Flowers (Volume 9) and Old paint (Volume 11). Each volume has three CD-ROMs in one oversized plastic case, accompanied by a full color descriptive pamphlet. All of the images were scanned on a high-end drum scanner, and there are 12 images per CD-ROM (48 in each volume). The images come as both 9" x 12" x 72 DPI (2 Mb) and 9" x 12" x 300 DPI (37 Mb) CMYK Tiff files. The images are so large and detailed that users will find that taking sections of an image provides enough data for 3D object textures

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and video backdrops.

Contact:

Vivid Details

8228 Sulphur Mountain Road

Ojai, CA 93023-9372

(805) 646-0217

(805) 646-0021 FAX

**Zygote Media Group**   Zygote's 3D models are at the extreme high end of the quality spectrum. The digital human figures are so perfectly modeled that you to look twice to make sure you're not looking at a photograph. Zygote's clients include top Hollywood movie makers, major TV ad agencies, and game developers. Zygote employs a sculptor on their staff to sculpt intricate elements in clay, and then they digitize the sculpture to import the data. They bring in templates (pictures of a finished image of the model placed behind the model) to make sure proportions are correctly sized, and use linear elements of the model to check the measurements on screen. Zygote also uses calipers to check all dimensions of a mechanical model before it is constructed, and taking measurements from blueprints is fairly common. They also use all the best high-end software for on-screen modeling to craft highly realistic images.

Contact:

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Zygote

1 East Center Street / Suite 215

Provo, Utah 84601

(800) 267-5170

**3NAME3D** 3Name3D is a very high end digital custom sculpting and digitizing studio which also markets library collections of standard digital objects to the public. They promote digital "clutter" in a 3D scene, the idea that a virtual world should have a multitude of objects around to make it more believable, so their CD-ROM are full of normal "clutter" objects. They have a sculptor on the staff so that clay models can be worked up for the digitizing process. They work up storyboards and sketches before even touching the keyboard, and judge how close the camera will be to the model, so no time is wasted incorporating digital features that will never be seen. They created the 3D models used in the "500 Nations" video series, and work with very high-end industrial and film clients.

Contact:

3NAME3D

1202 West Olympic Blvd. / Suite 101

Santa Monica, CA 90404

*See Also*

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Animation Mapping, CD-ROM Images for

# Object Master

Object Master, a source code **browser** and **editor** from ACI US, takes the role of browser a step further than most. Object Master can act as a complete integrated development environment by interacting with other programming tools, such as Metrowerks' **CodeWarrior** , **Symantec C**++ , or Apple's **MPW** .

Unlike most editors and browsers, Object Master can scan through source code to find syntax errors before they are even compiled. Combined with its ability to control external **compiler** s and other tools, this makes it possible to do virtually all development work from within Object Master.

In addition to the common split window browser style used by **MacBrowse** and others, Object Master can depict graphically object-oriented class hierarchies. Each class is displayed as a labeled box connected to its subclasses and superclasses by lines.

Clicking a class in the visual browser displays a menu of the member functions for that class, including (optionally) those inherited from its superclass. Selecting one of these member functions opens a window in which to edit the corresponding code. Separate "branches" of the object hierarchy can be displayed together or in separate windows, and the graphical browser window can also display data members for each class

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directly.

Object Master provides extensive language-specific support, including syntax checking and keyword highlighting. It is also scriptable using AppleScript or Frontier.

There are two versions of Object Master: Object Master and Object Master Universal . Both versions support **C** and **C**++ and integrate with CodeWarrior, Symantec C++, and MPW environments. The Universal version adds support for **Pascal** and Modula-2 programming.

Object Master is published by ACI US:

ACI US, Inc.
20883 Stevens Creek Blvd.
Cupertino, CA 95014
Phone: (800) 384-0010
Web: http://www.acius.com/Pages/GUI/ACI_US/
English/Products/ProductGroups/ObjectMaster.html

***See Also***
Browser; C; C++; CodeWarrior; Editor; Integrated Development Environment; MacBrowse; MPW; Pascal; Symantec C++

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## Oblique

***See***
Typesetting Terms

## OCR

***See***
Scanners, OCR Software and

## Odd Parity

***See***
Parity

## Office Scanners

A new breed of scanners has begun to emerge in the mid-90's. These scanners are small, even portable, inexpensive scanners intended for OCR and FAX work, rather than for desktop publishing. Visioneer's Paperport is one of the first such devices: it's a little wider than a piece of paper, and fits easily between a monitor and keyboard. You can simply insert pages to be scanned in the slot of the device, and it quickly scans the page and spits it back out. (Other office scanners may handle paper in different ways, and

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some small scanners are optimized for scanning business cards.)

Office scanners aren't meant for desktop publishing applications, and they won't produce scans of sufficient quality for layouts. However, they are easy to use, and ideally suited for OCR applications.

***See Also***
Drum Scanners; Flatbed Scanners; Handheld Scanners; Slide Scanners

# Offset Printing
***See***
Printing Methods, Traditional

# On-Demand Printing
On-demand printing describes quick-turnaround printing procedures that require very few preliminary steps, eliminating the time-consuming and expensive makeready of traditional printing presses. This is an entirely new classification of printing. There is an entirely new concept to be dealt with—the run-length of only one copy. Before digital presses, one of the major cost factors in printing was the setup, or press makeready. In traditional printing this is still true.

In traditional **prepress** , many things have to be done after the artwork is

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completed. First of all, a photographic negative is made of the artwork. **Halftones** have to be shot. All of the pieces have to be assembled on orange masking sheets (called flats). Halftones have to be precisely positioned on a separate flat to line up with the negatives on the master sheet. This is just a brief summary. Often, for complicated color jobs, there are dozens of flats. Each one takes five to fifteen minutes and costs $5–15 dollars. Each piece of film costs about the same. When everything is assembled, a plate is made at a cost of $25 to $150 (depending on the size of the press). Then it takes about fifteen minutes to hang the plate and get it into proper alignment at a cost per color of $25 to $50. Then, from fifty to three hundred sheets of paper are run through the press to get the colors printing at the proper density. These setup charges could total from a minimum of $25 (one color with plastic printing plates) to a maximum of several thousand dollars (complicated process color with metal plates) before a single sheet prints acceptably. Even when traditional prepress is bypassed with digital methods, **traditional printing presses** require the expensive makeready process.

As a result of these time-consuming and expensive procedures, traditional printing often charges the same price for anything under a thousand sheets. If you want one copy or a thousand, it costs the same. If you print many thousands of copies, the setup charges are amortized, and the cost per copy ends up being very cheap. These price benefits do not occur until at least two thousand copies are printed. As a result, buyers of traditional printing try to order large quantities. When ordering 20,000 copies, the cost per thousand drops to only a small percentage of the cost for the first thousand.

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**Digital presses** enable jobs to be printed with virtually no setup costs. The only cost is the time it takes to open the file and print it from the computer. There is no film to be shot, no film assembly, no separate plate making. This is the basis for on-demand printing. This simple process prompts a radical rethinking of the entire printing process.

Take for example those 20,000 copies mentioned earlier. There have been various studies on the use of printed materials such as brochures, catalogs, and other corporate promotional materials indicating that a large percentage of waste is normal. The following scenario is all too familiar. A company needs 5,000 brochures, but they get such a good price break on higher quantities that they order 20,000. They distribute the 5,000 and warehouse the rest. Several months later they might use another 5,000 copies. However, after another six months or even a year, they often discover that the material is no longer viable due to changes in personnel, telephone numbers, addresses, and so on. As a consequence, they have to discard the other 10,000. This example is representative of the average situation. Almost half of warehoused printed materials get tossed. When you add the cost of printing to the cost of warehousing, these printed pieces get pretty expensive.

It is in situations such as these that on-demand printing has its real value. In on-demand printing, the cost per thousand is quite a bit more expensive compared to the cost per thousand of traditionally printed materials. However, since there are no setup charges, the cost per thousand is the same whether you print 5,000 or 50. Eliminating warehousing costs can make on-

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demand printing of 3,000 or less competitive with traditional printing. Factoring in the reduced waste (0), makes on-demand competitive up to 5,000 copies per run.

Some sources indicate that most printing consists of more than 5,000 copies per run. However, this may not be true. Other sources such as *On-Demand Printing*, by Fenton and Romano (Graphic Arts Technical Foundation, 1995) state otherwise. They make the statement, "Almost 56% of commercial, book, and office printing, including duplicating and copying, falls in the category of run lengths from 500 to 5,000 impressions." Another 16.6% of printing has run lengths of under 500. This indicates that almost three quarters of all printing has a run length of under 5,000 impressions. We must realize that an impression (one sheet of paper printed once) can have several copies of a publication on it. A 5.5x8.5-inch flyer, for example, can be printed four up on an 11x17-inch sheet. This means that 20,000 copies of that flyer still require only 5000 impressions.

These issues lead to several conclusions. First, digital presses can have a huge impact on short-run printing. Second, digital presses win out, bottom line, for any printing runs less than 2,000 copies. Three, as the benefits of on-demand printing become more apparent, the percentage of short-run printing will greatly increase.

***See Also***
Prepress; Printing Methods, Traditional; Printing Methods, Digital

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# On-Demand Printing, DocuTech System

The Xerox DocuTech system originated the on-demand printing concept. It has evolved to a publishing system that can print 600x600 dpi at a rate of 135 simplex (single-sided) 8.5x11-inch sheets a minute. This translates to 67.5 duplex sheets per minute. Although these are not phenomenal printing speeds, the DocuTech's primary focus is business and government, where a typical print run might be only 200 copies of a 2,000 page manual. In these cases, what is needed is complete document handling with strong inline finishing capabilities. This is where DocuTech shines.

DocuTech uses a network server based on Novell Netware that supports PCs, Macs, and Sun workstations. It has five major components: scanner, controller, console, printer, and finisher.

Everything is integrated to enable the DocuTech to work as a complete printshop. All document management takes place on the console. This is where the Job Tickets are created. They are required before a job can be printed. In other words, it is very difficult to print something on the DocuTech without proper documentation. This greatly benefits billing procedures in most offices. The scanner can digitize images at 600 dpi, but it is better to transfer digital images from a supported workstation. The controller can be used to do minor image manipulation.

One of DocuTech's weak points is its **RIP (Raster Image Processor)**. It is a co-processor board on the network server and is quite slow when processing

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most graphics. Text can be processed much faster. A second bottleneck is the network itself. EtherNet communications within the machine are limited to 10MB per minute. Obviously, DocuTech has problems with large **Photoshop** graphics.

The DocuTech excels in finishing capabilities. The controller can do simple **page imposition** up to the 11x17-inch page size limit. The DocuTech can impose 8.5x11 inch, 8.5x5.5 inch, and 8.5x7 inch booklets. With all the DocuTech's inline and off-line finishing capabilities, even complex jobs can be done easily. With inline finishing, the machine outputs completed books or booklets. The standard DocuTech has built-in staplers and stackers that can staple a group of pages on the corner or on the side. One optional device can collate, saddle stitch, and three-knife trim—outputting finished, saddle-stitched booklets. Another option is an inline perfect binder that produces booklets with squared-off folding edges. The DocuTech can produce finished books up to 1.6 inches thick. There is also an off-line perfect binder that mills the binding edges and folds the cover around the glued edge. This produces a very professional-looking book up to 1.6 inches thick with a maximum size of 13.75x15 inches. The DocuTech system also provides spine printers for perfect bound books, case binders that produce hardcover books, and adhesive binders that produce books that open flat. The DocuTech is designed to produce completed books economically in small quantities.

***See Also***
On-Demand Printing; Printing Terminology, Traditional

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## On-Demand Printing, Types of

An interesting new capability related to on-demand printing is the so-called targeted catalog. It is now possible to call the 800 number of a mail-order company, give the operator some personal data, and then receive a customized catalog containing only the pages that interest you. This suggests other possibilities: custom brochures, individualized price lists, and so on. In some cases, a top quality fax machine can become the **on-demand printing** device.

This type of capability is being used by college professors to create custom textbooks. There has been controversy about copyright infringement and royalties, but those details are being worked out. Basically, a teacher can choose chapters, illustrations, pages, articles, and other items from a list that the school printshop has licensed. After those choices are made, a student simply brings in a card with the choices listed and a custom book is printed (at very competitive rates). This way, there is no storage problem with unpurchased books. If a book is needed, a book is printed!

A variation of the on-demand concept reverses the normal paradigm. In the U.S., large printing firms are centrally located together near distribution centers. In the print and distribute model, tons of materials are printed and then shipped where needed. Shipping costs are on the increase, though. Remember that paper is wood without any of the open fill of the wood-fiber cells. Paper is very heavy stuff. Even trucks have a hard time with the size of many of the shipments. A hundred thousand books can easily weigh tons.

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On-demand printing reverses this scenario to distribute and print. An electronic file can be distributed (globally, if necessary) in digital form, often through the Net. It is received by individual on-demand digital printers that print the required numbers locally. Although not completely digital, distribute and print has been performed for years by giants such as *USA Today*. This widely distributed newspaper transmits electronic publication files via satellite to printing plants all over the country, such as Boston Offset in the Boston area. This enables the paper to be printed and distributed locally. Now it can be done by anyone. A couple of global printing networks have started and fizzled. However, this type of printing is getting more common and will probably become commonplace due to increasing shipping costs for printed materials.

One of the most common forms of distribute and print is broadcast fax. In this method, a document is automatically faxed to a phone list. Many newsletters are distributed in this manner. This system has not become quite as obnoxious as the phone call during dinner, but it has that potential. Unless discretion is used, this type of technology becomes self-defeating. People may be so offended by the unsolicited material that the image of the broadcasting company is damaged. A second problem is the actual quality of the printing. Most fax machines are crude at best. Even the good ones are usually only 200 dpi. In addition, most of them cannot do grayscale images. All in all, broadcast fax is an inferior method for on-demand printing.

One of the most promising solutions to the problem of fax quality is the **PostScript** fax. Although they are not widely used, some 600 dpi PostScript

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printers can receive a faxed PostScript document and print it out. This enables almost professional quality printing to be sent over the phone lines. If this becomes commonplace, the broadcast fax may take on new credibility.

***See Also***
On-Demand Printing

# OneWorld

***See***
Server/Fax, Server/Modem, Server/Remote Access

# Online Etiquette

As with any other society, the online world has developed its own etiquette. Some of its aspects are practical, while others are more traditional than functional. However, to maximize your enjoyment of online services, as well as to avoid unintentionally offending other online users, it's best that you follow this society's rules, just as you would at any other social gathering.

**Online Etiquette, Abbreviations**   When you're communicating through an electronic medium, the standard non-verbal cues to meaning, such as facial gestures and laughter are not available. You frequently have no clue whether the person you're "talking" to understands that you meant to make a joke. You can't tell whether her or his response was meant in fun or as an

insult to your appearance, ethnic origin, and typing skills. It is often hard to fully understand what someone means, particularly in casual conversation, based upon the words alone.

To make up for this, a set of abbreviations and **emoticons** is used to make up for these inadequacies. Here are some of the more common abbreviations, and examples of their use.

Common Online Abbreviations

| Symbol | Meaning | Example |
| --- | --- | --- |
| <G> | Grin. | "I'm joking." Windows 95 is so easy to install!"<g> |
| : ) | Smile | (smile) General happiness. "I got my new PowerBook today!":) |
| : ( | Frown | (frown) General unhappiness "My PowerBook doesn't work!":( |
| IMHO | | In my (humble) opinion... "The Mac is simply superior, IMHO" |
| BTW | By the way... | "btw, have you seen cybergrrl on the net?" |
| FWIW | For what it's worth | "FWIW, you might try backing up your |

> hard drive BEFORE the crash next time.
> <G>"

LOL      Laughing Out Loud      "Your cat ate your mouse?" LOL!

**Emphasis** One of the oldest and most strictly enforced rules of online etiquette is the use of upper- and lowercase in messages. The use of uppercase is generally reserved to indicate emphasis on a particular word or phrase. Because uppercase is used to indicate emphasis on a word, A MESSAGE IN ALL UPPERCASE OFTEN APPEARS TO BE SCREAMING! Although sometimes its appropriate to scream, a multi-paragraph message in all caps will either go unread or lead to a ration of replies detailing this rule of etiquette. On the other hand, many people use *only* lowercase, making their writing resemble the work of poet e e cummings. This is entirely acceptable, as is the use of asterisks or underscores to set off words being emphasized. *This* is an _example_. Spelling and typing mistakes are common, in forum postings, email, and especially in live conferences. It's customary to ignore mistakes, unless you absolutely can't decipher the words.

**Replies** Most online systems and newsgroups keep messages for some time after the original interchange, so that other callers can benefit from what was discussed. However, you never know how long each message will last, or where future callers will jump into the trail of messages (usually called a "thread" of messages), so its considered polite to quote the relevant part of the original message in a reply. For example:

*From:* John Doe

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*To:* ALL

How the heck can I get my monitor to show something on the display? I turn the computer on, and nothing appears on the monitor. I've got a Mac II cx and an Apple 13" display. I'd really appreciate any help!

Thanks,

John

*From Freddy Smith*

*To: John Doe*

*<<How the heck can I get my monitor to show something on the display?>>*

Try turning on the monitor... Fred<g>

When you quote a previous message, use some sort of symbol, such as the <<>> ones shown previously, or an introduction like "On 4/1/96, REEBOK asked "How can I get a replacement manual for my Iisi?" Quote enough of the message so others can tell what you're responding to, but don't quote the whole thing if it's long. And, if you're replying to a reply, don't quote the entire thread, as some newsgroup members seem compelled to do. It just wastes time.

**Flames** Sometimes people use the electronic message boards to say things they wouldn't have the nerve or decency to say in person. Such messages, generally called flames, are most often seen in Internet newsgroups, but may

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also appear on forums or bulletin boards in the online services. When one person posts a flame, inevitably several more respond with flames of their own. Brutal "flamewars" scare others away, and eventually become boring for everyone else who uses the message center. A moderated forum is likely to have a "no flame" rule, and may bar access to anyone who refuses to respect it. Keep the tone of your messages friendly. Try not to type anything that you wouldn't say in person to a casual friend. Overall, the online community is friendly bunch, and are always willing to help newcomers. Stay within the rules, jump in, and ask for help as you go. You won't be sorry you did.

***See Also***
Netiquette

# Online Games

Online Entertainment is almost as vast as the range of game types on CD-ROM. Each of the commercial online services offers something in the way of online gaming that differs from games like MUDS and shareware. CompuServe offers game forums that are mainly discussion groups about different types of Mac games. Typing "Go Macfun" will get you to the Macintosh Entertainment Forum.

**GEnie** , the underdog of online services, has the largest array of multi-player gaming options and, being text-based, is cross-platform. . On Genie, type

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"Games." Delphi, also a text-based service, offers nightly live trivia games, word games, and multi-player poker, as well as several other multi-player games.

Most of the big online services including Prodigy and AOL periodically offer games such as Fantasy Sports Leagues, Trivia games and Internet scavenger hunts as well as traditional arcade and text-based games.

The best bet besides a MUD for online gaming are the smaller, game-dedicated networks like Sim-Net and GameNet. Sim-Net and GameNet work by using a combination of **Apple Remote Access (ARA),** the Internet and an email service called **First Class Client** . The services offer the same type of benefits of the larger services such as chat-rooms, email and message-boards, but they are completely devoted to games and gaming. Price-wise, they cost a lot less than CompuServe or America Online and, if you are really into online games, you can't go wrong with them as they offer a lot more than either larger service. An all-Mac based service, Outland, is probably the most beneficial of the bunch. Backgammon lovers will rejoice over MacF.I.B.S. (First Internet Backgammon Server) which runs with Mac TCP/PPP software and Internet access. There is no additional fee for hooking up, other than the Internet connection and you can play against real people as opposed to playing the computer. (For those without Internet access, Backgammon from MacSoft should more than fulfill your curiosity).

If you have Internet access with a fast connection and love puzzles and trivia, check out www.riddler.com. Riddler is a sponsored game network that

gives you the chance to earn real money and real prizes. There's no cost to join, beyond the cost of your Internet connection.

***See Also***
Multi-User Dungeons; Network Gaming; Shareware Games

# Online Entertainment

***See***
MUDS, Network Gaming, Online Live Games, Shareware

# Online Services

Although the purpose of a modem is to connect your computer to another computer, the simple connection between two computers generally isn't that interesting. What makes telecommunications exciting is the ability to dial up computers that are connected to many other computers and to large databases, either through a private online service such as **America Online** , **Prodigy** , **CompuServe** , or directly to the worldwide **Internet** . (See each topic separately for a detailed discussion.)

The commercial online services are nationwide computer networks which allow you to exchange messages and files with other computer users around the world by simply calling the closest branch of their network. They have dial-in numbers local to most major cities, and charge you one-time sign-up

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fees plus an hourly fee for the amount of time spent online. Commerical services provide many features in addition to email and forum messages and libraries of downloadable files.

All the major services offer news and weather that's updated frequently, research facilities including online encyclopedias, searchable databases of magazines and other reference material, travel services including access to the same SABRE reservations system that travel agencies use, convenient online catalog shopping and a great deal more. Most have some kind of interactive games which you can play by yourself or with others. All have an area for live conversation, called "chat" or "conference".

What makes the services worthwhile to most users, though, is the opportunity to share information in forums. A forum is a sort of public bulletin board within the service, on which a user can read what other people have written about a particular topic and add in his or her comments. Forums are generally built around a particular topic, such as a hobby or sport, an occupation, a particular computer or software product worthy of discussion, or any kind of affinity group you could name.

There are forums for fans of Jimmy Buffett; fans of B-movie director Ed Wood, Jr.; fans of (and those who as ardently dislike) Rush Limbaugh. Howard Stern, and virtually any other public figure. There are forums for readers and writers of mysteries, romances, and cookbooks. There are support groups online for every possible medical problem and most psychological disorders. There are health and wellness forums to balance things out. There are

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forums for kids, parents, and even cats, bunnies, and dogs. (Their owners do the typing, of course.)

Private online services, often known as a BBS (Bulletin Board System) are set up by individuals, user groups, or companies either for recreation or profit. They consist of a single computer system, with telephone numbers located in one area. Although these types of services have a smaller number of callers and available files, they are often free, and are good meeting places for people of similar interests. As with many things in the computer world, the progression of the Internet is rapidly diminishing interest in private BBSs. In many cases today's Web pages and FTP sites are replacing what was once the realm of the local BBS.

Overview of Commercial Online Services

| America Online | Low cost, easy to use. More limited than Internet. |
| CompuServe | Vast resources, more difficult to use. |
| Prodigy | Non-Mac standard interface. |
| eWorld | Has been discontinued. |
| AppleLink | Very pricey. Of interest mainly to Apple dealers and employees. |
| Genie | No graphical interface. |

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| | |
|---|---|
| Internet | Worldwide resources, growing exponentially. Can be very inexpensive in some areas. More difficult to set up and use. Most broad in usage. |

**Table note follows**

*See each topic individually for additional discussion

***See Also***
America Online; AppleLink; CompuServe; eWorld; Internet

# Onslaught
***See***
V for Victory

# Open Command
This enables you to open a document, folder, disk, or program. To open an item, select the item and select Open from the **File menu** (⌘-O) in the **Finder**, and that item opens. **Double-clicking** an item also invokes the Open command.

Folders and disks open by displaying a window where you can see their contents. Files open when the program that created them is **launched** and then the user opens a particular document. Programs open by launching.

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After an item has opened, if you look at the item's icon, you'll see that it's now filled with a series of dots, indicating that the file is open. You can also open more than one item at a time with the Open command by selecting multiple files while holding the Shift key and then choosing Open. This opens all selected items, one after another.

To open an item, follow these steps:

1.  In the Finder level, select Open (⌘-O) on the File menu or double-click the item.

2.  If the item is a disk or a folder, the item opens a window showing you its contents. If the item is a document, it launches the program and displays the document. If the item is a program, it launches the program.

***See Also***
Double-Click; File Menu; Finder; Launch

# Open Command (Keyboard Shortcut)

When opening a document, **disk,** or **folder**, you can use the keyboard shortcut ⌘-O. This works at both the **desktop** level and within applications.

***See Also***
Desktop; Disk; Folders; Keyboard Shortcuts; Open

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## Open Dialog Box

The Open dialog box appears when you are in an application and want to open a document, as shown in the following figure. Most Macintosh programs use the same shortcut to open a file within a program as they do to open a file in the **Finder** (⌘-O).

When the Open dialog box appears, select the document you want to open from a scrolling list within the dialog box. If the document you want does not appear in the list, you can use the **pull-down menu** above the **scrolling** list to go back to your hard drive and select another folder.

If the document is on an **external drive** or on a **disk**, you can click the **Desktop button**, which enables you to look on any of the devices **mounted** on your **desktop.** If you're in a folder and want a quick way to get back to hard drive level, click the icon of your hard drive in the upper-right corner of the Open dialog box. That takes you to, and lists, the contents of that drive.

When you locate the folder that contains the document you're looking for, double-click it to show the contents of the folder. When you locate the exact file you want to open, you can either double-click it to open the file, select it and then click the Open button, or select a file or folder and press the Return key.

### *See Also*
Desktop; Desktop Button; Disk; External Drive; Finder; Mounted Disks; Pull-

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## Open Folder/Disk (Keyboard Shortcut)

You can open any **folder** or **disk** by selecting the folder or disk and using the keyboard shortcut ⌘-Down Arrow. You can also open an selected file or disk by pressing ⌘-O as a keyboard shortcut for the Open command.

To open a folder/disk using a keyboard shortcut, follow these steps:

1. Select the folder/disk by navigating from folder to folder using the **arrow keys** .

2. When you've selected the folder/disk you want to open, press ⌘-Down Arrow to open the selected folder/disk.

 *See Also*
Arrow Keys; Disk; Folder; Keyboard Shortcuts

## Open Media Framework Standard

A cross-platform standard developed by Avid and adopted by the **IMA** (Interactive Multimedia Association) as a recommended format for data exchange. Providing you have software that understands it, Audio and Video can be transferred between a Macintosh and other operating systems,

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including Windows and Silicon Graphics.

***See Also***
VideoFusion

# Open Next (Keyboard Shortcut)

In an **Open dialog box** of an application, you are presented with a list of files and folders that you can open. The first file in the list is already highlighted by default. If you don't want to open that file, you can select and open the next file, or folder, down the list (they appear alphabetically) by pressing ⌘-Down Arrow. This keyboard shortcut saves you a step by not only selecting the next available file or folder down the list, but it also opens the file or folder for you.

***See Also***
Disk; Dialog Box; Keyboard Shortcuts; Open

# Open Prepress Interface (OPI)

Open Prepress Interface is an extension of the **PostScript** page-description language that enables automatic image replacement during film output. Specifically, OPI substitutes high-resolution images for low-resolution placeholder (proxy) images incorporated into an electronic publication file by its originator. The OPI scheme is most frequently used at color trade shops

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and service bureaus. The service provider uses a high-end scanner to produce very high-resolution (2,000 ppi and above) digitized images, but because these images are difficult to process on a desktop computer due to their large file sizes, a low-resolution proxy image is supplied to the client. The proxy image is usually a TIFF and can be placed into any page layout or graphics software application that supports OPI.

When a PostScript publication file is output for **color separations** , OPI PostScript comments specify the page location, layout position, size, and cropping for the placeholder images. At the service bureau or trade shop, a prepress software application, such as Adobe Color Central, reads the OPI comments and substitutes the high-resolution versions before imaging the separations.

### *See Also*
Automatic Picture Replacement (APR); Color Separations; Image Scanning

# Open Scripting Architecture (OSA)

When Apple's engineers were designing the foundations of **scripting** on the Mac, they realized that same scripting language would not be best suited for everyone. Rather than facing the chaotic possibility that many separate language vendors would each create their own completely separate scripting system, they designed the Open Scripting Architecture.

This architecture enables users to write scripts in a variety of languages, all

of which use the same basic mechanism (**Apple events** ) to communicate with the individual applications that the scripts control.

Each OSA-compatible scripting system implements a scripting *component* that translates commands written in its own language into a string of Apple events that the Apple Event Manager then passes on to the scripted application. The OSA component can also translate the other direction (from Apple events to its own language) when recording.

Both **AppleScript** and **Frontier**'s UserTalk are OSA-compatible scripting systems. As a result, the AppleScript Script Editor can execute UserTalk scripts and Frontier can execute scripts written in AppleScript. Neither program has any special support for the other's language, but because they each use the Open Scripting Architecture, they work fine with the other's language.

***See Also***
Apple Events; AppleScript; Frontier; Scripting

# Open Systems Interconnection Model

The Open Systems Interconnection model, or OSI for short, is a network model designed by the International Standards Organization (ISO) that divides network communications into seven functional layers. The layers provide a communications relay from one system to another, with each layer responsible for a particular type of network service. The OSI design has

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become the standard for LAN product design. The layers are

- Physical
- Data Link
- Network
- Transport
- Session
- Presentation
- Application

The first two layers deal with data transmission. The physical layer is where the actual physical cabling exists. Three different kinds of EtherNet and two kinds of Token Ring cable are defined in this layer. The Data Link refers to the specific kind of cabling employed. It places a frame, a sort of network delivery vehicle, around the data being sent. Frames are specific to the kind of cable being used. When you choose a network driver on the Mac's Network Control Panel, you're defining the Data Link frame to use. It's as if you had several roads, all going to the same place, but only blue cars can drive on one road, red cars on another, and green cars on the third. You can put your data package into any colored car and send it to its destination. The color of the car (or the data link frame) determines the route, whether it's LocalTalk, EtherNet, TokenTalk, or some other network driver.

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The next three layers are concerned with protocols. The network layer addresses the message for delivery. It turns the data into a datagram—a packet with destination and return addresses specific to a particular networking protocol. The Transport layer insures reliable delivery of the message packet. If a portion of the message is garbled, it's the task of this layer to retransmit the garbled bits until they're received correctly. The Session layer deals with establishing and maintaining a connection between the computers so that messages may be sent and received. It also manages the communications to assure a logical sequence to them. The final two layers are concerned with the format and the message itself. The Presentation layer manages file formats such as PostScript, ASCII text, and Microsoft Word. It also manages access formats such as AFP (Apple Filing Protocol) and TCP/IP. Finally, the Application layer is the place where network services and applications reside. It uses the formats established in the previous layer.

# Opening an Application

To open an application you have four choices. You can select the application by clicking the icon for the application and choosing Open from the **File menu.** You can also simply **double-click** the application's **icon** to launch the application. The third way to launch an application is to double-click a document created by the application you want to launch. This launches the application and open the document you selected by double-clicking. The fourth way is to select a document created by the application, and choose

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Open from the File menu. This launches the application and opens the selected document.

To open an application, follow these steps:

1. Click the application you want to open and choose Open from the File menu.

2. Double-click the application.

   You can also double-click any document created by the application and it launches the application and opens the document you double-clicked.

3. You can also select a document created by the application and choose Open from the File menu. This also launches the application, and then open the selected document.

***See Also***
Double-Click; File Menu; Icon

# Opening and Closing Files

There's a host of little tips and tricks that can make opening and closing files more efficient. In System 7 and higher, there's another way to open documents besides choosing Open (Command-O) or **double**-**clicking** . You can drag a document onto the icon of the application that created it and the

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application will launch, opening the document.

To open a number of documents at once, select them all (by shift-clicking or dragging a marquee selection over them) and choose Open from the **File menu**. The documents launch the applications that created them and open, one after another, in the application. The document that you selected last appears as the active document. Keep this in mind when you make your selections, and you can have the document you want to work on first open and waiting for you, with the others behind, by selecting it last.

If you choose to open a document, and then change your mind before the document is open, in most cases you can press Command-. (period) to cancel the opening of the document.

Another shortcut to opening a file is to select the file (by typing the first few letters of its name) and press Command-down arrow. This opens the document and closes the window that the document was in.

To close an open window at the **Finder**, you have three choices:

- Click the Close box (in the upper-left corner of the window's title bar).
- Choose Close from the File menu.
- The quickest way is to choose Command-W (the keyboard shortcut for close).

If you hold the Option key while choosing any of the three methods for closing a window, all open windows are closed.

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# Operators

**See**
Spreadsheet Notation

# Operations, How the Macintosh Works

The Macintosh runs using a complex interaction between the applications you load, the operating system that manages both files and how they appear on-screen and the hardware that performs the work. The Finder is the System's interface between your programs and the hardware. When the Macintosh is operating properly, each part does its job transparently. The figure that follows provides an illustration of the types of functions performed by the System software in maintaining the look and feel of the Macintosh.

PowerPC-based Macintoshes use an emulator program hard-wired into its ROM to translate 680x0 instructions into PowerPC instructions line-by-line (also called an interpreter). The emulator does not translate memory management unit (MMU) or floating-point instruction (FPU) instructions, which may cause problems in those 680x0 applications that require a floating

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point processor (such as PhotoShop or Microsoft Excel). Early versions of these programs that are not re-written to be PowerPC-native will crash or not launch on a Power Macintosh. Power Macintoshes also make use of new system software available in System 7.1.2 (although the current system version is 7.5.3 that offers more Power Mac native enhancements), that supports shared libraries (such as spell checkers, graphics modules, PhotoShop filters, and so forth). The Shared Library Manager opens up these semi-private and shared resources to all applications that support shared libraries. This way, any word processing program or graphics program that has this capability can use, for example, a public thesaurus by linking to it using the Shared Library Manager.

***See Also***
FPU; PowerPC

# OPF

***See***
OpenDoc Part Framework

# OPI

***See***
Open Prepress Interface

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## Optical Character Recognition

*See*
Scanners, OCR Software and, Scanners

## Optical Drives

*See*
Backing Up with Optical Drives

## Option Key

This **modifier key** is designed to be used with other keys to add additional functionality to the keyboard and is used with other keys to access certain symbols in fonts. It's also used with the **Command key** and **Shift key** in keyboard shortcuts for **menu** commands and **mouse** actions.

Option Keys

*Sequence   Result*

**Option-1**   [ue]

**Option-2**   [tm]

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| | |
|---|---|
| Option-3 | £ |
| Option-4 | ¢ |
| Option-5 | |
| Option-6 | § |
| Option-7 | ¶ |
| Option-8 | • |
| Option-9 | ª |
| Option-- | – |
| Option-= | [ne] |
| Option-q | œ |
| Option-w | |
| Option-e | ´ |
| Option-r | ® |
| Option-t | † |

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| | |
|---|---|
| Option-y | ¥ |
| Option-u | ¨ |
| Option-i | î |
| Option-o | ø |
| Option-p | |
| Option-a | å |
| Option-s | ß |
| Option-d | |
| Option-f | ƒ |
| Option-g | © |
| Option-h | ˙ |
| Option-j | |
| Option-k | ˚ |
| Option-l | ¬ |

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Option-;   … (ellipsis)

Option-'   æ

Option-z

Option-x

Option-c   ç

Option-v

Option-b

Option-n   ñ

Option-m   µ

Option-,

Option-.

Option-/   ÷

Option-\   «

Option-Shift-Q   Œ

# O

**Option-Shift-U** ¨

**Option-Shift-O** Ø

**Option-Shift-P**

**Option-Shift-A** Å

**Option-Shift-'** Æ

**Option-Shift-C** Ç

**Option-Shift-V**

**Option-Shift-?** ¿

**Option-Shift-+** ±

**Option-Shift-- (dash)** —

**Option-Shift-8** °

*See Also*
Commands; Command Key; Menu Bar; Modifier Keys; Mouse; Shift Key

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## Option Key Character Set

Special characters within many **fonts** are accessed by using the Option key with other keys, including the **Shift key** and the **Command key**. These characters are found using the **Key Caps DA**. To view these special characters, choose Key Caps from the **Apple menu** and hold the Option key. This reveals the Option Key Character Set in the keyboard display of the Key Caps window.

Option Keys

| *Sequence* | *Result* |
|------------|----------|
| **Option-1** | [ue] |
| **Option-2** | [tm] |
| **Option-3** | £ |
| **Option-4** | ¢ |
| **Option-5** | |
| **Option-6** | § |
| **Option-7** | ¶ |

# O

| | |
|---|---|
| **Option-8** | • |
| **Option-9** | ª |
| **Option--** | – |
| **Option-=** | [ne] |
| **Option-q** | œ |
| **Option-w** | |
| **Option-e** | ´ |
| **Option-r** | ® |
| **Option-t** | † |
| **Option-y** | ¥ |
| **Option-u** | ¨ |
| **Option-i** | ˆ |
| **Option-o** | ø |
| **Option-p** | |

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| | |
|---|---|
| **Option-a** | å |
| **Option-s** | ß |
| **Option-d** | |
| **Option-f** | *ƒ* |
| **Option-g** | © |
| **Option-h** | ˙ |
| **Option-j** | |
| **Option-k** | ˚ |
| **Option-l** | ¬ |
| **Option-;** | … (ellipsis) |
| **Option-'** | æ |
| **Option-z** | |
| **Option-x** | |
| **Option-c** | ç |

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Option-v

Option-b

Option-n  ˜

Option-m  µ

Option-,

Option-.

Option-/  ÷

Option-\  «

Option-Shift-Q  Œ

Option-Shift-U  ¨

Option-Shift-O  Ø

Option-Shift-P

Option-Shift-A  Å

Option-Shift-'  Æ

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**Option-Shift-C  Ç**

**Option-Shift-V**

**Option-Shift-?  ¿**

**Option-Shift-+  ±**

**Option-Shift-- (dash)  —**

**Option-Shift-8   °**

*See Also*
Apple Menu; Command Key; Fonts; Key Caps DA; Shift Key

# Order of Operations
*See*
Formula

# Orientation
This word evokes images of freshpersons in beanies looking bewildered on the first day of college, but it actually refers to the position of text or an image on a piece of paper. There are two orientations: *portrait* and *landscape.*

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In portrait orientation, the page is taller than it is wide. In landscape orientation, it is just the opposite; the page setup is wider than it is tall. The icons that indicate them in a typical word processor page set up box are shown in the figure, along with a pair of suggested improvements.

# Ornament and Dingbat Fonts

Probably the best-known ornament **font** is Zapf Dingbats, which almost everyone with a Mac has. Designed by Hermann Zapf in 1978, this font contains a collection of ornamental, essentially meaningless, symbols that can be used to spice up a design. These range from abstract starbursts and hearts to checkmarks and arrows. And believe it or not, "dingbat" is a traditional printer's term for an ornamental element.

Some ornamental fonts contain reproductions of historical printer's ornaments, while others are completely modern. Some are made to form borders when whole strings of characters are typed together. Common character types are abstract curliques and stylized leaves and flowers.

A related **category** of typefaces is **picture fonts** , in which each character is a drawing of some sort; these images tend to be more complex than dingbats, and they can be a substitute for **clip art** .

***See Also***
Clip Art; Fonts; Picture Fonts; Typeface Categories

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## Orphans
*See*
Widows and Orphans

## Orwell, George
*See*
1984

## OS Tips and Tricks
For tips and tricks on the MacOS, use this table to find the entries you want:

Tips and Tricks Guide

| *Description* | *Entry* |
| --- | --- |
| How to select text better | Extended Double-Click Text Selection |
| Get more Find File options | Find File Search Options |
| Need to determine a SCSI ID | Finding Out A Device's SCSI ID Number |
| Fix the screen on your Performa | Improving a Performa's Picture |
| Get more listing views for windows | Listing Windows with Small Icons |

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Reuse a disk that seems permanently locked

Permanently Locked Disk, Using

| | |
|---|---|
| Fix a bad floppy disk | Rebuilding the Desktop on a Disk |
| Quick access to files | Saving Time in Open and Save Dialog Boxes |
| Align icons automatically | Aligning Icons Automatically |
| Save time with windows | Time Saving Window Tips |
| Copy files to folders | Copy Files from Folder to Folder |
| Create screen shots | Opening and Editing Screen Captures |
| Best use calculator | Copying and Pasting into the Calculator |
| Desktop Pattern Tricks | Desktop Pattern Tricks |
| Find File Tricks | Find File Tricks |
| Map control panel secrets | Hidden Map Control Panel Features |
| Using the Jigsaw | Replacing the Jigsaw Puzzle Graphic |
| Starting up with other disks | Bypassing the Internal Startup Disk |
| Is a file locked? | Shortcut to Determine if a File Is Locked |
| Control order of folders and files | Forcing Items to the Top of a List |

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## Out of Memory Message

This is a warning message the Mac displays when you're nearly out of **memory** (RAM). This is the Mac's way of warning you that you that you're close to a memory error, and if you don't make some memory available, by **quitting** open applications or closing open windows, the program you're working in may quit without warning.

You may see this message when you have a number of applications open and you're just about out of memory. This message warns you and enables you to take action: close open applications, close open windows, and so on to free up some more memory.

If you get this message often, it may be time to by additional RAM for your machine, but you can also look at other methods of making more RAM available to your Mac, such as turning on Virtual Memory in the Memory Control Panel (System 7 and higher), which enables you to use a portion of your available hard disk space as RAM. There is also a commercial product called RAM Doubler from Connectix Corporation that uses a Virtual Memory scheme to make your Mac think there's twice as much memory available than is installed on your machine. It works quite well, and if you have, for example, 8MB on your machine, after installing RAM Doubler, the system will think it has 16MB and will let you open applications until you reach the 16MB

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limit.

***See Also***
Memory; Quit; RAM

# Out of the Sun

Flying Nightmares, the first game optimized for the **Power Mac,** was Domark's first attempt at a Mac **flight  sim** . Domark's follow-up, **Out of the Sun**, sported a much improved version of Nightmares and offered one of the more technically realistic flight sims available. Though not up to the degree of finesse of later titles **F-A/18 Hornet** and **A-10 Attack!** , Out of the Sun is a great game and requires no small amounts of skill to master.

World War II buffs will enjoy the historically accurate setting of the missions: Midway, D-Day and the battle of Kursk. You can even play as an ally or a Nazi, depending on your mood. The only real drawbacks of the game are the low resolution graphics and the absence of **network**  play. Beginners may want to try out the easier levels of F/A-18, but for experts, the realism and high level difficulty of Out of the Sun should be right up your alley.

***See Also***
A-10 Attack!; Absolute Zero; F/A-18 Hornet; Rebel Assault II; Sim Games; Wing Commander III

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## Outline Fonts

Also known as printer fonts, outline fonts contain character descriptions that are sent to the output device when a document containing those fonts is printed. Each character is described by its outline, so it can be printed accurately at any size. **PostScript fonts** contain bitmapped fonts as well, which are used for screen display, while **TrueType fonts** contain only outline fonts.

***See Also***
Fonts; PostScript; TrueType

## Output Devices

***See***
Desktop Printing; Printing Methods, Digital

## Output, High Resolution

***See***
Resolution Measurement

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## Output, Preparing Files for

When you're ready to take your files to a **service bureau** or **printer** for output, there are a few steps to follow that will help make sure things work out as planned.

- Delete unused items from the **pasteboard** , delete unused colors, and do a Save As.

- Organize your disk so that the service bureau staff can easily find everything they'll need.

- Include all graphics referenced, including those embedded in other graphics. List them and indicate their formats. Don't forget ones placed on **master pages** .

- List all fonts, including those used in **EPS** files, indicating their full name (Helvetica isn't the same as Helvetica Neue), format (**TrueType** or **PostScript** ) and vendor (different companies offer different versions of many classic fonts).

- List and include preference files and required **add-on software** .

- Supply a laser printout, color if possible, otherwise with colors printed as grays.

- List the following: the application the files were created in; how many files and which ones are to be output; media you want output (film, RC,

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laser proofs, Iris prints, etc.); and how you want the files output (positive/negative, right- or wrong-reading, size percentage, with or without crops, spreads or individual pages, imposed flats, resolution, line screen, composite or separated); and any other relevant information, such as paper stock, ink colors, whether there are bleeds, whether there are folds or perforations required, and how many copies you need.

- Indicate whether work needs to be done on the files before they can be output, such as trapping, and how many plates there are, if you're having **color separations** output.

- Last thing before you send off your disk, open your documents on a computer not networked to the one you created them on. Install the fonts you've listed, check graphics links, and print the document to make sure you've included all the necessary files.

***See Also***
Add-On Software; Color Separations; EPS; Master Pages; Pasteboard; PostScript; Printers and Service Bureaus; Trapping; TrueType

# Overprinting
***See***
Color Trapping

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