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A-10 Attack!

A-10 Attack! was designed by Eric Parker, creator of Hellcats Over the Pacific for Graphics Simulations. Hellcats is generally considered to have set the modern standard for top-of-the-line flight sims like F/A-18 Hornet and Flying Nightmares.

A-10 Attack! introduces the Virtual Battlefield environment. Instead of only being in charge of a single plane during battle, the Virtual Battlefield allows you to switch between vehicles, including land-based jeeps and tanks and submarines. The game adds in the elements of strategy, requiring you to control an organized fleet rather than merely participating in a computerized attack. A-10 Attack! missions take place in Germany during a communist invasion. A-10! Cuba incorporates the Virtual Battlefield environment and great scenery and graphics of A-10 Attack! and brings the action that much closer to home.

See Also
Absolute Zero; F/A-18 Hornet; Out of the Sun; Rebel Assault II; Sim Games; Wing Commander III

A-10 Cuba!

See
A-10 Attack!

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About this Macintosh Dialog Box

In System 7 and higher, at the desktop level the About This Macintosh dialog box is found on the Apple menu listed as the top item. This dialog box gives you vital information on a number of important topics relating to your individual Macintosh.

The About This Macintosh dialog box shows you the model name of the Macintosh you are using and the currently installed version of the Macintosh System Software, as shown in the following figure.

It also shows the total memory (amount of RAM) you have installed on your Macintosh, listed in Kilobytes (K). Below this information, in a scrolling window, appears the listing of all open applications (if any are open) including the System (which takes up memory) and the amount of memory each of the applications is using. Beside each figure is a bar graph indicating how much of the memory allocated to that program is being used. The largest unused block of free memory still available is listed above this window.

This is a quick place to look to find the amount of total memory you have, how much is still available to you, and how much you've allocated to each program. This window is for information purposes only and you cannot make any changes to memory allocations from this dialog. The Get Info window (-I) is used to adjust memory allocations.

Although the About This Macintosh command appears at the top of the Apple menu when you're at the desktop level, when you're working in an

application, it is replaced by an "About This Application" menu command that contains information about the software application. (The name of the active program appears at the top of the Apple menu, such as About Microsoft Word.) When you select this menu command, a dialog box appears and although they differ from program to program, they generally contain the name of the software, the version number of the installed software, the serial number, the date it was copyrighted, and often times credits listing the people who developed the product. It's also popular to have the splash screen that displays when you first launch the application appear as the About This Application dialog box.

To view the About This Macintosh information dialog box, follow these steps:

1. At the Finder, on the Apple menu, choose About This Macintosh. (It appears at the top of the Apple menu.)
2. A dialog box appears showing you information for your individual Macintosh, including memory usage, model name, and current System version.

See Also
Apple Menu; File Menu; Get Info; Kilobytes; Memory; RAM; Software; System

About this Macintosh Easter Egg

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Programmers often hide a humorous message, or programmer credits, or a host of personal messages within certain applications. These personal adds-ons are called Easter Eggs, and one is hidden with the About This Macintosh dialog. To see the hidden Easter Egg, press and hold the Option key and select About This Macintosh on the Apple menu. (Note: when you hold the Option key, the name changes to About The Finder.)

When the dialog appears you'll see a graphic of a mountain range, and a scrolling lists of credits will soon appear with the names of the designers of all the different versions of the Macintosh Finder. Each group goes scrolling by with the date of their version and there's a pause between each group, so be patient to see them all.

To view the About This Macintosh Easter Egg, follow these steps:

1. At the Finder Level, under the Apple menu, hold the option key and choose About This Macintosh (It appears at the top of the Apple menu.)
2. A dialog box will appear showing you a graphic of a mountain scene and soon a scrolling list of credits will appear naming the programmers of each version of the finder, along with the date it was created.

See Also
About this Macintosh; Apple Menu; Easter Eggs

A

Absolute Path

A way of describing the location of a document or object on the Internet so that it can be accessed by means of a hypertext link.

A pathname is part of the A HREF or hypertext reference in HTML that leads to the document or object. An absolute path, in contract to a relative path, points to a destination file by starting at the top level of your directory (or folder) hierarchy and working through all the subsequent folders until the file is located.

An absolute path always begins with a backslash, for example:

<A HREF="/my_computer/HTTP_documents/Web_files/company/index.html">

Relative path names are generally preferred to absolute path names because absolute path names are not portable. If the Webmaster of a Web site moves any of the documents linked with absolute path names to other documents, all of the hypertext references will have to be changed to reflect the new location(s).

See Also

<A> Anchor Tag; HTML; Internet; Relative Path; URL; Webmaster; Web Site; World Wide Web

Absolute Versus Relative Motion

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Absolute and relative motion refer to the method that the Macintosh tracks movement from an input device like a mouse or graphics tablet. Absolute-motion pointing devices have palettes or tablets on which any location correlates to a position on the screen. Relative-motion pointing devices control the cursor on the screen in less specific terms, relaying to the computer how far the cursor has moved and in which direction.

Graphics tablets are absolute-motion pointing devices. The stylus tells the Mac its physical location on the tablet, and that location is mapped to an exact location on the screen. When you move the stylus on the palette, the cursor on the screen moves to the same location on the screen. Graphics tablets are able to operate in relative motion, but their ultimate benefit is their ability to trace exact positions.

The mouse and trackball are relative-motion pointing devices. The mouse reports how far it has moved and in which direction, but does not tell the Mac where it is on the desk or mouse pad or on the screen in specific terms. Although this method is fast, it lacks the precision of absolute-motion pointing devices.

See Also
Graphic Tablets; Mice; Touchpads; Trackballs

Absolute versus Relative Reference

Spreadsheet formulas tell the program to take a number in one cell,

manipulate it a certain way, and put the result in another cell. To do this, you need a consistent way to specify cells. Spreadsheets assign each a unique address based on how many columns it is from the left margin and how many rows from the top of the sheet. Columns are always alphabetical and rows numerical, so the references work like the grid on a road map: if a formula refers to B5, it's talking about the specific cell in the second column (column B) and the fifth line down.

Relative Reference

Spreadsheets have the ability to adapt formulas when you move them to new locations. In the figure that follows, you can put monthly sales figures in column B and then add them up in cell B14. If you want to also find a total for gross profits, you can copy B14 and paste it into C14. The program will paste the formula shown in the formula bar, but it will also do the following:

- Recognize that it's in a new column
- Assume that you want to total the new column's data
- Change itself to refer to that data

So the original formula will stay in B14, but the pasted version in C14 will be "=SUM(C2:C13)." This automatic process of changing parts of a formula to reflect a new location is called relative referencing.

Absolute Reference

The relative referencing feature can create a problem if you always want to

refer to a specific cell in a formula. In the figure that follows, you can add a sales incentive specified in B16 as 2.5% of gross profit. To compute January's incentive in D2, you can use the formula "=C2*B16". If you paste that formula into D3, it will correctly change the C2 row reference to C3 to compute February's incentive. But it will also change the B16 to B17. and not find the 2.5% rate. You need some way to tell the program to change one part of a formula but not another.

Almost every spreadsheet does this with a dollar sign to indicate parts of a location you don't want to change. In the figure's formula bar, you can see how to specify "B16" as an absolute location for figuring incentives. You can copy or move the formula anywhere, and it'll always refer to that same cell.

You could have written the original formula "=C2*1.025" and gotten the same result. But absolute addressing gives you a tremendous advantage. Imagine a large spreadsheet with individual figures for an entire sales force, and you want to try different incentive rates. Instead of typing a new rate in dozens of formulas, you simply type it into B16. Every cell with that absolute reference will update automatically.

The row, column, or both can be absolute:

- $B16 says to always use data from the B column, but move up or down as appropriate;
- B$16 says to always use row 16, but move sideways as appropriate;

- B16 will always refer to that one unique cell, no matter where the formula is moved or pasted.

See Also
Fill; Functions; Spreadsheet Notation; What-If Calculations

Absolute Zero

In Domark's space-flight simulator, Absolute Zero, the year is 2347 and Earth has managed to come into conflict with an alien colony living on a Jupiter's moon Europa. The game pits you against the aliens in a series of missions which require you to maneuver various spacecraft through mines, mazes and ice shafts. As with Out of the Sun, a Domark flight sim, precision timing is a necessity in Absolute Zero. Most of the challenge of the game doesn't lie in the actual mission, but in the maneuvering of the vehicle. Things can get out of control quickly, making Absolute Zero a challenge to even the experts. Absolute Zero is nicely done and offers a rollicking time for those looking for an alternative to World War II missions and military planes.

See Also
Rebel Assault II; Sim Games;Wing Commander III

Accelerator Boards

See

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CPU Upgrades

Access Privileges

The granting of access to files contained in shared folders on computer networks. On a file sharing system like AppleShare, access can be granted either to individual users or to groups of users who work on projects together or need to share information within a department.

When a user navigates through levels of folders (or directories) held on a server connected to the Internet, the contents of some folders will be publicly available to anyone, but some folders may require access privileges that are restricted to certain users or groups.

If you see a “Forbidden URL” message it means you do not have access privileges to view the files in the folder whose URL you have accessed. (Note: This often occurs because the owner of the site has inadvertently retained restricted access to a file, or because the file is missing.)

See Also
Asynchronous Transmissions; Bulletin Board Service; Commercial Online Service; FTP; Internet; Network; World Wide Web

Accidentally Jumping to the Finder,

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Avoiding

If you've ever been working in an application and accidentally clicked outside the document's window, you return to the Finder. Some users find this very annoying. In System 7.5 and higher, there is a feature that enables you to "hide" the desktop while you're working in an application, so if you should accidentally click outside the document's window, you won't leave the application and go to the Finder. You still see the desktop background pattern, but without the mounted disks, trash can, and so on, and you won't be able to click it to make it active.

To enable this "hidden desktop" feature, open the General Controls Control Panel and uncheck "Show Desktop When In Background." This checkbox is on by default. Clicking the checkbox hides the desktop.

See Also
Finder; General Controls Control Panel; System 7.5

Accounting Methods

There are two accounting methods: Cash or Accrual basis. If you elect to keep your books on a Cash basis, transaction amounts are reported from the moment money changes hands. If you use Accrual basis, transaction amounts are reported from the moment when the transaction is entered. Most very small businesses keep cash books. Larger ones prefer the accrual method,

because it gives a more accurate overall picture. MYOB (Mind Your Own Business) supports only the Cash method, whereas Peachtree Accounting gives you a choice of cash or accrual.

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

Accounts, Finance Programs

The most basic kind of account in your personal financial program is the checking account. Using a checking account is very simple. You put money into the account, and you write checks to tell the bank how much money to take out of the account and whom to pay it to. But there are several other kinds of accounts that your financial software can track for you, as well. Your savings account, credit cards, investments, loans, and assets can, and should, each have separate account listings within a financial program such as Quicken.

Quicken can hold as many as 255 related accounts in a file. Most of us don't need that many, but there's no reason not to set up a separate account for each of your assets and liabilities. In accounting terms, assets are the things you own—your checking and savings accounts, your house, your stocks, IRAs, mutual fund investments, cash on hand, and so on. Liabilities are all the things you owe—mortgages, car loans, credit cards, and other regularly occurring payments.

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There are different kinds of accounts for different purposes. Bank accounts are checking, savings, and money market accounts or any cash management accounts on which you have check writing privileges. When your monthly statements arrive, it's a very simple matter to reconcile them against the account balances.

Cash accounts, as the name implies, handle cash transactions. You can enter your cash transactions in your Quicken checking account register if you have only a few and don't need to keep them separate, or you can set up a separate Quicken cash account and enter your cash transactions there. Both methods let you categorize your cash expenses so they are included in reports, graphs, and budgets, and neither method requires that you account for every penny. You should use a separate cash account if you want to keep detailed records of your cash transactions, if you prefer to use cash instead of checks or credit cards, if you need to track petty cash for your small business, or if you receive cash payments such as tips, or salaries paid in cash. If you're entering cash transactions in your checking account, set up a category for them as Cash Income and Cash Expense. If you elect to open a separate register for cash transactions, you'll see that a cash account register looks much like a check register except that instead of Payment and Deposit columns, it has Spend and Receive columns.

You can record credit card transactions either by setting up a separate credit card account for each credit card, or by entering credit card transactions as bills paid in your checking account register. Credit card accounts are useful if you want detailed records of your credit card transactions or if you pay

your credit card bills over time. A credit card register replaces the check register's Payment and Deposit columns with Charge and Payment. You can, of course, split out the credit card bills into categories such as dining, clothing, entertainment, auto expenses, or whatever else you use your card(s) for.

Asset and liability accounts help track such things as loan balances, the value of your car or other personal possessions, and the cost basis of your home. If you have a small business, asset and liability accounts can track capital equipment, accounts receivable, and accounts payable. If you set up accounts for all your assets and liabilities, Quicken will include them in net worth reports and graphs to give you an accurate view of your total financial picture. Consider opening asset accounts for loan notes you hold, home improvements, the contents of your home including art and antiques, prepaid medical expenses, capital equipment, and accounts receivable. Open liability accounts for loan balances, accrued liabilities, and accounts payable.

Use investment accounts (portfolio accounts and mutual fund accounts) to track what you own in stocks, bonds, mutual funds, and other types of investments that have fluctuating prices. Investment accounts help you track investment transactions, see the performance of your investments, update current market values, and create tax reports. When you use investment accounts, you can see immediately whether you are making or losing money on each investment, compare the performance of your investments, and report on income and capital gains for income tax purposes.

A

See Also
Finance Programs; MYOB; Quicken

Achromatic Reproduction

See
GCR

Acoustic Modems

See
Modems

Act!

Act is a Personal Information Manager with integrated calendar, database, word processing, and alarms.

In the slang of the sixties, Symantec has their Act! together. Act! combines a calendar and a contact manager, allowing you to make appointments while keeping track of the people you're meeting. It can send letters and faxes at the click of a button, and will also dial the phone for you. It has an easy-to-use icon driven interface and is designed to make your data accessible in the form in which you're most likely to use it. Act! records information on

contacts, keeps a log of your phone calls, and reminds you to make follow-up calls. It also enables you to manage your schedule with an appointment calendar, which can be viewed by the day, week, or month. You should note, however, that the calendar is only for appointments and reminders tied to people on your list. For example, you can't make a note to get a haircut next Friday unless your barber is listed in the contact file. Even worse, the calendar doesn't indicate holidays, vacation days, or your spouse's birthday, unless you've put him or her into the contact database.

Act! has two ways for you to view and enter your information: the contact file view and calendar view. From within the contact manager (see figure), you can write business letters with an integrated word processor and print them or send them as faxes with FaxSTF. The program's drag-and-drop support makes it relatively simple to move and reschedule appointments. Much of the rest of Act!'s capabilities, however, may not be revealed until and unless you read the manual. It's not the easiest of the PIMs to master, but if you're looking for a contact manager that's strictly business, Act! will do the job.

Active Matrix Displays

The active matrix display is the highest-quality liquid crystal display (LCD) used in higher-end PowerBooks. Active matrix displays produce images that are sharp, crisper, and brighter than those created by desktop CRT monitors. The term active matrix has to do with the fact that every pixel in the display has its own transistor controlling the intensity, brightness, and color.

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See Also
Passive Matrix Displays; PowerBook Displays

Active Program/Application

The active program/application is the program or application currently in front, or on top, of any other applications. If, for example, you have the applications WordPerfect, SimpleText, and PageMaker open, but the menu bar across the top of your screen is for WordPerfect, that means WordPerfect is the active application (you can have only one application active at a time). Therefore, if you choose the File menu and select New, a WordPerfect document opens.

If you can't tell which application is active, you can look at the mini-icon displayed in the Applications menu on the far right side of the menu bar. It will always display the mini-icon of the active application. If you look at the Applications menu and it shows a mini-icon of a Mac, the Finder is the active application. The Finder is always running, but if it's not in front, it's not the active application.

To make another launched application active, simply click the Applications menu and scroll down to choose another application. When you select one, it immediately comes to the front to become the active application. When you Quit an application, the application was behind it becomes active.

See Also

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Applications Menu; Finder; Menu Bar; Menus; Mini-Icon; Quit

Active Window

To make any changes to files, or to move or launch files, you must make the window they are located in active.

When you open a window, it immediately becomes active. If, for example, you open your hard drive, your hard drive's window is open, and it's the active window.

If you open a folder that's on your hard drive, a window opens to display the folder’s contents, and it becomes the active window. If you open another folder that is inside the currently active window, it becomes the active window, even though the last folder's window and your hard drive's window are both still open and probably still visible. The rule here is the window that is on top (in front) is the active window. To make another window active, simply click the window or any of its contents, and it will immediately move to the front and become active. Only one window can be active at any time.

The active window always displays a gray title bar with thin lines running horizontally to let you know that it's active. A non-active window's title bar is white. Remember, even though you may be able to see other open windows, only the window in front, with the gray menu bar, is active. If, for example, you were to choose the Edit menu and then choose Select All, only items in the active window would be selected.

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See Also
Edit Menu; Folder; Hard Drive; Launch; Select All; Title Bar

ADAM, the Inside Story

Educational software on a CD-ROM for all ages; A.D.A.M. teaches anatomy and physiology using animation, narration, and expertly drawn medical illustrations. Adam and Eve reveal themselves layer by layer, starting with their skin (which can be set to your choice of ethnic group) and peeling down layer by layer until they reach bone. Animated sequences demonstrate such processes as the Heimlich maneuver, the action of a sunburn on your skin, and the flow of blood through the circulatory system.

In all, there are 52 animated sequences or a total of over 4 /12 hours of animation and dialog. Parents can install the program with well-placed fig leaves and without access to the section on reproduction, if they prefer. In addition, there are a half dozen puzzles consisting of body parts to reassemble in the right order, and an on-screen medical dictionary with brief definitions of terms you'll encounter in the A.D.A.M. animated family album. Many of the animated scenes are funny, revolving around Adam's klutziness. He cuts his thumb slicing a bagel to show how blood clots, demonstrates the mechanics of a sprained ankle, and gets stung by a bee, as a working example of pain. It's a clever and well-executed way to teach anatomy.

For those who want a much more in-depth study, the A.D.A.M. company has

also what it calls the Scholar series, in three levels for high school, college, and postgraduate/medical school use. With these, it becomes more evident that A.D.A.M. stands for Animated Dissection of Anatomy for Medicine. These include more complex labeling, MRI images and x-rays, and go into much greater detail.

Another CD-ROM from the A.D.A.M. company, Nine Month Miracle, takes Adam and Eve through the process of pregnancy and birth. Nine Month Miracle puts the spotlight on Eve's reproductive system, with animation and Lennart Nilsson's in utero photography. Throughout the programs there are also video clips of real couples going through real labor and birth, including a Cesarean birth. (There's a warning in front of this one, because it's a bit intense.) Inside the EVU (Eve's Virtual Uterus) you can watch the fetus grow and change, with occasional visits from Eve's obstetrician to explain what's going on. A chapter for kids ages 3-9 explains the process in terms they can cope with. And there are some funny interludes with Adam dreaming about his new son. All in all, it's a light-hearted but comprehensive look at a serious subject.

See Also
Educational Software

Adapters for Monitors

See

A

Cables and Adapters for Monitors

ADB

See
Apple Desktop Bus

ADB Port Replacements

Modems, printers, and pointing devices have historically used low-speed buses: specifically on the Mac, the Apple desktop bus (ADB) for keyboards and mice and serial ports for modems and printers. The ADB port has a maximum data rate of 10Kbps. This data transfer rate can no longer keep up with the requirements of graphics tablets and other more sophisticated pointing devices. Older Mac serial ports support data transfer rates of between 57 and 900 Kps. Apple began to install GeoPort serial ports on Power Macs and AV Macs, providing a data transfer rate of 2Mps—fast enough to handle a T1 digital-phone line. GeoPort serial connectors use the digital signal processing chips of AV Macs and the built-in digital signal processing power of the Power Mac to turn the Mac into a telephone answering machine, speaker phone, fax, and modem system, using the ApplePhone software that comes bundled with the GeoPort telecom adapter.

Serial port and GeoPort speeds vary depending upon the Mac model, the

specific devices attached to the ports, and whether the two ports are working simultaneously. GeoPort Adapters support modem speeds of up to 14.4Kbps (very slow for today's Internet communications requirements). Apple has offered the GeoPort telecom adapter for several years. Other vendors, such as Sat-Sagem USA have announced ISDN GeoPort Adapters, and IBM and AT&T have announced support for GeoPort, including devices that handle both voice and data.

The other problem is that you can only connect one device at a time to a serial or GeoPort, and no Mac has more than two such ports. There will soon be PCI cards that add additional GeoPort connections. You can also purchase automated switches, such as PortJuggler, that enable you to connect more than one device to a serial port.

According to an April 1996 Macworld article by Cary Lu, "Special Report: New Mac Buses on the Horizon," Apple says it may adopt a new standard for serial ports developed by Intel called the universal serial bus (USB) to replace the ADB or serial ports. USB supports data transfer rates of up to 12Mps with usable throughput rates of 6-8Mps—fast enough to support CD audio traveling with other digital information.

See Also

ADB; AV; Digital Signal Processing; GeoPort Telecom Adapter; Modems; Universal Serial Bus (USB)

Add-On Software

In the last few years, desktop publishing software has seen huge growth in the implementation of add-on software—software that that brings additional features to the programs with which they're installed.

The page layout package QuarkXPress is widely known for the number of XTensions available that increase its functions, whereas its competitor PageMaker offers a significantly smaller selection of add-ons called plug-ins (formerly known as Additions). Illustrator and Freehand use plug-ins and Xtras, respectively, while Photoshop and its paint-program siblings seem to have standardized on using plug-ins written for Photoshop (but are supported by the other programs).

Sun Microsystems' Java technology extends this concept to the World Wide Web (the Web browser Netscape Navigator now supports plug-ins), and Apple's OpenDoc technology will make it possible for applications of any kind to access "applets" that will perform individualized functions.

Features found in add-ons include extra tools (such as starburst creators for page layout packages), filters to open different file formats, modules that control scanners, special-effects filters (for draw and paint packages), and enhancements to existing features.

See Also
Java; Netscape Navigator; OpenDoc; Plug-Ins; World Wide Web; XTensions; Xtras

AddDepth

AddDepth is a product based upon a module in RayDream Corporation's RayDream Studio. Output from AddDepth is not targeted to animation files but to DTP use (output options are AddDepth, PICT, Illustrator and EPS). It has advanced features that allow you to customize a 3D text block to fit your needs.

Styles

The texture application in AddDepth is called Styles, and a list of selectable texture Styles is available on-screen as visual indicators. AddDepth Styles come in a library with the software. Each default Style may be edited so that colors and texture maps can be added or changed to a typeface's front face and bevel, side surface, and back face and bevel. Shading, Stroke and Fill, Gradation, Decal and Invisible settings can be applied to any of the letter surfaces. In the case of "Decal", you can select from a software library of patterns and map them to the letter's front and back surfaces. To give you a better idea of the final rendered image, the AddDepth viewplane may be set to as high as 1600%.

Geometry

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A special geometry dialog is targeted to altering the shape and size of the beveled letter surfaces. With real-time interactive mouse movements, the front and back bevels and the depth of the bevels and the extruded surface of a type object can be altered and applied to the text object. Non-text objects can also be added to the scene. Rectangular, oval and hexagonal surfaces can be added and adjusted as to size and depth, creating interesting backgrounds for the text. Primitive objects can also be texturized according to any of the settings in the Styles list. A LightSource dialog allows you to adjust the directional geometry of the light.

Beziers

AddDepth allows full bezier object creation with a standard pen tool and additional adjustment controls. The pen tool becomes a bezier curve device when moved while holding down the mouse button, and a linear tool when end points of the prospective object are simply clicked. Once the shape has been made, it can be manipulated with standard bezier control levers and reconfigured. After the face of the shape is finished, AddDepth can extrude the new object, bevel it, and texture it according to the items in the Styles list.

Fractal Design
Price: $99
Phone or Fax: (408) 688-5300
Web: http://www.fractal.com

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Adding to a Menu

Certain applications, such as Microsoft Word, for example, enable you to add frequently used commands to the application's pull-down menus. This feature is called Add to Menu. To add a command to the Microsoft Word menu, first make the command you want added visible on-screen. If, for example, the command you want to add to a menu appears within a dialog box, open that dialog box. If it appears on a ruler, display that ruler. Press -Option-+(plus sign). Use the plus sign on the keyboard to the left of the Delete key, not the plus sign on the numeric keypad.

Your arrow pointer changes to a large plus sign cursor, indicating that you're in the Add to Menu mode. With the plus sign cursor, click the command you want added to a menu (this is why the command must be visible on-screen). When you click the command, Word places the command on the menu it feels is most appropriate.

If you're not happy with Word's location for your new command, you can relocate your new command to the location of your choice using the Commands dialog box. This dialog box, found on Word's Tools menu, enables you to select a command and designate on which menu you want it to appear.

A number of other applications enable you to add frequently used commands to menus, Function keys, or AQV floating palettes for quick access.

See Also

Arrow Pointer; Click; Cursor; Dialog Box; Menu Commands; Menus; Pull-Down

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Menus

Additions

See
Plug-Ins

Additive Color

Additive color refers to the RGB color system of video display in which a mixture of 100 percent red, 100 percent green, and 100 percent blue creates white. In the additive color system, each display pixel has a potential for 256 shades of one of the colors.

Adobe After Effects

See
After Effects

Adobe Dimensions

Adobe Dimensions is the 3D module of Illustrator, although it can also be used as a stand-alone 3D design environment. The interface includes a ToolBox and

Status Bar, and the following dialogs may also be brought to the screen: Surface Properties, Custom Color, Extrude, and Revolve. Normal, Telephoto, Wide Angle, and Custom views can be chosen.

Modeling Tools

The Revolve and Extrude dialogs are the central 3D modeling facilities in Dimensions. template shapes are either drawn in the software or imported. One of the dialogs is selected, and the object is either extruded or lathed. Extrusions may be crafted with or without bevels and/or endcaps to user set depths. Lathed objects can be either hollow or filled, and can be revolved to any degree up to 360. 3D primitives include Cube, Sphere, Cone, and Cylinder. Control points can be edited on any 3D or 2D object.

Lights

Dimensions has a Lighting dialog that allows you to set global light intensity and direction.

Rendering

Screen renders can be in Draft, Shaded, or Wireframe.

Animation

Two kinds of animation files can be produced in Dimensions. The first, with all frames of an object on one page, is suitable for DTP work or for use as a background. The other, a sequential group of numbered frames, can be used as a true 3D animation files by such software as Adobe Premier and other

software that imports sequential files. The process is basic: “Start Sequence” targets the object or objects to include. The object(s) are moved, rotated, and/or scaled. “End Sequence” brings up an storage path dialog, allowing you to select the number of frames to be generated. The frames are generated and saved.

Other Special Features

Undo levels, Number of Shaded Blends, and Rendering Parameters can be set in the Preferences dialog. Custom perspective views can be set with an interactive slider.

File Load/Save Conventions

Dimensions exports Illustrator formats exclusively: 1.1, 88, 3, 3J, 4, 5, 5J. It saves out Dimensions 1.0 and 2.0 formats. You can open Dimensions and Swivel 3D files.

Adobe Gallery Effects/3 Volumes

Each volume in this three volume series contains sixteen unique image processing effects. They are grouped into two basic categories, media effects (effects that make your artwork or photograph appear as if it were rendered with a specific media) and warp effects (effects that alter and twist the picture elements in your work). All of these effects are applied with the use of a detailed dialog that gives you control over intensity and other

parameters. In the descriptions that follow, we will refer to these two categories as “media” and “warp”. The media effects can be intuited by their name, but we have provided a more detailed description of the Warp Effects for each volume.

Volume 1

Media Effects include Chalk and Charcoal, Charcoal, Chrome, Dark Strokes, Dry Brush, Emboss, Film Grain, Fresco, Graphic Pen, Poster Edges, Smudge Stick, Watercolor. Warp Effects include Craquelure, Mosaic, Ripple, Spatter.

Description of Volume 1 Warp Effects

“Craquelure” renders visible cracks and fissures to an image selection, giving it the look of cracked plaster or stone. It is best used on portraiture to emphasize age, and on backgrounds when it is desirable to achieve a rocky look. Mosaic transforms a selection into mosaic tiles, giving you control over tile and grout size. A photograph can become a mosaic work of art or a stained glass window with this effect. Ripple breaks up the edges of images. You can control the size and magnitude. This effect is useful when you need to de-emphasize an element in a graphic, and also acts to give water a splashing effect. Spatter is a lot like Ripple, but it creates more disturbances across the image. Uses would be the same as Ripple, but water effects would show more turbulence.

Volume 2

Media Effects include Accented Edges, Angled Strokes, Bas Relief, Colored

Pencil, Grain, Note Paper, Palette Knife, Photocopy, Rough Pastels, Sprayed Strokes, Texturizer, Underpainting. Warp Effects include Diffuse Glow, Glowing Edges, Patchwork, Stamp.

Description of Volume 2 Warp Effects

Diffuse Glow adds a ghostly mist in the background color to your image. It functions well when you want to add mystery or fog to a graphic. Glowing Edges transforms the graphic selection into a neon-like area of glowing primary colors, and can be used to transform a selected area into an abstracted light show. Patchwork alters the graphic selection by changing it into a collection of blocks or tiles. You can control the size and shadowing of the tiles. This effect works well for transforming a graphic into an image painted on a mosaic block wall. Stamp transforms the graphic into a two color collection of blotches. You control the smoothness and size. Use it for abstractions of a graphic.

Volume 3

Media Effects include Conte Crayon, Crosshatch, Halftone Screen, Ink Outline, Paint Daubs, Plaster, Sponge, Water Paper.

Warp Effects include Cutout, Glass, Neon Glow, Plastic Wrap, Reticulation, Stained Glass, Sumi-e, Torn Edges.

Description of Volume 3 Warp Effects

Although you couldn’t tell from its name, Cutout is really a media effect,

transforming an image into what could be mistaken for a paint-by-the-numbers picture. Glass is a fairly complex effect. It gives you a variety of controls that allow you to select frosted glass, glass blocks, tiny lens, or even another graphic which acts as a glass filter. The intensity is also controllable.

The net effect is a graphic selection that looks as if it were constructed of the same glass material as the settings chosen. This is an excellent filter for either transforming an image into a glass masterpiece or for developing glass-like graphics for 3D texture mapping. Plastic Wrap, as the name suggests, gives the impression that the graphic selection is wrapped in sheets of plastic. Reticulation uses the background/foreground colors in Photoshop to transform a graphic selection into a two-color painting with image elements spattered. Stained Glass, as the name implies, creates a stained glass masterwork from your graphic selection. Whether it's a Tiffany lamp or a church widow, this filter allows you control over the light intensity, border and cell thickness. Sumi-e treats the graphic selection as if it were constructed of filmy spider webs. It's based on Japanese brush painting. Fragile digital paintings are the end result. Torn Edges is a lot like Reticulation, but with more evidence of smearing on the overall graphic.

Adobe Illustrator 6

Adobe Illustrator has set the standard in vector graphics software for quite a while, and every upgrade brings new options. Illustrator has a wealth of

accessible tools for the vector drawing artist, and many of the ways that it goes about doing things remain totally unique to this software. Understanding how to use bezier drawing tools is a must for anyone wishing to use Illustrator to the fullest potential. Bezier drawing tools are found in most vector packages, though in some software manipulating a bezier line is hidden beneath more common drawing options. The advantage of working with beziers is that any shape drawn with them is always open to reconfiguration and editing, whereas other methods are less editable once the lines are placed down.

Basic Bezier Drawing

Bezier line segments contain point anchors and directional levers. Each anchor has two levers extending from it. Anchors are placed at positions on a curve (most times automatically) where the line goes through a major change of direction. Because vector drawing itself is “remembered” by the computer as a series of vector or directional changes, bezier curves are the perfect medium for vector drawing. The control levers that extend out from the anchor points are used to adjust and change the shape and convexity/concavity of the curve upon which the anchor point is centered. A shape may have any number of anchor points, depending upon its complexity. Each anchor point has only two directional levers with control points on the ends. Moving the levers adjusts the angles of the curve, moving the anchor points widens or narrows the scope or area covered by the curve. Creating shapes that do what you want them to do with fine-tuned exactness in Illustrator demands experimentation ands a good degree of familiarity

with bezier interactivity. Illustrator's Direct Selection Tool (the white arrow at the top right of the toolbox) in conjunction with the Control key on the keyboard is the way that interaction with Illustrator's beziers occurs. That is the first editing tool to master if you hope to be an Adobe Illustrator artist.

Illustrator's bezier drawing tool is shaped like a penpoint. Drawing with it is somewhat difficult to master for the traditional artist, and less so for the artist accustomed to working with CAD (Computer Assisted Drawing) software. Other Illustrator penpoint tools add anchor points to a line or remove them. An easier Illustrator tool used to draw complex shapes is the Freehand drawing tool, because it works much like one would expect. After the Freehand tool is done drawing, the line is transformed into a bezier curve with all of the necessary anchor points in place, and open to further editing. If a point-click method is used with the bezier pens, straight line segments result. Optional lines can also be created with the brush tool. It is excellent for creating calligraphic-like lines, lines that are displayed as thick and thin strokes (useful for softening the look of a vector image). Illustrator also has oval and rectangle primitive shapes. These too are transformed to beziers on screen. (Editable bezier curves are the basic ingredients of all graphics in Adobe Illustrator except imported bitmaps.)

Other Drawing Tools

Illustrator has a special drawing palette useful for the drawing of a spiral, vortex, star and polygon. All of these shapes are connected to dialogs that allow numeric input as far as size and number of segments. Perfect

seventeen pointed stars are just as easy to create as the standard five pointed variety, and eleven sided polygons present no problem. Like any other shape placed on the Illustrator screen, everything becomes an editable bezier once it's painted down.

Tracing Images

There may be times when you want to bring in a bit-mapped image and translate it to a vector graphic. Illustrator offers two ways to accomplish this. You can auto-trace a bitmapped image if its is a one-bit (two color) PICT or MacPaint file, or you can bring in an EPS image and trace over it by hand. Auto-tracing can trace over a whole image or a part that is user determined. The EPS hand method is more tedious, but gives you more exacting control over the line segments. Both types of traced images appear as bezier segments and can be fully edited. Illustrator comes with a sample library of Adobe Graphics Effects, image manipulation and transformation tools that can be targeted to any bitmapped graphic included as an element of an Illustrator page (usually on a separate layer).

Typography

Illustrator offers the same editing tools for typographic selections that are available for drawing shapes. Type can be edited and filled with gradients, resized and rotated. It's also possible to place type on any curved path imaginable and inside any selected shape area with a few simple mouse clicks.

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Blends and Gradients

One of the most complex challenges for a vector drawing program is adding color fills and gradients to vector images. Illustrator has these capabilities down cold, offering additional options as well. Blends are a separate issue which Illustrator also addresses. A blend between two objects may be what is blended, as well as their separate internal coloring. A gradient, on the other hand, refers to the multiple blending of colors in a selected object. Illustrator allows for the application of both linear and radial gradients, and comes with a default library with both types. new gradients covering all of the colors in the palette, and as many as desired at the same time, may be added. A separate gradient move tool in the toolbox allows interactive movement of the gradient inside an object as far as its placement is concerned. A single gradient therefor can have an infinite number of discreet looks in Illustrator. Color and pattern fills are also supported.

Graphs

Illustrator offers a separate toolbox icon for chart and graph creation. An input box for adding numerical data is also provided, as well as a good selection of graph and chart types. If necessary, the chart or graph can be edited as any other bezier curve can, though editing these shapes seldom makes the data clearer. Color gradients and fills can be added to the selected items.

Layers

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Illustrator supports the creation and use of working layers. Each layer can contain separate data that acts as a component of the final saved graphic. Using layers allows you to edit parts of a complex composited graphic that would be hard to select and separate out if you were working with only a single layer. Layers can also be transposed if needed.

File-Save Conventions

Illustrator support saved files in Adobe Acrobat, Amiga IFF, BMP, Illustrator EPS, PCX, Photoshop JPEG, Pixar and Targa, as well as most previous versions and the present version of the Illustrator specific format.

Adobe Premier

See
Premier

Adobe Streamline

See
Streamline

Adobe TextureMaker 1.0

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See
TextureMaker

Adobe Type Manager

This font utility from Adobe Systems enables you to view and resize fonts to any size on the screen, without having the fonts looking jagged. If you want to better understand what "the jaggies" are and why they were such a problem, you first need to know that PostScript fonts come in two parts: a bitmapped screen font (which draws the font on screen) and a printer font (which contains smooth outlines for interpretation by PostScript-compatible printers).

Each bitmapped screen font includes several fixed point sizes of the font, like 10, 12, and 14 point. If you used the font in any of those installed point sizes, the font looked pretty good on screen. However, if you decided you wanted to use a significantly larger size, like 72 point, these bitmapped screen fonts would look very jaggy on the screen. This happens because bitmapped screen fonts are made up of tiny pixels that look like small black squares when magnified. When you dramatically increase the size of font, you dramatically increase the size of these squares, and any curved letters would have experience a major "stair step" effect.

Adobe Type Manager (ATM) came to the rescue by using the PostScript printer font to interpret the font on screen, rather than just using the

installed sizes in the bitmapped screen font. This way, you can use a font in any size and be able to stretch, edit, and add special effects to fonts without experiencing the jaggies. ATM takes care of rendering smooth, readable typefaces on screen for you, and if you have a QuickDraw-based printer (like an Apple StyleWriter), ATM uses this same technology to render your fonts when they print to make them look considerably better there as well.

See Also
Font; Font Utility; PostScript Level 2; Printer Font; QuickDraw; Screen Font; StyleWriter

Adobe Type Set Value Pack

See
Buying Fonts

Adobe Type Twister

See
Type Twister

Adobe Wild Type

See

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Buying Fonts

Adult Education

See
Software, Educational, Adult

Advent 3B2

See

Other Page Layout Applications

Adventure Games

Though most computer games immerse you in outer space, an alternate universe, or at least an alternate state of mind, Adventure Games transport you to another world. Instead of quick paced action and flying bullets/death rays/lasers, , adventure games like Myst give you the chance to explore a new environment, learn its history, sometimes even interact with the inhabitants. Adventure games are somewhat related to Role-Playing Games and, because they rely heavily on fantasy, they have much more plot than some other types of games like First-Person Perspective Shooters or Arcade

Games.

adventure games can be traced back to text-based Interactive Fiction, such as the original Zork series, and other games that were based on complicated plots and puzzle-solving. Puzzle oriented adventure games like Myst, Welcome to the Future and Majestic all feature beautiful 3-D rendered graphics and soothing background music. Though some of the more advanced adventure titles are timed and require quick decisions, most allow you the opportunity to move through them at your own pace, making them a good choice for beginning gamers. Titles like Return to Zork and Riddle of Master Lu add hunting for artifacts to the puzzle solving, as well as giving the player opportunities for in-depth interaction with other characters. All adventure games give you the chance to go somewhere new and mysterious without ever leaving your desk.

Other adventure games worth trying include Angel Devoid: Face of the Enemy from Mindscape, Louis Cat Orze: The Mystery of the Queen's Necklace from IVI publishing, MTV's Club Dead from Viacom New Media and Zeddas: Servant of Sheol from Synergy Interactive.

See Also

Daedelus Encounter, the; Dark Eye, the; Eastern Mind; Full Throttle; Hell: A Cyberpunk Thriller; Myst; Non-Linear Storytelling; The Residents Bad Day on the Midway; Return to Zork; The Riddle of Master Lu; The 7th Guest; TimeLapse

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AES/EBU

Audio Engineering Society/European Broadcast Union. A digital I/O connection that uses a three-conductor XLR jack, these are the same three-pin plugs as are used on professional microphones and recording equipment.

See Also
I/O Connectors; S/PDIF

AFP

See
Servers/File Server

After Dark

After Dark, by Berkeley Systems, (2095 Rose Street, Berkeley, CA 94709, (510) 540-5535, Web Site URL: http://www.berksys.com. Street Price of After Dark Collection: $39.95) is probably the most popular commercial screen saver in Macintosh history. It was an instant hit when it was introduced in 1989. Its two signature screen savers were its tropical fish tank, complete with bubbling fish tank sounds and customizable fish, and its flying toasters screen saver, which features toasters with flapping wings and slices of toast flying though space.

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Berkeley Systems designed After Dark to enable the integration of additional screen saver modules to After Dark, and since 1989 Berkeley Systems has introduced literally hundreds of different screen savers, including popular themed packages such as The Simpson's TV cartoon characters, a set of Star Trek screen savers, a Disney collection, and many more. There is also a growing list of free third-party After Dark-compatible modules available from online services or the Internet, and Berkeley Systems even hosts a competition to see who can design the best After Dark screen saver modules. You can find many of these third-party modules in the Macintosh Utilities Forum on America Online or at Berkeley Systems Web site at http://www.berksys.com/.

The After Dark control panel has a very well-designed interface that enables you to choose from a list of installed screen savers, and then control certain aspects of each "module" that you add to the collection (see the following figure).

For example, on the flying toast module, you can choose how many flying objects (toast and toasters) that you want on the screen at one time, and you can also specify how you'd like your flying toast: light, medium, or dark. There is also an icon of a speaker that enables you to individually adjust the volume for any sound effects that may accompany the modules. In the case of the original flying toasters, it was the sound of the toasters flapping their wings. In the newly updated version, the sound effect is a sound track that sings the flying toaster anthem. The people at Berkeley Systems take this stuff very seriously, but it's really all for fun.

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An interesting development from Berkeley Systems is its addition of Virex, the virus checker, in the form of a screen saver. When you select the Virex screen saver, it blacks out the screen and displays green three-dimensional outlines of the icons of your hard disk, one after another, to keep the screen moving, but behind the scenes it is scanning your hard disk for any viruses. You can see the progress of the virus search in the bottom of the window listed by percentage. That way if you come back to your computer, and the search is 94 percent complete, you might want to let it go another minute and complete its search before you press any key or move the mouse to return to your normal display.

See Also
Control Panel; Screen Saver; Virex; Virus

After Effects

Originally developed by CoSA, which was bought by Adobe, After Effects is a special effects processing application for QuickTime movies.

It is not a direct competitor to Adobe Premiere, which is designed primarily for editing clips. It is certainly possible to perform cuts and transitions in After Effects, but if that's all you need to do, buy Premiere or Avid VideoShop instead.

After Effects is a time-based effects program that enables you to construct effects containing multiple layers of clips. Effects are constructed in a Comp

window, which acts as a preview window for the effect. It displays an area larger than just the final frame size, making it easier to arrange clips.

Clips are dragged into the Comp window and arranged. The separate Time window indicates the location of the clips at a point in time. Key frames are created by choosing another time and moving an element in the Comp window. The program then calculates the in-between locations of the clips. Graphical controls adjust the movement of the clip—the motion and the speed of the motion are treated as two separate editable parameters.

After Effects excels in effects processing—Adobe used some of the filtering technology in After Effects for the CD-ROM Maker effects in Premiere. When clips are merged together, the edges are anti-aliased. A Bézier drawing tool creates masks around clips (one clip can be feathered over another, for example). After Effects imports Photoshop, filmstrip, and Illustrator files. Illustrator files are anti-aliased on the fly within After Effects, making it possible to scale an Illustrator illustration to any size and see smooth edges on graphics.

D1 video production format is supported, as well as NTSC and PAL. Unfortunately, audio editing is more limited than that found in Premiere—you can adjust only the volume.

After Effects comes in two versions: the standard and the Production Bundle. The Production Bundle adds plug-ins with greater motion controls, additional filters, and controllers for high-end recorders. These features are protected by a hardware dongle that plugs into the ADB port.

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Adobe Systems Incorporated
1585 Charleston Road
P.O. Box 7900
Mountain View, California 94039-7900 USA
Price: $995, $1995 with additional plug-ins
Fax: 415-961-3769
Phone: (415) 961-4400

http://www.adobe.com/Apps/AfterEffects.html

See Also
QuickTime; Premiere

Afterburner

See
Shockwave/Afterburner

Afterlife

Taking a major risk with the staunchly religious set, Afterlife is a parody of Maxis-style Sim games that puts you in charge of heaven and hell. The game features the same sort of grid-like Sim interface we are all familiar from

titles like SimCity 2000 and incorporates the usual LucasArts brand of humor, graphics and gameplay. Keep the inhabitants of the afterworld happy and you will thrive as leader of your choice of final resting place, screw up and you may find yourself being overthrown by the four surfers of the Apocalypse (complete with hip surf-twang music).

You can even set earth to have more disasters to speed up the population of whichever side of the after-life you decide to reside over. This parody should prove to be just as popular with gamers who loves sims as the games it is parodying.

See Also
Sim Games; SimCity 2000

AIFF

Audio Interchange File Format (AIFF) is the standard audio file format for the Macintosh. AIFF files (along with .AU files) are commonly encountered on the Internet/World Wide Web.

AIFF allows a variety of sampling rates, sample sizes, and both mono and stereo samples. Some implementations of AIFF allow for compression of a sound file; for instance, AIFF now supports IMA, which offers 4:1 compression and is compatible with Windows machines.

Mac applications that support AIFF files include SoundApp, SoundMachine,

and EasyAIFF. These and other sound utilities can be found at http://www.umich.edu/~archive/mac/sound/soundutil/.

See Also
.AU Files, File Types, Helper Applications, Multimedia

Airplane Games

See
Sim Games

Alarm Clock

The Alarm Clock D/A, which appears on the Apple menu up through version System 7.1, is designed to give you an electronic reminder for important events or meetings. You can set the alarm to go off anytime you like with an audible alarm (it plays your system beep twice) or a visual alarm (it blinks your menu bar). When the alarm goes off, you'll see a flashing alarm clock appear in the menu bar at the top of the applications menu. To stop the alarm, simply reopen the alarm clock and push the alarm handle, next to the alarm time setting, to the down position.

The alarm clock actually has two views: A collapsed view and an expanded view. In the collapsed view, all you see is a thin bar with the time and a small lever. To expand the alarm clock, click the lever and the alarm functions will

pop down.

To use the Alarm Clock D/A, follow these steps:

1. Choose Alarm Clock from the Apple menu.
2. If you want to set an alarm, click the level to the right of the time to expand the alarm clock to its full size. The second set of numbers from the top is the currently set alarm time.
3. Click the alarm icon, and enter the desired alarm time in the middle panel, and click the alarm level to put it in the up (on) position. Close the alarm clock.
4. When the current time reaches the time you set for an alarm, the system beep will go off twice. If your sound volume is off, the menu bar will flash instead. An alarm clock icon will begin to flash on the menu bar on the application menu. To stop the alarm, choose Alarm Clock again from the Apple menu, and click the lever to the left of the time in the middle section to the down position (off).

See Also
Application Menu; Apple Menu; Menu Bar; Pop-Down Menu

Alert Box

Often, if you choose a command, an alert box appears that enables you to

know what you're about to do. If, for example, you go to empty the trash, you're greeted with an alert box that states, "The Trash contains 1 item. It uses 80K of disk space. Are you sure you want to permanently remove it?" The alert box gives you a second chance—a moment to stop and consider your actions—before you complete a command that cannot be undone. This is the Macintosh computer's way of looking out for you. If you open the System Folder and double-click the Finder file, for example, you'll get an alert box that tells you, "This file is used by the System Software. It cannot be opened." That's the Mac interacting with you.

See Also
Command; Double-Click; Empty the Trash; System Folder; System Software; Trash

Alert Icon

When an alert box appears to warn you about a command or improper action you may be taking, an alert icon also appears. These icons change with the severity of the alert box. You may see an exclamation point inside a yield sign or you may see a Stop sign-shaped icon with an opened-face hand alerting you to STOP (see the following figure). If your system experiences a crash, you may see an alert box with a bomb icon to let you know your system bombed. Pay attention!

You can alter these alert icons a number of ways. You can use third-party

shareware programs to change them to full color icons or edit them using Apple's resource editor ResEdit. (Warning: use ResEdit only on a copy of the System folder, never on the original.)

See Also
Bomb; Crash; Icon; ResEdit; System File

Algorithm

A programming term for the specific set of steps used to accomplish a task. You can think of an algorithm as a recipe. Unlike a cooking recipe, however, computer algorithms must be very specific. Programmers are always on the lookout for clearer and more efficient algorithms. It's often possible to improve a program's speed by using an improved algorithm than by using a faster computer!

Alias' Sketch

Alias' Sketch looks like an animation program, probably because it is the rendering and sculpting module of Alias' more expensive 3D products. Using Sketch also trains you for any animation software because modeling and rendering are integral to mastering any animation package. The most helpful attribute of Sketch is constantly updated help display, so that learning its methods and tools is made much easier as a result. Extensive

attention is paid to viewing angles, which include all six cubic directions plus orthographic, bird's eye, "look at that," head on, and fit to view. Altered views can be saved and applied to other scenes. Sketch features a very high end curve editing function that can be applied to a 3D object. Instead of functioning as a spline or Bézier editor, it allows you to point to and drag curves into new shapes in real time. It can be used to produce extremely complex raytraced renderings that can stand alone or be incorporated into other artwork. A full render list on-screen enables you to select any object (including the lights) for manipulation, making editing even a complex scene with many elements a simple task. Sketch has full text beveling and extrusion capabilities.

Drawing Tools

Sketch contains both a freehand drawing pencil and a Bézier curve pen. The pencil leaves equidistant points on the drawn curve, and curves may be lathed to create 3D shapes. The Bézier pen works according to Bézier standards with attached curves and controller arms. Bézier shapes may also be lathed. A circle and rectangle shape are also included for object creation. Lathing and extruding operations are somewhat difficult compared to other 3D object creation software.

Lights

Sketch has the capability to allow you to place any number of spotlights, point lights, and distant lights, in addition to ambient light settings. Spotlights can be targeted to any point on any object, and lights can be

colorized.

Rendering

A rendering preferences dialog enables image quality (Faceted, Hidden Line, Phong, Phong Anti-aliased, Phong and Shadows, Raytrace, Raytrace and Shadows, Raytrace and Antialiasing), DPI, Size (from a default list or user customized), Ambient Light Color and Direction, Camera Flash and Color (on or off), and the creation of an Alpha Channel, Render Log, suppression of error messages, and an audible beep when rendering is complete. A very useful feature enables you to use a resizeable box to place on any area of the screen and render just that selection. This is useful for previewing textured objects and light placements. Rendering at the higher selected options is still very fast and high quality. Wireframes may also be rendered in different resolutions. Backdrops, whether ramped colors or selected images from a file, are rendered right to the preview screen so that object placement is made more intuitive.

Textures

Sketch has a basic list of materials and a more complete materials library. The basic list includes mostly color choices, with glass and gold added. The texture library can be viewed as a verbal list or as visual icons. The visual library shows all textures as wrapped to a sphere.

File Save/Load Conventions

While still in the Edit mode, a Sketch scene can be saved as a StyleGuide,

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StyleGuide Export, DXF, EPSF, RIB, IGES. After a scene is rendered, it can be saved as an Alias PIX or PIX + Alpha, PICT, TIFF or EPSF. DXF and Alias files can be imported and Alias files can be opened.

Aliases

See
Make Alias Command

Aligning Icons Automatically

You might already know you can have icons in your windows snap to an invisible grid by setting the "snap to grid" preference in the Views Control Panel. But there's a way to have a file snap to this grid without having the Snap to Grid preference turned on. Hold the key while moving the file, and when you release the mouse button, the file snaps to the nearest point on the invisible grid, even with Snap to Grid turned off.

This trick also works in reverse: If you have Snap to Grid turned on, but you want to move a file to a location without it snapping to the grid, again hold the key. This way you can move the item to any location you want without having it snap to the grid.

See Also
Icons; Views Control Panel

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AlienSkin TextureShop

This program is an internal plug-in for Photoshop and Photoshop clones. If your interest is in creating novel organic textures, this will be a primary package for you. As if to emphasize its alien nature, textures are created by mutating chosen selections. Selected mutants are then saved out to “bins” or grouped libraries for later application. The default choices from which the mutants are created cover a wide colorful range of possibilities, mimicking everything from cloth and stone to non-earthly flesh and mud. Though marketed by Virtus, the software was developed by AlienSkin Software, the same developers who are responsible for the Black Box Photoshop plug-in effects. This software ranks on the same high quality level as does the KPT3 Texture Explorer from MetaTools, and compliments similar looks.

The Interface and the Creative Process

TextureShop has a dual interface, one that shows the textures in a chosen library and the second that is used to size a chosen texture and render it to the selected area of the image. In the first interface level, textures are drag-dropped into a preview area. An adjustable slider is set from “none” to “oodles”, giving the software directions on the degree of mutation that will take place. After the Mutate button is clicked, fifteen mutations appear in another preview area. If you like the looks of any of the mutations, they can be drag-dropped to either an existing library of textures, or a new library group can be created for them. If dropped on the area that is titled “Light”, the textures specularity and light color and direction can be altered,

resulting in subtle changes in the overall texture. The next step is to drag a selected texture to an “apply” area.

Dropping the texture on the “apply” area brings you to the second level of the AlienSkin TextureShop interface. The first step here is to size the texture with the mouse or numeric indicators. This redraws the screen, showing you how the texture will tile on an image selection. Finally, you choose how to apply the texture to the image from a list of options. The texture can be applied as a texture map, height map (where the lighter areas of the texture show on the image and the darker areas just gray it out), or as a color map (without the perceived 3D roundness of the texture map). How the texture is applied is also left to the user. It can be applied as a transparent image from 0% to 100% in 10% increments, as one of a selection of blends, or on either the darks or lights of the targeted image selection. Each choice results in a very different rendered graphic.

Allied General

Allied General, from Strategic Simulations, is one of the few strategy games that doesn’t completely rely on the manual, making it a good game for beginners. You are in charge of the Allied troops while fighting Germany’s blaze across Europe, Russia and North Africa. As with most strategies, from that point on, historical accuracy is really up to you and the decisions you make.

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SSI's next offering, Panzer General, is slated to be a hybrid Mac/DOS/Windows 95 title and should avoid the usual wait fro a PC title to successfully make it over to the Mac platform.

See Also
Chaos Overlords; Empire Deluxe; Sid Meier's Worlds; Pax Imperia; Spaceward Ho!; Strategy Games; V for Victory; Warcraft

AllMIDI

Shareware available from the Internet that processes MIDI files and allows them to be played on a Macintosh.

MIDI stands for Musical Instrument Digital Interface . MIDI files are instructions for a computer-savvy musical instrument, usually (but not always) a synthesizer.

AllMIDI, by Paul C.H. Ho and Pink Elephant Technologies, is not strictly a helper application because it doesn't play the MIDI file directly; rather, it converts the MIDI file to QuickTime, which you can play with any QuickTime player application.

To play MIDI files that you've found on the World Wide Web, do the following (the following instructions refer to the Web browser Netscape Navigator but apply to any browser that uses helper applications):

1. Choose "Preferences" from Netscape "Options" and choose "Helper

Applications" from the popup menu.

2. Click the "New" button. Enter "Audio" in the MIME type: box, "MIDI" in the subtype: box, and ".mid, .midi" in the Extensions: box.
3. Click the Browse button, and Netscape presents a File dialog box. Navigate to AllMIDI and click "OK."
4. Check the "Launch" radio button.
5. When you download a MIDI file by clicking it, Netscape converts the MIDI file to QuickTime, but it doesn't know to play the QuickTime movie. In the Finder, navigate to your Netscape downloads folder: the movie will have the same name as the MIDI file on the Net, but with a .MOV extension. Use one of the video players listed next or SimpleText to play the movie.

See Also

Helper Application; Internet; MIDI; Netscape Navigator; Web Browser; World Wide Web

Alpha Editor

Alpha is an extensible text editor written by Pete Keleher. Unlike most applications that enable only limited customization of their basic features, almost everything about Alpha can be customized to fit your own personal style.

A

To customize Alpha, you use a special programming language called the Tool Command Language (Tcl). Using Tcl, you can rearrange or add to Alpha's menus, create macros that are executed at the touch of a key, or create sophisticated macro programs that interact with other applications.

Alpha is a modal editor; it behaves differently depending on the kind of file it is editing. Each mode can have entirely different menus, key bindings, and keyword colorization (syntax coloring). When you're editing a source code file written in C, for example, the menus, key commands, and keyword colorization are different than when editing an HTML document or a Java program. Alpha has 20 different modes, including ones for C, C++, Fortran, HTML, Java, Pascal, Perl, Postscript, and Tcl. Because the modes are created using Tcl, you can customize them to meet your own needs. You can also create new modes should the need arise.

Alpha can interact with other applications and development environments. It can be used with the Metrowerks CodeWarrior and Symantec C++ environments, as well as MacPerl and many others.

You can download Alpha from most large Mac software archives, or directly from the Alpha page at: http://www.cs.umd.edu/~keleher/alpha.html.

See Also

Alpha Version; C; C++; CodeWarrior; Editor; Fortran; HTML; Java; Pascal; Perl; Postscript; Symantec C++

A

Alpha Testing

Alpha testing is where a "rough working mockup" of the software, an alpha version, is tested for bugs or software glitches by the company's internal staff, rather than freelance testers or the public. Alpha testing occurs early on in the development a software or hardware product and enables developers to catch potential problems or glitches in-house before the next stage of development occurs and a beta version of the software is compiled.

See Also
Alpha Version; Beta Version; Beta Testing

Alpha Version

An alpha version of a software application is created very early in the development stage and is used internally by the company as a working model of the software. The alpha version is often the first time the software has been compiled from all the different code written to create a piece of software.

After the software has been compiled into a working alpha version, it often goes into a testing phase called alpha testing, where this "rough working mockup" of the software is tested for bugs or software glitches by the internal staff of the company. Alpha versions of software can be very unstable, and might not have the complete interface the public will see in

the shipping version. It's not unusual to have a number of different alpha versions of the software as bugs are detected and features are added or withdrawn during this development stage. Alpha software is usually closely guarded by the company, and ideally, the public would never see the alpha version.

See Also
Alpha Testing; Beta; Beta Testing

Alphabetizing Filenames

You can alphabetize the files in any active window by holding down the Option key and choosing Clean Up By Name from the Special menu. If the window is set to View by Icon or Small Icon, all the icons snap to an invisible alignment grid and are listed in alphabetical order from left to right. If the window is set to View by Name, the contents already are alphabetized.

See Also
Active Window; Clean Up; Files; Option Key; Special Menu; View By Icon; View By Name

Altair

See
Homebrew Computer Club

A

Alto

See
Xerox PARC

ALU

See
Microprocessors

Amazon Trail

Amazon Trial is like the Oregon Trail, a voyage of exploration for ages 10 and up from MECC. This one takes you up the Amazon river in search of a medicinal plant to cure a strange disease that's wiping out an Inca village. Explore the rainforest and meet fascinating people from South America's past and present. Two other adventures in the same series take young explorers across Africa by bicycle, on the Africa Trail, and north to Alaska for the Gold Rush in Yukon Trail. Africa Trail traces the adventures of a world record setting bike expedition across the continent from the Sahara to Zaire.

Following the Yukon Trail to Dawson City, students fight the weather, claim jumpers, and lots more. These programs emphasize planning and decision-

making skills. All these programs have the same excellent production values and well-planned student activities as the Oregon Trail. They're equally well suited for classroom and home use, and are sure to be enjoyed.

See Also
MayaQuest; Oregon Trail

Amelio, Gilbert

Dr. Gilbert F. "Gil" Amelio is the current chairman and chief executive officer of Apple Computer. He was appointed to the position in February of 1996, when Apple's board of directors asked Michael Spindler to step down.

Before coming to Apple, Dr. Amelio served as chairman and chief executive officer of National Semiconductor. Under his leadership, the company focused its strategy and significantly improved its financial results. During this time, Amelio also served on Apple's board of directors.

Prior to leading National Semiconductor, Amelio worked for Rockwell International, Bell Labs, and Fairchild Camera and Instrument. Amelio holds 16 patents, including a patent for the co-invention of the charge-coupled image sensor used in most consumer video cameras.

See Also
Spindler, Michael

A

America Online

One of the fastest-growing and largest commercial online services, with more than two million members who have access to a wide variety of discussion groups, news, travel, chat, and mail services. Commonly referred to as AOL.

America Online, like CompuServe, Prodigy, and the other commercial services, requires a monthly fee for membership. Members can connect for five hours per month without extra charge; beyond five hours they are billed an hourly fee for connection.

In return, members get a number of benefits, including:

- Electronic mail to other AOL members or, through gateways, to members of other online services or other parts of the Internet.
- News and reference materials online, including the Reuters and Associated Press newswires, magazines such as Time and Macworld databases, a news clipping services, stock reports.
- GNN, an Internet service.
- Travel and shopping services.
- More than 500 forums where people with similar interests can chat and share files.
- People Connection: Chat rooms and “auditoriums” where up to 2,000

people can meet celebrities online.

- Games and entertainment.

America Online offers an attractive graphical interface for browsing files and sending email (see the following figure). It also offers full access to the Internet, including Gopher, WAIS, FTP, and Usenet. Members can post free home pages on the World Wide Web.

You connect to AOL using its own software, which is available via FTP from ftp://ftp.aol.com/mac/. In early 1996, AOL announced that ithad licensed Microsoft's Internet Explorer to be the standard, built-in Web browser for AOL members. Microsoft was expected to begin incorporating AOL software into Windows 95, so AOL can be accessed from the Windows 95 desktop. AOL also licensed Netscape Navigator as the standard Web browser for AOL's GNN Internet service.

When you first launch the America Online software, it will dial AOL using a toll-free number. You will be asked to select a permanent AOL phone number close to your home, as well as a secondary phone number to serve as a backup.

The AOL software will then hang up and redial using your permament number. You will be asked to choose an AOL ID and to specify a password and a credit card that America Online will bill for your connection time. You will also have to fill in personal data.

If your phone has Call Waiting, you will need to temporarily disable it each

time you connect to America Online by prefixing the America Online number with “*70” for touch-tone phones, or “1170” for pulse phones.

When you complete an America Online session, be sure to log off by choosing the “Quit” command from the “File” menu or by choosing the “Sign Off” command in the “Go To” menu. Otherwise AOL will disconnect after 30 minutes of inactivity—but you may have to pay for those 30 minutes of connection time.

See Also
AppleLink; BIX; Commercial On-Line Services; CompuServe; Email; eWorld; Internet; iWorld; Prodigy

AmoebArena

See
Arcade-Style Games; Crystal Crazy

Amplifiers

An amplifier is a circuit that boosts the power of a signal. In the Macintosh world, it usually boosts the headphone-level signal at the audio output jack. The signal here is only a small fraction of a watt; depending on the speaker design, two to ten watts might be necessary for satisfactory levels. Amplifiers provide volume controls, and often also have tone controls, mixing inputs for

the audio from a CD-ROM drive, and a headphone jack; some also have spatial enhancement circuits.

Although a built-in amplifier is usually supplied with computer speakers, any amplifier—from a compact stereo system to audiophile and home theater units—can handle the Mac's signal. It's your choice:

- Built-in amplifiers are easier to buy and install, don't take extra desk space (that is, they have no footprint), and are matched to the speaker with which they're sold. They can also be tuned to make up for deficiencies in the speaker, but this can be a danger: extreme tuning can make a bad speaker seem good on a specification sheet or in casual listening, but may add harshness or distortion that become irritating in day-to-day use.
- External amplifiers are usually higher quality, offer more control, and can provide other features including a radio receiver and inputs for tape, disc, and phonograph. Appropriate shielded speakers for this kind of amplifier, available at home theater and audiophile stores, are usually higher quality than those sold at computer dealers.

The relationship between the amplifier volume control and the Mac Sound Control Panel affects sound quality. For minimum noise, the Mac's volume control should be set to the top; speaker levels should then be adjusted at the amplifier. If even the lowest volume setting on an external amplifier is too loud or distorted, plug the Mac into a different amplifier input. The following figure shows the Sound Control Panel, properly set for multimedia speakers

or an external amplifier.

See Also
Audio Output; Speaker; Subwoofers

Analog Telephone Line

Ordinary telephone lines—those we use for voice and modem communications—are designed to transmit data in analog form. (The phone company refers to this as POTS, for Plain Old Telephone Service.) Computer signals are in digital form. Although a digital signal consists of a series of pulses of two voltages that represent the ones and zeroes of digital data, an analog signal is one that continually varies in voltage (see the following figure). Telephones convert analog sound waves into analog electrical signals. Modems convert digital pulses into analog electrical signals.

Modems also transmit analog signals. The term modem is short for MODulator/DEModutor. The process of modulation converts the computer's digital signals to analog, and varies the electrical signal in frequency, wavelength and phase to represent information. Demodulation is when the modem takes the modulated analog signals and turns them back into pulses that represent the ones and zeros of digital data.

Analog telephone lines were designed with voice communications in mind, before the age of personal computers. As such, the quality of modem communications is limited by the quality of the analog lines, which varies.

A

Problems that don't seriously affect voice communications, such as mild static and attenuation (a dropping of signal strength) can render modem communications at a certain speed impossible. Analog signals are fairly complex, and a small deterioration in the signal can make the data unreadable. When modems encounter a poor-quality analog line, they will automatically drop to a lower speed. Ultimately, it is the quality of analog lines that prevents modem communications from ever going much faster than today's 28.8Kbps top speed.

Most telephone companies offer an alternative communications line, the digital telephone line, also known as ISDN, which does not have the speed limitations of analog lines.

See Also
ISDN; Modems; Modem/Connecting

Anarchie

One of the two most popular shareware FTP clients, Peter N. Lewis's Anarchie has some advantages over Dartmouth College's Fetch, such as the capability to search Archie servers for files stored on anonymous FTP sites and the capability to perform multiple downloads simultaneously.

Anarchie has a number of other innovations for Macintosh users, including support for Drag-and-Drop, Internet Config, Apple Guide, and support for Open Transport.

A

You can install Anarchie anywhere on your hard disk, but its folder of bookmarks of popular sites should stay in the same folder as the Anarchie program itself. Then, follow these steps:

1. Connect to the Internet via SLIP or PPP, or by launching Anarchie itself.
2. Choose Preferences from the Edit menu.
3. Keep “Post Process Files” checked. This lets StuffIt Expander automatically debinhex and expand files that you download.
4. Click “Launch Internet Config.” Anarchie uses Internet Config, another application by Peter Lewis, for most of its preferences. Internet Config enables you to specify the Archie server, Info-Mac, and Umich mirrors that are closest to you. You can also specify a destination folder for downloaded files.

After Anarchie is installed and running, you can browse one of the sites listed in its bookmarks, which include some of the popular Macintosh software archives.

Choose List Bookmarks from the File menu and double-click a site. Anarchie connects to the remote site and displays the directory listing. Double-clicking names with folders next to them takes you into that directory, and double-clicking on a file retrieves the file.

To retrieve a specific file, go to the FTP menu and choose Get. Anarchie opens

the Get via FTP window, which provides fields for the name of the FTP host and the pathname of the file. You can also search for files, or have multiple listing windows open to multiple sites simultaneously.

Anarchie is scriptable and recordable via Apple's AppleScript and UserLand's Frontier, which can automate the file retrieval process.

Anarchie is an essential tool for retrieving files via FTP and anonymous FTP sites, and is available for $10. The latest version is available at ftp://ftp.tidbits.com/pub/tidbits/tisk/tcp/.

See Also
Anonymous FTP; Archie; FTP; Fetch; Internet; Internet Config; Open Transport; Shareware

Andromeda Effects Series 1 and 2

These effects come in two series. Series one is a collection of more standard filters, whereas series two allows pseudo 3D effects. Each series should be looked at separately.

Series one contains the following filters:

1. CMulti—This filter (Circular Multiple Image) has no equal in any other package. It acts as a circular pantograph, painting a selected area in a circular pattern over the original image. A flower's center, as an example, can be painted in a ring around the flower. the user is given

full control over the placement of the selected area and of the number of times the image will paint it. An option is to use a rectangular method for more rectangular effects.

2. Designs—This places a gridded design over the graphic. The grid can be sized, angles and warped, leading to some interesting effects. A reverse grid can also be applied, making the image appear only as part of the grid.

3. Diffract—It places a diffraction lens over the selected graphic. resulting in a prism-like rainbow painted on the selection. All of the standard parameters are controllable by the user, as well as a “spokes” control which determines the number of times the diffraction will render in a circular pattern. Pushing this control all the way up creates a circular rainbow field.

4. Halo—Direction, Intensity and Dimensions are controllable. This places a luminescent halo upon the selection.

5. Prism—This effect places a prismatic diffraction on the selection. Intensity, direction and size are controllable.

6. Rainbow—The Rainbow effect places a rainbow spectrum on the selected graphic. The size, arc direction, width, fade amount and intensity are user configurable. A special “Pot of Gold” checkbox allows a glowing golden aura to be rendered at the bottom of the rainbow. This is a very useful effect when applied to a photograph of a

cloudy sky, and can even add a certain magic when applied carefully to an eye.

7. Reflection—This acts to place a reflected image on a user set distance in the graphic. This filter is perfect for enforcing a reflection of surrounding terrain in a still lake.

8. Star—This is the perfect filter for applying stars or star-like glows to your image. Color, fade, spokes, central core size and halo are all user determined.

9. sMulti “Straight Multiple Image”—This effect is good for adding cloned sections to a graphic, internal tiling in a direction set by the user. The dimension and direction as well as the choice between parallel or square areas, or a combination of the two, is supported.

10. Velocity—This adds what an animator calls “speed lines” to a selected graphic. Speed lines are smears in one direction that indicate that the object was captured moving through space. This effect can be user adjusted in terms of the direction, intensity, fade and size of the smears.

Series Two: Andromeda Effects 3D

The Andromeda Effects 3D series two filters are represented by a singular interface. This effect allows you to wrap your selected image area on a sphere, box, cylinder or plane, just as if you were working in 3D space. You have control over the dimensions and placement of both the 3D shape and of

the sizing and mapping of the graphic to be placed upon it. There are as many controls in this plug-in as there are in a dedicated 3D program as far as image mapping is concerned. You can adjust the lighting in 3D space, shadowing components, surface ambiance and reflectivity of the 3D object and of the image map, 3D viewpoint, visible grids and colors. Background effects can also be added. It's a great tool for the 3D placement of logos without the expense of 3D software.

Angel Devoid: Face of the Enemy

See
Adventure Games

Animaq

A high-end controller board used with frame-accurate tape decks. It outputs or digitizes video one a frame at a time. The software QuickPass, which comes with the board, will output any QuickTime movie to a video deck a frame at a time.

Although this produces very high quality output, the video tape recorders that are required to work with this board are very expensive. If you need this quality output, you might consider using a service bureau to output your movie to tape.

See Also
Outputting to Video

Animation Compressor

This QuickTime compressor works best with sequences of computer-generated images. Computer images are reasonably clean compared to video images (the differences between frames is much less, because there's no camera shake, the lighting remains very constant, and there is no "noise" in the signal). Although the Animation Compressor does a very good job, it is not as efficient as the video compressors (Cinepak, Apple Video) because it is lossless (see Compression: Lossy versus Lossless).

Compression ranges from 1:1 to 7.5:1.

See Also
Asymmetrical Compressors; Compressor; Drop Frames; Spatial Compression; Symmetrical Compressors; Temporal Compression

Animation on the Internet

A number of ways are being developed to being animation to the World Wide Web. Like many complex graphical elements presented over the Internet, however, their performance is limited by bandwidth, the capacity of the viewer's Internet connection to transmit data. Many users with slow dial-up

modem connections have to wait agonizingly long to see a Shockwave animation or Java applet, for instance.

Shockwave is a plug-in for Netscape Navigator that allows animations created with Macromedia Director to be played within the Netscape browser window.

Netscape version 2.0 now supports the display of Java applets, small computer programs that use the Netscape window as a virtual computer. Some simple animation effects can also be created with JavaScript, Netscape's version of the Java programming language. Roaster is an application that also plays and creates Java applets.

Multipart GIF89a images, also supported by Netscape Navigator, are GIF images that consist of several separate frames or images. The series of images, when played together as a multipart GIF, provides simple animation on a Web page displayed by Netscape.

A number of virtual reality applications and plug-ins using VRML (Virtual Reality Markup Language) were beginning to appear as this was written, several of which were developed for the MacOS.

See Also
Java; Multimedia on the Internet; Shockwave; Sound on the Internet; Video on the Internet; VRML

Animation Mapping, CD-ROM Images for

A

Animation mapping is a digital technique that allows you to map a sequence of still images on a 3D object, literally mapping an animation in an animation. The images have to be in a format that the animation software can read in. Color images can be wrapped on objects, and so can grayscale images. Grayscale images are often mapped to objects as bump maps, so that the lighter the surface area of the grayscale, the “higher” the perceived elevation of the bump. There are two special CD-ROMs that contain single frame image sequences that make excellent Animation Maps.

Motion Clips

This is a collection of 752 x 480 x 24-bit JPEG sequences, over 8000 frames in all. Dozens of topics are represented: background gradations, clay animations, city nights, clouds, football games, Niagara Falls, toy trains and more. The average frame count is sixty, though some animations have higher numbers of frames. The size of the frames makes them perfect for background animations.

Contact:

Accadia Electronic Arts
Buffalo, NY 14213-1413
(716) 881-5215
(716) 882-1774 FAX/BBS

Moving Textures

A

This Precision Computer Graphics CD-ROM is dedicated to organic effects animations, and contains subjects like smoke, clouds, fire, steam and water. There are twenty-two image sequences in all, each one containing from three hundred to nine hundred frames. The caution is not to try to load these into Photoshop for translation, but to first take a sampling of them and write them to the hard disk. Photoshop does not appreciate trying to load a folder with 300 images or more. In addition to the color sequences (368 x 240 and 320 x 200 pixels), the CD contains fifteen grayscale sequences for bump mapping (192 x 120 pixels): boiling, burst, calm, disturb, jiggle, liquid, pour, rough, spots, swift, tide, water A and B, waves A and B. There is also one color image sequence of 300 frames of clouds in full 24-bit 736 x 480.

Contact:
Precision Computer Graphics
634 N. Glenoaks Blvd., Suite 367
Burbank, CA 91502-1024
(818) 842-6542

Animation Master

Animation Master is a very powerful 3D character animation tool. If you want to create animated characters, then Animation Master, or its less expensive sibling, Martin Hash's 3-Dimensional Animation, is probably the best choice of all tools currently available on the Macintosh.

Unfortunately, it is a very complicated program, and the documentation has

tended to be poor (though there are efforts to create additional documentation; check the companies Web site.) If you already have experience using a 3D program and are interested in doing character animation then definitely buy Animation Master. If you only want to do some 3D logos, maybe a virtual building, or have only a small need for character animation, consider another program.

Animation Master projects are called a Choreography. The Choreography window displays a 3D perspective of the world in which 3D models are arranged. These models are called characters. A character is, in essence, a model made up of different parts called segments. A human model might be made up of segments representing the body, neck, head, upper arm, lower arm, hand, and so on. To edit a character you select it in the choreography window and then open the Character window, which displays just the segments that make up that model and how they are linked together. Segments are linked in a parent-child relationship. This linking is important when animating the object, so that when the arm moves, the hand and fingers move with it!

To add a segment (say a finger), you select the parent segment (the hand), and then click the Add Segment button in the toolbar, which opens the Sculpture window. In the Sculpture window you use the pen, lathe, and extrude tools to create the basic 3D objects. Animation Master provides powerful spline (curve) based modeling tools. You can add more control points and line segments to simple shapes, and then pull and manipulate those segments to create more complex shapes.

A

After there's a character in the choreography, it is animated along a path drawn in the choreography window. The character can turn as the path turns, can face a target as it moves, or the character can actually bend along the path as it travels. The actions of the character are automated with scripts. A character can have a walking script, which stores the movement of the limbs of the character as it walks. This movement is independent of the distance the character actually travels. By applying the walking script the characters feet and hands move as it moves along the path in the choreography. To make the movement accurate, you can define stride length for the character. This prevents the characters feet from appearing to slide as the character walks. Animation Master supports inverse kinematics.

A characters shape can be animated in three different ways; skeletal involves manipulating the position of the objects that make up the character, spine manipulates the objects themselves (bending the characters foot for example) and muscle manipulates individual surfaces of an object (use this for mouth movements.)

Animation Master offers a sophisticated set of character animation tools, but don't think it's a magic bullet. Realistic character animation is a complex business—this program just makes it easier.

See Also

3D; Animation; Extreme 3D; Infini-D; Inverse Kinematics; Martin Hash's 3-Dimensional Animation; Ray Dream; Sketch!; StrataVision

A

Animation and Premier

See
Premier and Animation

Anonymous FTP

A way of accessing the contents of publicly available FTP (File Transfer Protocol) sites. FTP is a common way to connect to a network, access directories, or obtain files. FTP requires a username and a password if the user has been given access to a particular directory beforehand. Anonymous FTP allows users to use FTP as a “guest” and without a password, that is, anonymously.

See Also
File Transfer Protocol; Software Archives; TCP/IP

ANSI C

See
C

ANTI Virus

A

This virus infects applications and files that resemble applications (like the Finder). ANTI does not infect the System file or document files. Applications do not have to be run to become infected. ANTI may damage applications so that they must be deleted and reinstalled.

See Also

ANTI Virus; CDEF Virus; CODE 1 Virus; CODE 352 Virus; Frankie 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

Anti-Virus

Anti-virus utilities are designed either to stop computer viruses from infecting your disks, or find viruses that may be already be infecting your hard disk or disks. Computer viruses are very small programs or hidden bits of code in a program or document designed to somehow disrupt your computer. They can be as harmless as a virus that hides invisibly on your hard disk and each year on Valentine's Day displays a message that says, "Happy Valentine's Day"—or they can be as deadly as a virus that erases files or folders from your hard disk. Most viruses cause your computer to crash, freeze up, or engage in some sort of erratic behavior by adjusting some internal resources in your System software. Viruses are usually easily eradicated by using an anti-virus utility, and there are both commercial products and shareware products that are very effective at preventing and

eradicating computer viruses.

There are a number of popular commercial anti-virus programs, including Virex from DataWatch and SAM from Symantec. There is also a very popular shareware anti-virus utility called Disinfectant that can be found on America Online in the Utilities forum or on the Internet at a variety of FTP sites. Disinfectant is both a free-standing utility and an extension that searches for viruses.

See Also
Crash; Freeze; SAM; System Software; Utility; Virex; Virus

AOL

See
America Online

APDA

APDA, formerly the Apple Programmers and Developers Association, is Apple's primary distribution point for developer tools and information. APDA is the only place you can purchase many Apple developer tools and resources, such as MPW Pro, E.T.O., and the Apple Developer Mailing. The APDA catalog, known as the Apple Developer Catalog, includes all of these Apple resources, as well as an excellent selection of third-party development

tools and books.

APDA carries everything from the latest hot programming environments to multimedia authoring tools to developer notes detailing the innards of Apple hardware.

APDA can be reached at:

Apple Developer Catalog
Apple Computer, Inc.
P.O. Box 319
Buffalo, NY 14207-0319

US: (800) 282-2732
Canada: (800) 637-0029
International: (716) 871-6555
Fax: (716) 871-6511

Email: apda@applelink.apple.com
Web: http://devcatalog.apple.com/

API

See
Application Programming Interface

A

Apple AudioVision 14 Display

See
Monitors, Common Models

AppleCD Audio Player

If you want to play Audio CDs in your CD-ROM drive, the Apple CD Audio Player enables you to operate your CD-ROM in much the same way you would a traditional audio CD player. The interface, which looks much like the front of a regular CD player from your stereo system, has the standard transport buttons for pause/play, stop, previous track, next track, and buttons to quickly scan through tracks (as shown in the figure).

Like a regular audio CD player, there is a display window that shows you the number of the currently selected audio track, and the elapsed time for that track. It also has a button to eject an audio CD. To the right of these buttons is a slider for controlling the volume of your audio CD. You also have buttons to choose your desired mode of play: Normal plays the tracks in order, starting with the first track, second track, and so on. The Shuffle button plays the tracks in a random order. The repeat button puts the audio CD into a loop mode that repeats the audio CD again when it reaches the end of the last track.

The Apple CD Audio Player also has a nice feature that enables you to list the

songs and which track they appear on, so you can program a playlist of your favorite songs, and skip the ones you don't want to hear.

To access the playlist selection, click the green arrow below the transport controls and the playlist area will pop-down. To name the CD, click in the window marked disc and type in the name of the CD. To name individual tracks, click the track number and type in the name of the track. To program your playlist, click the Prog button (Program) and the playlist window will appear. Drag and drop any track that you'd like in your playlist for this CD onto the playlist window.

Under the options menu, you can select a background color for your audio player, and the color for the indicator lights and display. You can also choose three modes of audio: Stereo, left channel only, right channel only.

To use the Apple CD Audio player, follow these steps:

1. Insert an audio CD in your CD-ROM player and choose Apple CD Audio Player from the Apple menu.
2. To hear the audio tracks in order, click the play button. To stop the CD click Stop. To move forward, use the transport controls to move one track forward or backward, or use the scan button to rapidly skip forward or backward. To Eject a CD, press the eject button.
3. To program a playlist, click the green arrow below the normal mode button to reveal a pop-down menu where you can name the tracks by typing in their name and dragging and dropping them into a

personalize playlist by clicking the Prog. (Program) button.

4. After you've named your programs, you can go directly to the track of your choice from a pull-down menu above the transport controls.

See Also
CD-ROM

AppleCD Audio Patch

An enhancement to version 2.0 of the AppleCD Audio Player that adds color and a three-dimensional look. Works only with Apple CD players and requires at least version 5.0 of the Apple CD-ROM Extension. Available from many online services.

AppleCD Speed Switch

If you own an AppleCD 300 CD-ROM drive, you can choose different speed options using the AppleCD Speed Switch Control Panel. This control panel only works with the AppleCD 300 drive.

Apple Character

The Apple character () is accessed by using the keyboard shortcut Shift-

Option-K. This particular character is not available in all fonts, but it is available in Apple's own system font Chicago, among others.

The Apple character also appears on the Macintosh keyboard's Command key. Many people refer to the ⌘ key as the Apple key, because the Apple appears on the key. So if you hear someone say, "The keyboard shortcut is Apple-Q for Quit," they are referring to the ⌘ key.

See Also
Fonts; Option Key

Apple Computer, History

The history of Apple Computer starts long before the history of the Macintosh. In 1970, Apple Computer's two primary founders, Steve Wozniak and Steve Jobs, were introduced to each other by a mutual friend, Bill Fernandez. Fernandez was a classmate of Jobs, who was then in high school, and a neighbor of Wozniak, who was then 20 years old.

Jobs and Wozniak shared a number of common interests, including electronics and pranks. Both were loners more interested in tinkering with electronics than partying the night away.

When Wozniak was studying engineering at U.C. Berkeley, he and Jobs began building and selling a device of his own design. This "blue box" could mimic the tones used in long distance telephone switching to net the user free long

distance calls. The two sold the devices door-to-door in the Berkeley dorms, and managed to make a nice profit doing so.

In 1975, Woz began attending meetings of the newly formed Homebrew Computer Club. He was intrigued by what he saw there: the new Altair computer, the very first personal computer. Although he would have loved to buy an Altair and start tinkering with it, he couldn't afford one, so he built his own. Wozniak's computer was based on the relatively inexpensive 6502 processor built by MOS Technology rather than the Intel 8800 in the Altair.

By that time, Steve Jobs was attending the club meetings as well. When Woz demonstrated his new computer, Jobs was impressed. He convinced Woz that they should try to sell the computers. Wozniak agreed after his employer, Hewlett Packard, decided to waive any rights they might have had to his invention.

On April 1, 1976, Apple Computer was founded as a partnership among Jobs, Wozniak, and Ron Wayne. Wayne worked with Jobs at Atari and had been convinced to join the partnership when Jobs offered him a 10-percent interest in Apple. The three partners set about creating the first Apple I computers, based on Wozniak's design.

Initially, these three had planned to sell the computers as bare-printed circuit boards, to which the buyers would add their own electronic components, power supply, and case. When they received their first major order from The Byte Shop, it was for finished computers, so they quickly changed their plan.

A

Conversation with Molly Tyson

As a longtime Apple employee, Molly Tyson helped shape Apple's documentation into a model for the industry; she now moves throughout the company doing management training through the Human Resources group.

Maclopedia: What was Apple like back in 1981, when you arrived?

Molly: In those days, a high percentage of users were programmers, so we had to provide technical information for them—BASIC commands, DIP switch settings, and pin numbers—while teaching novices basic computer literacy—how and why it's important to save your work on a disk. It was like a religious war when we discussed taking the technical reference out of the box, and we got lots of angry letters from hackers when we finally did.

But part of the fun of doing documentation for the Apple II and the Mac was that everyone was an avid user, so everyone always had a strong opinion about any changes to the product.

One of the challenges in documenting the Apple II and especially the Mac was that ease of use was a major selling point so there was pressure for the documentation to reflect that. One of the first commercials for the Mac showed a thin manual floating gracefully down to the desktop while a stack of documentation from the other

guy came crashing down with a thunk. When we added more features to the Mac, there was still pressure to keep the manuals small. If we'd had unlimited time to refine the interface and design the manuals, we probably could have kept the books small, but there was pressure to ship products at the earliest possible moment. This led to longer books and created friction with engineers who felt that Apple products didn't need documentation and marketers who wanted the documentation to re-enforce the ease-of-use message.

Everyone had an opinion about what users needed because we were all enthusiastic users of Apple products. One thing that helped bring some objectivity to the design process was user testing. We'd bring typical users in to use the products, and we'd sit on the other side of the glass taking notes. Inviting engineers to user testing helped resolve internal debates about the need to make features easier to use and how to document them.

Maclopedia: Did usability testing also change the way you designed the manuals?

Molly: Yes, we started using a lot more art. We had always understood graphics were important because the machine had a very visual interface. But we were struck by the way users skipped from illustration to illustration, without reading the text. Rather than trying to change the way they used manuals, we started

putting more and more of the content into the illustrations. We had graphic designers as well as illustrators on staff, and a big part of their job was figuring out a book design that helped people find the information they needed. We also started hiring professional indexers because we realized how important it was to support random access to information.

Maclopedia: How did you handle electronic documentation?

Molly: At first we had separate departments doing electronic and print documentation, but that made it hard to design integrated documentation. Writers had a bias toward the medium they were most familiar with. So we encouraged them to learn to design in a variety of media so they could choose the best medium for the information they were trying to communicate. This was challenging because the tools were complicated to use. We were using Quark Express, a page layout program, for print documentation because we wanted writers to think visually. They needed to be comfortable using HyperCard for developing prototypes of electronic training, and they needed to learn a scripting language to develop online help. Ease of use doesn't always extend to the internal development environment!

Apple Guide, our online help system, originated in the Advanced Technology Group, but we took it over when it was time to make it practical and implementable. To make online help really helpful,

you need hooks into system software. So another breakthrough was when people from the online help transferred into the engineering group.

It was hard to give up control of the help design, so we worried that it wouldn't be as effective instructionally once it moved out of the documentation group. But if we hadn't given up control, it might never have gotten into the interface. It was a tradeoff. Fortunately, instructional people like Jim Palmer—who was a major architect of the AppleGuide interface and scripting language—transferred into the engineering group along with the code, so they were in a good position to influence its development.

Maclopedia: What's stayed constant over the years at Apple?

Molly: One thing that has remained constant is people focusing on what users really want. We try not to get so enamored of any technology that we lose sight of what users are trying to do with the computer. Of course, as the company has gotten more focused on costs, it is harder to do the right thing. It doesn't feel good to make compromises to meet a price point or a marketing window of opportunity.

Maclopedia: So how have business realities like cost changed what it's like to work at Apple?

Molly: When I came there was no discussion of cost. That was an

incredible luxury. And it was one of the reasons that Apple didn't feel much like a business. There were huge discussions about the best way to do things, not just best for the customer, but what would be cool, or insanely great, as Steve Jobs said. Let's try and do it that way, even if it seems impossible. At first, the new emphasis on cost felt healthy because there was something almost indulgent about not worrying about what something cost when the customer ended up paying for it in the end. But as margins got squeezed, it went beyond fun. For instance, project managers would try to give us a cost target for documentation. It's one thing to say make it shorter, but it's different to be told the documentation can only cost x dollars.

The pressure to get products to market quickly has also increased. There was always a feeling of urgency to get products to market, but it stemmed from an excitement to get to finish. Now there is more focus on the competition and hitting a window of opportunity. This means throwing features out if necessary to meet a deadline. That goes against the original idea of building the best possible product.

Maclopedia: So on balance would you say the changes over time have been good?

Molly: I am not one of those people who spend a lot of time thinking about the good old days. There were aspects that were

indulgent and manipulative, for instance, encouraging the illusion that we were all one big family and then realizing through layoffs that we're just a business after all. I think we all have to take responsibility for some of the new business realities. We have to focus more on costs because we haven't stayed far enough ahead. When our products were significantly different, we had the luxury to spend money and take time on research. With a narrower gap, we have to focus on costs and time to market.

So there is much more focus on process and being accountable for costs and schedule. There are "out of bounds" reviews when expenses exceed forecasts and schedules slip. Process wasn't part of our vocabulary in the old days. There was a freedom to that, but there were times when process would have been helpful. For example, there's no need for creative freedom when you are doing a simple revision to a product. Following a consistent process could have made us more efficient. In the ideal world, I'd like to see more of the garage mentality for cutting-edge products and consistent process for iterations.

Another big change has been the proliferation of products and the complication of the product line. It's harder for people like me to be evangelists. I still feel a lot of pride when people find out I work at Apple. But then when they say which Mac should I buy, I don't have a clue. I'm not even sure which model I have. You can't just say PowerBook, or get a Power Mac, because then they say which

one. I think that's something we need to address going forward because our customers are our best salespeople, and we need to simplify the message.

The truth is there is still a lot of really exciting stuff in the works at Apple, and that makes it fun to work here despite all the emphasis on cost, total quality management, and time to market. Ideas don't always get funded ahead of time, but one way or another the good ideas get implemented. We didn't ask permission to work on AppleGuide; we found a way to do it on the side. Once we had something to show, we got the funding. I think that happens a lot at Apple. Fortunately, we have a lot of creative people at Apple and they don't always ask permission to work on projects that interest them.

Maclopedia: How have people changed?

Molly: In some ways, they haven't changed. We still have people juggling bowling pins in the lobby. You'll walk by a conference room and hear someone playing classical music on a piano. People still dress casually. We still have the loan-to-own program. It's neat to know that every single person in the company uses the technology. We don't hand out T-shirts for every project anymore, but we still have a company store full of Apple paraphernalia. But I've noticed that even the store has become more cost-conscious in the products they carry. (They used to advertise wind surfing sails

with the Apple logo.)

I think that we are looking for more experience in the people we hire than we used to, and I have mixed feelings about that.

When I got hired, I had very little experience as a technical writer. I was a journalist. But I think they hired me for my writing ability, intelligence, and creativity and took it as a challenge that they could teach me the technology. I teach classes now on interviewing, and I try to encourage managers to look for the skills they need and not get too hung up on experience doing the exact job they're hiring for.

One thing that hasn't changed—and one reason I'm still here—is that Apple still values creativity. It's not a coincidence that we've had breakthroughs in desktop publishing and multimedia. People who work here are creative, so they tend to design products that help people be more creative.

Another thing I like that hasn't changed over the years is the way people treat each other. Managers don't get very far if they try to pull rank. People are more interested in the quality of your ideas than in your position or supposed expertise in a subject. As a trainer, for example, I have to know my stuff. People don't feel they have to have expertise on a subject to weigh in on it. You can't just say I'm the expert or I'm the manager and get away with it.

> Maclopedia: So where does Mac go from here?
>
> Molly: I think we have to simplify the product line. We have to do a better job of promoting the hit products that we are developing. And clearly we can't rest on our laurels. We have to keep developing products that capture people's imagination.
>
> I am still a big fan. I get frustrated when I hear people whining or pointing fingers at other parts of the company. If things aren't working, I want to put my energy into fixing them.

To help finance the first order, Jobs sold his Volkswagen minibus and Woz sold his programmable calculator. Most of the electronic components were purchased on "Net 30" terms, so Apple did not have to make payment until 30 days after it received the parts. By working furiously, they managed to finish the computers and collect payment from The Byte Shop before the bills came due.

After this initial sale, Jobs planned to go back into debt to build more computers. Wayne was uncomfortable with the idea of being responsible for 10 percent of Apple's debt, so he resigned. Jobs began looking elsewhere for investors. He found one in Armand C. "Mike" Markkula. Markkula invested $92,000 of his own money for a one-third interest in Apple.

Markkula brought in Mike Scott to be president of the new company, and on January 2, 1977, Apple Computer was incorporated.

While Jobs was concerning himself with the business of Apple, Wozniak was

busy designing the successor to the Apple I. The Apple II, which was introduced in April of 1977, was the world's first complete personal computer. It included a fully assembled computer in a case with a keyboard and expansion options.

In many ways, the Apple II was the beginning of the personal computer revolution we are still feeling today. Although primitive by today's standards, the Apple II was the first computer ordinary people could use without knowing how it worked inside. It spawned the modern software industry and made computers more accessible to non-hobbyists.

The Apple II's massive popularity quickly made Apple the largest of the new wave of personal computer companies. From its modest beginnings, Apple grew very quickly. When Apple went public on December 12, 1980, Jobs, Wozniak, and 40 other Apple employees became instant millionaires, a pattern that has since been repeated by many up-and-coming computer companies.

In the late 70s, Apple decided to pursue the business market more aggressively and designed a new computer to do so. The Apple III had an impressive set of specifications. It ran twice as fast as the Apple II, included more RAM, and had many of the features that most Apple II users eventually added to their machines. It could not run Apple II hardware without using a slower emulation mode, however.

From the start, the Apple III was a flop. It was Apple's first major failure. The problems were numerous, from missed specifications to components that

would come loose. Sales were disappointing, and, despite several improvements, the project was finally killed in 1984, the same year the Macintosh was introduced.

Following the Apple III fiasco, Mike Scott was forced out as president and replaced by Markkula. Jobs began looking for a new CEO, eventually recruiting John Sculley from Pepsi in April 1983.

Meanwhile, back in 1979, two important projects were started within Apple. The first was the Lisa, which was to become the next generation business computer. The other was the Macintosh, which began as a small research project headed by Jef Raskin.

Although technologically advanced, the Lisa was Apple's second failure. Introduced in 1983, the Lisa was overpriced and underpowered. Sales never lived up to expectations, and the Lisa and Macintosh groups were consolidated under the direction of Steve Jobs in November 1983. Two months later, Apple introduced the Macintosh.

Although the Macintosh was a better success than the Lisa, it too was overpriced and underpowered. It wasn't expandable and offered only a small monochrome display. Despite the best efforts of Apple Evangelism, there were very few programs that ran on the new machine.

Again, sales were disappointing. Soon after, the Macintosh was followed up by the Fat Mac, which offered much more memory. More importantly, though, was the introduction of the LaserWriter as a part of the Macintosh

Office, a bold vision of networked workgroup computing. The LaserWriter, combined with PageMaker, gave the Macintosh its killer application: desktop publishing.

By 1985, Jobs had begun to be more of a liability than an asset to Apple. His tendency to meddle in projects and his confrontational style were rubbing many people the wrong way. In April, Sculley received approval from the board of directors to remove Jobs from his position as executive vice president and manager of the Macintosh division.

Less than one month later, on the eve of a business trip to China, Sculley learned from Jean-Louis Gassée that Jobs planned to use Sculley's absence as an opportunity to have him removed from his position. Sculley scheduled an emergency executive staff meeting, at which every member of the staff backed Sculley rather than Jobs. On May 31, Jobs was stripped of his operational responsibility and given the title of chairman, which was essentially a powerless figurehead role. Four months later, Jobs resigned from Apple Computer to start NeXT, a computer company designed to create computers specifically targeted at the higher education market.

Under John Sculley's leadership, Apple entered a period of massive growth. During Sculley's reign, Apple grew from $600 million in sales to almost $8 billion. The Macintosh came into its own with the introduction of the expandable SE and II series, and flourished with more powerful software and hardware.

In October 1991, Sculley led Apple into a groundbreaking alliance with its

former arch rival, IBM. The IBM alliance consisted of three parts: Kaleida, Taligent, and PowerPC. The first was to develop innovative multimedia software, and the second was to carry forward Apple's "Pink" project and create an object-oriented operating system. But the third would be the most successful.

The PowerPC alliance brought together not only IBM and Apple, but Motorola as well to create a new generation of advanced microprocessors. In March 1994, Apple delivered on its part of the bargain by introducing the first Power Macintosh computers based on the PowerPC processor.

During the year leading up to the PowerPC introduction, Apple went through some tough times. The disappointing reception received by its highly touted Newton PDA didn't help matters. In June of '93, Apple's board replaced Sculley as CEO with then Chief Operations Officer Michael Spindler.

Spindler oversaw the successful transition to the PowerPC architecture and the beginning of Macintosh cloning. Apple's financial difficulties did not go away, however, and in 1996, the board appointed Gilbert Amelio to the positions of chairman and chief executive officer.

In 1996, the computer industry pundits are once again predicting the death of Apple Computer. Others say that if Apple makes it through its latest round of financial troubles, it may be reborn yet again.

See Also

Amelio, Gilbert; Byte Shop, The; Evangelism; Jean-Louis Gassée; Homebrew

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Computer Club Steve Jobs; Lisa; Macintosh, history; Markkula, Mike; NeXT; Raskin, Jef; Scott, Mike; Sculley, John; Spindler, Michael; Wayne, Ron; Wozniak, Steve

Apple Computer Internet Sites

Apple Computer provides a number of resources for Macintosh users on its World Wide Web and FTP sites on the Internet.

The main Apple Home Page on the Web (see the following figure) presents breaking news about Apple and its products, as well as links to resources for developers, support for users of hardware and software, and phone numbers to Apple offices.

Apple's Web site contains links to special sites for publishers, educators, multimedia developers, and people with disabilities. The following table lists various Apple resources, depending on what you want to do.

Apple Internet Resources

Purpose	Address
Main home page	http://www.apple.com/
Software and hardware info	http://www.info.apple.com/
Download software	ftp.info.apple.com

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Problem or question about an Apple product

http://til.info.apple.com/til/til.html

(This Tech Info Library (TIL) contains a searchable index of answers to questions sent in by Macintosh users over the years.)

See Also
Apple Internet Router; Apple Internet Connection Kit; Apple Internet Server Solution; Apple IP Gateway; Apple Network server; AppleLink; AppleSearch; Cyberdog; eWorld; FTP; Internet; World Wide Web

Apple Desktop Bus (ADB)

Every method of data entry on the Macintosh, be it a keyboard, mouse, trackball, touchpad, joystick, graphics tablet, and so forth, uses the same connection and data transmission vehicle—the Apple Desktop Bus (ADB).

ADB has been the port of choice since the introduction of the Mac SE in 1987. Most Macs today provide two ADB ports (but one bus). ADB ports let you chain input devices from one to another, connecting multiple peripherals to the same port. Up to 16 devices can be supported by a single ADB port, although Apple recommends that you limit connections to three for optimal performance.

All devices attached to the ADB port communicate with the Mac over a single bus. Each input device has a unique identifying address and the Mac can

address more than one address at a time. The CPU controls the flow of information into the Mac. Each device requests permission to send data across the bus. The CPU cannot be interrupted while it is processing, but will only receive information when it asks for it. This is called asynchronous serial communications, because data does not automatically flow down the pipeline, but flows intermittantly based on a signal from the CPU. Because the ADB is a serial bus and data bits flow one after another, it is not as fast as the parallel flow of information provided by SCSI buses. The ADB transmits data at a maximum speed of 4,500 bits per second (bps). The ADB connector is simple—four pins: one to send the ADB signals, one to supply the required power (five volts) to the input device, one to act as a ground wire, and a fourth to let you start up the Mac from your keyboard.

As shown in the illustration, the Mac communicates with data input devices over the ADB via two transceiver chips: one on the logic board and the other in the input device. The ADB Transceiver converts bus signals from the Mac's Cuda (ADB Manager) chip into a signal that is understood by the input device. The exchange of information is further managed by one or more Versatile Interface Adapter (VIA) chips that provide RAM and storage support for the transaction.

When you press a key on your keyboard, a switch is activated that changes the flow of current from the key to the input device's microprocessor. The microprocessor sends a binary representation of the key's character to the buffer. The buffer can hold five or six characters.

The keyboard's ADB Transceiver sends a service request to the Mac's CPU. The keyboard's ADB Transceiver will respond only if the Mac is available to receive data. If the CPU is available, the Mac's ADB Transceiver sends an interrupt signal to the VIA chip, which tells the Mac operating system that there is incoming data. The Cuda chip uses the Mac's ADB Transceiver to poll all data input devices to find out which one is sending data. The keyboard's ADB Transceiver responds to the poll and the Cuda sends the ADB Transceiver a "Talk" command. The keyboard then sends the contents of the buffer to the Mac. The data is sent to the CPU as bursts of electric currents (measured in the strength and length of volts)—very low for "0" and very high for "1."

When the Mac's ADB Transceiver has received the contents of the buffer, it in turn passes the data to the VIA. The VIA sends a message to the Mac Operating System's Event Manager, which passes it to the Toolbox Event Manager; the Toolbox displays the character on the screen or carries out the key combination, and awaits the next instruction.

See Also

Bar Code and Magnetic Stripe Readers; Graphics Tablets; Joysticks; Keyboards; Logic Boards; Mice; Pen/Handwriting Devices; Power Mac Logic Boards; SCSI Port; Serial Port; Trackballs; Touchpads; Touch Screens

Apple Developer Mailing

Apple Developer Mailing is one of the most important sources of up-to-date

software and programming information for developers. Each monthly mailing includes the latest in the Developer CD Series, a set of CD-ROMs containing the latest system software, software development kits (SDKs), and developer documentation. There are three kinds of developer CDs that rotate throughout the year. The System Software CD concentrates on the latest in Apple System Software and Extensions, including versions of the system localized in over 30 different languages. Accompanying the System Software CD are the MacOS SDK CDs, which include complete SDKs for all current system software Extensions. The Tool Chest edition of the CD includes a wide variety of tools to help developers create great Mac programs. Finally, the Reference Library CD includes electronic versions of all of the important developer documentation, such as Inside Macintosh.

In addition to the Developer CDs, the mailing includes Apple Directions, a report on the current state of the Macintosh development business. Apple Directions often contains useful information about the future direction of Apple technologies. Also, the mailing frequently includes additional information on Apple technologies in the form of white papers discussing overall strategies and future directions.

The Developer Mailing is available only from APDA, through the Developer Catalog. A yearly subscription to the Developer Mailing costs about $150.00.

See Also
APDA; Inside Macintosh; SDK

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Apple Directions

See
Apple Developer Mailing

Apple Disk Tools

The Apple Disk Tools disk is part of the Apple System Install set of disks, or the CD-ROM disc that came with your Macintosh. The Disk Tools disk contains a scaled-down version of the Macintosh operating system that enables you to boot your Macintosh from this disk. If for some reason you are not able to startup your Macintosh from the startup disk, you could then use the Disk Tools disk to start up your Mac and try to remedy or repair the situation. If, for example, you get an icon of a disk at startup with a blinking question mark rather than a Happy Mac icon, the computer is telling you that the Mac can't find a usable system to boot up from. You can insert the Apple Disk Tools disk and the system boots up from this disk, enabling you to look at your System Folder, run diagnostic utilities, and so on, to try and find out why the Macintosh is not booting from the startup system.

Besides containing a bootable version of the system, the Apple Disk Tools disk also contains Apple's free disk repair utility Disk First Aid, which you can use to repair some common disk errors, and Apple's HD SC Setup utility (its name is Apple HD Setup in System 7.5 and higher) enables you to test and initialize Apple hard disks. If you have the Apple system on CD-ROM, rather than on

disks, a folder appears on the CD-ROM called Disk Tools, which contains approximately the same contents as the Apple Disk Tools disk.

See Also
Apple's HD SC Setup; Boot; CD-ROM; Disk; Disk First Aid; Folder; Happy Mac; Startup; System Folder

Apple Event

An Apple event is a message, with some data attached to it, that one application receives from another application.

Whenever two applications share data, they must use a common protocol, so that each can understand the data. An Apple event follows the Apple Event Interprocess Messaging Protocol defined by Apple Computer. The gory details (and they are gory) are beyond the scope of this discussion.

An Apple event tells an application to do something, or provides information an application needs to get work done. Each Apple event is a kind of message. Different messages have very different purposes.

To differentiate between various messages, each Apple event has an event class and an event ID. These are analogous to a file's creator and type. The event class and ID uniquely identify each kind of Apple event.

Apple events are organized into suites of related Apple events. There are suites of events devoted to text manipulation, spreadsheets, core application

behavior, and so forth. One of the suites is the required suite of Apple events. These are the events that all applications should support.

The four required Apple events are

- Open application
- Quit application
- Open document
- Print document

The System and the Finder rely on these events to control other applications in a multitasking environment.

If a program does not support Apple events, the System can still work around the problem some of the time. But Apple events are the future, and the future is now. As a programmer, you absolutely should support the four required Apple events if no others.

Most Apple events have data attached to them. Precisely what data is attached depends on the nature of the event. Apple Computer maintains an official registry of these events that specifies the class, ID, and parameters for each event. Applications can also define their own custom event types if none of the events in the registry is appropriate.

The System and Finder are not the only programs that send Apple events to other applications. Any application capable of recieving Apple events can

send Apple events as well. Strictly speaking, applications cannot send events directly to one another—they must use the Apple Event Manager (see the following figure).

The Apple Event Manager relays events from one application to another, and takes care of relaying any reply back to the originator as well.

Apple events are the foundation upon which a number of important Apple technologies are built. An application must be able to respond to Apple events in order to be scriptable using AppleScript, Frontier, or any other Open Scripting Architecture (OSA) scripting language. In fact, the Apple events an application understands and how it responds to them define its scripting interface.

Some scriptable applications are also recordable. That is, the user's actions can be recorded and played back as a script. In order to be recordable, an application must not only respond to Apple events from other applications, but also use Apple events internally. In this sort of factored application, the human interface is separated from the core of its code. Therefore, it must send Apple events to itself to relay user input to the part of the program that acts upon that input. In this way, the Apple Event Manager can "listen in" on the Apple events to record a user's actions.

Apple events and scriptability are also at the heart of AppleGuide and OpenDoc. AppleGuide uses Apple events to manipulate applications and demonstrate how to accomplish certain tasks, and OpenDoc uses Apple events to accomplish much of the communication among running parts.

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See Also
AppleGuide; AppleScript; Frontier; OpenDoc; Open Scripting Architecture; Scripting

Apple Extended Keyboard

The Apple Extended Keyboard is a versatile, ergonomically designed keyboard with 15 programmable function keys, and an adjustable keyboard angle for typing comfort.

See Also
Apple Desktop Bus; Keyboards

Apple File Exchange

Apple File Exchange is a utility program from Apple that enables you to mount, read, translate, and write files from a DOS disk onto your Macintosh. These days, in Macs using System 7.5 and higher, the capability to read and write DOS disks and files is part of the system software controlled through an extension called PC Exchange. This extension enables you to mount PC disks, and works in conjunction with Macintosh Easy Open, which translates the PC files into readable Mac files.

With PC Exchange, you insert a DOS-formatted disk and it mounts right on the desktop like a Mac disk. You can move, copy, and delete files as you would

normally. However, with Apple File Exchange, you launch Apple File Exchange and then insert the DOS disk. The DOS disk's contents appear in a window, and you select the items you want copied onto your hard disk. You then press the Translate button, and the selected files are translated into Macintosh files and placed on your hard disk (see the following figure).

PC Exchange has a number of other advantages over Apple File Exchange, especially after you've put the DOS files on your drive. With PC Exchange, you double-click the file and it opens in the Mac version of the program that created it, or you can designate a similar type of Mac program to open it instead. But with Apple File Exchange, the only file that translated well was a text file that matched the corresponding Mac file exactly. If, for example, you translate a DOS WordPerfect file with Apple File Exchange and you have the Mac version of WordPerfect, it would open right up. But if you didn't have WordPerfect, in many cases you were stuck. Macintosh Easy Open changed all that by doing the file translation for you and enabling you to open the PC file in a similar Macintosh application (similar meaning you'd open a PC word processing file in a Macintosh word processing application.)

To read and translate DOS files using Apple File Exchange, follow these steps:

1. Launch Apple File Exchange.
2. Insert a DOS disk in the disk drive.
3. Select the files you want to translate.
4. Select where on your hard disk you want the translated files to be

stored.

5. Click the Translate button.

See Also
Desktop; DOS/Windows Conversions; Disks; Double-Click; Extensions; Launch; PC Exchange

Apple Guide Extension

The Apple Guide extension is the foundation for Apple's new built-in interactive help feature in System 7.5 and higher. Apple Guide is accessed through the Help menu in the upper-right corner of the menu bar. (The Help menu icon is a question mark.)

The Apple Guide interface is designed to work interactively with the user, and rather than just answering questions, Apple Guide walks you step-by-step through common Macintosh commands and features. One of the most unique features of Apple Guide is its use of "coach marks" that are similar to what ex-football coach/TV sports announcer John Madden uses on instant replay footage when he seemingly writes on the TV screen to show what happens next in a particular play. Apple uses a similar technology, and these "coach marks" (which appear to be hand drawn, like Maddens') appear on control panels, menus, dialog boxes, and so on instructing the user on what to do next (see the following figure).

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If, for example, you choose the topic of Disk Cache and ask how to set the disk cache when you open the Memory Control Panel, a coach mark would appear around the area of the control panel where you adjust the size of the disk cache.

When you access Apple Guide, you're presented with a window that enables you to scroll through a list of topic areas to find the specific topic you're looking for, as shown in the following figure. As you select a topic, a number of related questions a user might ask appear in the window to the right of the topics window. These questions refer to the selected topic, and you can choose questions or phrases from this specific list. Examples would be: "How do I empty the Trash?"; "How do I play an Audio CD"; "How do I restart my computer?". Phrases include definitions of commonly used Macintosh terms. If you see a question or phrase you're interested in, select it from the list and click OK. A different dialog box now appears with your selected question, and step-by-step instructions on how to use the feature or command, as shown in the following figure. These step-by-step instructions enable you to complete the tasks while you're learning and may include "coach marks" to help you. If the question is referring to menu items, these items appear in red for easy visual reference.

If the item that you need help on does not appear in the Topics listing of the Apple Guide, you can click the Index button to see a list of key words to choose from. You can also use the "Look For" button on the Apple Guide main window to search for a keyword.

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Apple's goal is to have third-party commercial software take advantage of Apple Guide by offering the application's Help feature as an Apple Guide, giving the user interactive help for applications as well for general Macintosh functions.

See Also
Help Menu; Menu Bar; System 7.5

Apple HD SC Setup

Hard disks have to be initialized before use in a Macintosh (although most Mac hard disks are already initialized for you at the factory.) Apple includes its own utility program for formatting Macintosh hard drives called Apple HD SC setup. (Its name has been shortened to Apple HD Setup in System 7.5 and higher) This utility is found on Apple's Disk Tools disk and enables you to initialize a hard disk as a Macintosh hard disk and create hard disk partitions as well.

If you feel a disk may be damaged, or its driver outdated, you can use Apple HD Setup to test the disk in question. You can update the driver on a hard disk but only if it's an Apple brand hard disk. If you buy a third-party hard disk, it has its own formatting software and its own driver software built in.

See Also
Hard Disk; Initialize; Partitions; Utilities

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Apple Internet Connection Kit

An integrated group of third-party software packages provide by Apple Computer that allows a Macintosh to connect to the Internet, download files, and navigate Internet and World Wide Web sites.

The connection kit includes:

- Netscape Navigator for World Wide Web browsing.
- Claris Emailer Lite for electronic mail.
- Fetch for accessing FTP sites.
- Apple Internet Dialer software for registering with an Internet service provider.
- StuffIt Expander for decompressing/decoding files.
- NewsWatcher for reading and posting to Usenet newsgroups.
- NCSA Telnet.
- Apple's QuickTime VR Player.
- Adobe Acrobat Reader.
- MacPPP.
- RealAudio Player.

MacTCP, however, is not included in the package, so users will have to obtain that from another source (such as the disk that accompanies the Hayden book Internet Starter Kit for Macintosh).

Almost all of the software in the package is freely downloadable from the Internet itself, but the package provides starting point for an office or a local area network without an Internet connection.

The Apple Internet Dialer lets users sign on with an Internet Service Provider within a few minutes, and AppleGuide on-line tutorials provide information about connecting to newsgroups and other Internet related subjects.

See Also
Acrobat Reader; Decoding Files; Electronic Mail; Fetch; FTP; Internet; Internet Service Provider; MacTCP; NCSA Telnet; Netscape Navigator; Network/Communications, Internet; NewsWatcher; RealAudio; StuffIt Expander; TCP/IP

Apple Internet Router

A router is software that allows two or more local worksgroups to be connected, either to each other using industry-standard network types such as LocalTalk, Ethernet, and Token Ring, or to the Internet.

If a Mac running the Apple Internet Router is already connected to the

Internet, the router can also provide Internet access for other users on the network. Wide Area Extensions can be added to link AppleTalk networks using X.25 or TCP/IP, the protocol of the Internet.

See Also
Internet; MacTCP; Network/Communications; Internet; TCP/IP

Apple Internet Server Solution

An all-in-one bundle of software and hardware designed around a Macintosh set up to function as a World Wide Web server.

Software included with the 2.0 version of the server package includes WebSTAR server software; the PageMill and BBEdit HTML editing programs; Netscape Navigator; RealAudio Server; MacDNS domain name server software; and HomeDoor 1.0, which allows a Web site administrator to serve multiple domain names from a single server.

The server software comes with CGI scripts to create imagemaps as well as customizable Web pages and forms.

Also included is AppleSearch 1.5, an application that allows a Webmaster to index key documents on a server so client software that accesses your Web site can search for its contents by keywords.

Two PowerPCs are offered as options for the Web server computer: the 7250/120 with 16MB of RAM, or the 8550/132 with 24MB of RAM.

See Also
AppleSearch; Apple Network Server; CGI; Client; Imagemap; Internet; InterSLIP; Netscape Navigator; RealAudio; Webmaster; Web Site; WebSTAR

Apple IP Gateway

An Apple IP Gateway is a gateway that lets an AppleTalk network connect to a TCP/IP network, such as the Internet.

In conjunction with Apple Internet Router software, the gateway provides IP access to any Macintosh computer on any AppleTalk network. Users on the local network can then access Internet services such as FTP, Gopher, and the World Wide Web. Apple IP Gateway also provides Apple Remote Access users with remote access to IP and AppleTalk services.

The gateway assigns and maintains dynamic IP addresses for computers on the network, allowing network administrators to use a single MacTCP configuration for all IP users.

> **TIP For more information go to http://product.info.apple.com/productinfo/datasheets/ss/ipgateway.html.**

See Also
Apple Internet Router; Apple Internet Connection Kit; Apple Internet Server Solution; FTP; Gopher; Internet; IP; IP Address; MacTCP;

A

Network/Communications; Internet; Web Server; WebSTAR; World Wide Web

Apple K-12 Personal Internet Solution

A bundle of software programs and hardware designed to allow an educator with a computer to connect to the Internet.

The package includes a modem, Netscape Navigator, Eudora, InterSLIP, and four reference CDs.

See Also

Education K-6; Education 7-12; Eudora; Internet; InterSLIP; Netscape Navigator; Teachers, Macs and

Apple Key

The modifier key, a.k.a. the Command key, is also referred to as the Apple key because the Apple logo is on the Command key on Macintosh keyboards, just to the left of the Command key symbol (⌘). The Command key is the most often-used modifier key in keyboard shortcuts and is unique to the Macintosh.

You can add the Apple symbol to a document by using the keystroke combination Shift-Option-K.

See Also

A

Command Key; Modifier Key

Apple Logo

Apple's logo, a rainbow-colored apple with a bite missing, is one of the world's best-recognized corporate logos. It was designed by Rob Janov, then creative director at Regis McKenna, Apple's public relations firm.

The rainbow apple logo was not the first logo Apple used, however. Apple's first logo, a detailed picture of Isaac Newton sitting under an apple tree, was designed by the third and least-known Apple founder, Ron Wayne.

This original logo was not used for very long. Steve Jobs felt it wasn't bold enough for the company he was creating and hired Regis McKenna to create the logo we all know today. Because of the close multicolored stripes, reproducing the Apple logo can be quite a challenge (for printers, for example). As a result, it has been called one of the most expensive logos ever designed.

See Also
Jobs, Steve; Wayne, Ron

Apple Macintosh Color Display

See

A

Monitors, Common Models

Apple Menu

This customizable pull-down menu, located on the far left side of the menu bar, is indicated by a small Apple logo icon. It enables you to put your most frequently used applications, folders, and documents on this menu for easy access or instant launching. You can also put Desk Accessory items there, such as the calculator or notepad, that will be available to you for instant use even when you have another application running. For example, if you're writing a business letter and need to do some math, you can go to the Apple menu and select the Calculator Desk Accessory (D/A) and it will appear floating above your open application. You can do your math and close the calculator and you're - back to your application. Many people also use the Apple menu to as a convenient place to launch their applications or frequently used documents from.

You add items to the Apple menu by adding items to the Apple menu folder, within your System folder. The Apple Menu folder has the same Icon on the folder as the Apple menu does. When you add an item to this folder, it appears alphabetically in the menu. You can add applications, utilities, folders, or documents to this menu for easy access anytime you need them. Aliases of applications or documents are popular items to put in the Apple menu, because they instantly link to the real document or application.

A

Another feature of the Apple menu is the capability to have folders be hierarchical so you can click a folder in the Apple and instantly have it display a list of the folder's contents, from which you can select any item you want. A tremendous time-saver. An Alias of the Control Panels folder appears in the Apple menu. You may often have to access a control panel and by clicking the alias you can see a hierarchical list of all the control panels and move to the one you want, all without ever having to open the System Folder and then the Control Panels folder within.

To remove an item from the Apple menu, all you have to do is go the Apple Menu Items folder in your system folder, and remove the item(s) you want out of the menu. Only items that appear in the Apple Menu Items folder will appear on the Apple menu.

To use an Apple menu item, follow these steps:

1. The Apple menu is found in the menu bar, it's icon looks like an Apple logo. To access Apple menu items, click and hold on the Apple icon and then scroll down the item and stop at the item you desire.
2. Release the mouse to launch the item.

To add an item to the Apple menu, follow these steps:

1. You can add an item, or an alias of an item to the Apple menu by moving that item into the Apple Menu Items folder located within your System Folder.

2. After an item has been added, the next time you access the Apple menu, you'll find that the item has been added to the menu in alphabetical order.

To remove an item from the Apple menu, follow these steps

1. Open the Apple Menu Items folder located in your System Folder.
2. Locate the item you'd like removed from the Apple menu, and drag that item out of the Apple Menu Items folder. That item is now removed from the Apple menu.

See Also
Aliases; Apple Menu Items; Control Panel Folder; Desk Accessories; Hierarchical Submenus; Launch; System Folder

Apple Menu Options

This control panel device enables you to control the Apple menu options including turning on/off hierarchical submenus for the Apple menu, and turning on/off the Recent Items: Applications, Documents, and Servers Function, as shown in the following figure.

To set an Apple menu option, follow these steps

1. Choose Apple menu Options from the control panels folder under the Apple menu..

2. To enable Hierarchical Sub menus, choose "on" from the radio buttons.
3. To enable Recent Items: Applications, Documents, and Servers, click: Remember Recently Used Items; then select how many items in each category you want to have available.

See Also
Apple Menu; Control Panels; Servers; Submenus

Apple Multimedia Tuner

When Apple released QuickTime 2.0, they made some changes to improve QuickTime playback performance. Unfortunately, some existing software could not take advantage of these new features, and sometimes performance was actually worse with QuickTime 2.0. Specifically, the pre-roll feature caused some problems (Pre-roll is a term often used in video editing. It refers to a process in which a video deck, to ensure that it is playing video at the correct speed, starts playback at a point slightly earlier than the desired segment and pre-rolls).

The most common side-effect was a hiccup; the QuickTime would start to play, pause, or jump and then continue playing correctly. Macromedia's Director suffered from this problem. To address this issue, Apple released the Apple Multimedia Tuner, which helped specific applications play movies more smoothly under QuickTime 2.0. The tuner, which is widely available on the Internet, also fixed some problems in Sound Manager 3.0.

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The release of QuickTime 2.1 has removed the need for Apple Multimedia Tuner.

See Also
Director; QuickTime; Sound Manager

Apple Multiple Scan 14 Display

See
Monitors, Common Models

Apple Multiple Scan 15 Display

See
Monitors, Common Models

Apple Multiple Scan 17 Display

See
Monitors, Common Models

Apple Multiple Scan 20 Display

See

Monitors, Common Models

Apple Network Servers

High-end computers from Apple Computer that run AIX software, a version of UNIX, and that serve documents on the Internet.

The two servers, which were announced in early 1996, use Apple's 604 PowerPC chip and run the AIX 4.1.4 operating system licensed from IBM. Each machine can come with 32MB or 48MB of RAM. The new machines are designed to compete with the machines running UNIX that are already widespread as servers or host computers on the World Wide Web.

Servers for popular Web sites must be able to accommodate thousands or even millions of "hits" or visitors by other computers connected to the Internet. The speed of the computer directly affects the speed at which clients access Web pages or download software or other files.

Apple says that its fastest server, the NS700/150, outperforms comparable servers by Sun Microsystems, IBM, and Silicon Graphics. The Apple servers utilize a plug-and-play interface that will enable a user to easily replace any component in the machine.

See Also
HTML; Internet; Web Browser; World Wide Web

A

Apple Photo Access Extension

This extension enables users with CD-ROM drives to access Kodak photo CD-ROM discs. It's part of the standard install for CD-ROM drives in System 7 and higher.

See Also
CD-ROM; System 7

Apple QuickDraw 3D Accelerator

See
QuickDraw 3D Acceleration Cards

Apple Real-Time Operating System

Apple Real-Time Operating System (A/ROSE) is an extension containing information EtherNet NuBus cards and/or TokenRing NuBus cards require to work with your system. These NuBus cards have a computer chip and RAM built right into the card, and the A/ROSE extension contains the separate operating system code required by these computer chips to operate.

When you perform a system install, you select to install either EtherTalk or TokenTalk to use on your network. When you make your selection, A/ROSE is installed on your system. The A/ROSE extension is only required if you have

one of these NuBus networks cards installed in your machine.

See Also
EtherTalk; Extension; System Install; TokenTalk

Apple Remote Access

A huge advance in networking was provided by the introduction of Apple's Apple Remote Access, usually known as ARA. This is similar to a WAN, except instead of connecting a whole network of computers at one site to a whole network of computers at another site, ARA connects one remote computer to a distant LAN, or to a distant computer. ARA needn't work with a whole network. You can also use it to retrieve files from your home computer when you're at work, or to send reports back to the office from your PowerBook when you're on the road. ARA requires System 7, but it's not included with most Macs.

You must purchase it separately. It comes in three versions. The Personal Server is meant to be used with one host and one remote client, and includes one set of software for each. The Client Server is the Network host version. It supports multiple clients. The Remote Access Client program comes in a 10-pack, for use with ten different remote clients. PowerBooks generally come equipped with an ARA client, but you'll still need to purchase the ARA server to turn your home or office Mac into a host.

Essentially, ARA allows you to call into a network using a modem, and

simulates for your computer and the remote computers a physical connection to the distant network. During an ARA connection, all network services, including email, printers, and servers are available to you exactly as they would be, just as if you were in the office. This convenience, like most, has a price, and the price you pay for “phoning home” is transfer speed. ARA is slow.

To use Apple remote access, you must have modems on both computers. Note that an ARA connection is nowhere near the speed of a standard network connection, so it's best to use the fastest, highest quality modem you can. You should strongly consider using a v.34 modem not only for its high speed (28,800bps and above), but also for its excellent handling of varying line conditions.

You must also choose a computer at the office to be the "Remote Access Server". This machine will answer the modem call and help your computer simulate its presence there. Apple manufactures a "MULTIPORT SERVER" card which allows one Mac to handle several phone lines, and control several remote communications simultaneously. Alternately, Shiva, Global Village, and other third parties manufacture dedicated hardware devices that support multiple dial-in users.

Remote Access Setup Setting up the Host Mac is the first step. Do this before you leave town with your PowerBook. First you must open the host Mac’s Remote Access control panel and use the modem pop-up menu to find the brand and model of modem that’s attached to the host. If it’s not listed, call

the modem manufacturer and/or check its Web site or an online service or user group BBS library. You MUST have an ARA script for your modem. Otherwise, it won't work with ARA.

After you've found the modem type and selected it, check the Answer Calls checkbox and give the host permission to answer incoming modem calls. Decide whether the incoming caller has access to everything on the network or only to the host Mac, and click the appropriate button. Next open the Users and Groups Control Panel and turn on the remote dial-in features. For added security, you can have the host Mac call back the client to complete the remote connection. To do this, enter the call back number. When the Mac gets a call from this number, it will hang up and call back.

Setting up the client is done in much the same way. Use the Remote Access Control Panel to specify the type of modem, and then launch the Remote Access application. In the Untitled document, enter your name as it appears on the host machine. Enter your password, and the number for the host modem. It's a good idea to remind yourself that you're connected, so check the Remind me... box. This can save you many dollars in long distance charges. If you fail to acknowledge the reminder, ARA will disconnect. Finally, Save the information you have entered. To connect from the remote client, click connect. The computer and modem do the rest.

There's just one problem with ARA—the computer you call has to be ready to answer. You could leave your host Mac on all the time. Many people do, especially in business situations, when employees working at home or on

trips may call in at any hour. If the host is your home Mac, and you're checking in during your Amazon canoe trip, African safari, or round the world cruise, you may not want to leave the Mac running all the time you're gone. The answer is to use PowerKey Remote, from Sophisticated Circuits. It's a little box that plugs in between the modem and the Mac. When a call comes in, it connects and then turns on the Mac. You'll have to wait while the system boots up, but once it does you're in business. It will time out and shut itself down again a few minutes after you break the connection.

Apple III

See
Apple Computer, History

Apple Video Compressor

Apple's video compressor, a QuickTime compressor, is perfect for quickly compressing video segments. The video quality is not as good as Cinepak, but it is good for previewing segments. This compressor is only 16-bits (this refers to the number of bits that are used to store the color information for a given pixel. A 16 bit image does not have the color fidelity of a 16-bit image). 24-bit information is reduced to 16-bits and then compressed. This compressor is symmetrical.

Compression ratios range from 5:1 to 12:1.

See Also
Asymmetrical Compressors; Compressor; Drop Frames; Spatial Compression; Symmetrical Compressors; Temporal Compression

AppleLink

Apple Computer's commercial online information service, providing basic features such as discussion forums and email.

The AppleLink online service was originally available for use only by official Apple employees, dealers, and developers. Gradually Apple broadened access to the service to include consultants and other partners, and finally made limited areas of the service available to anyone who wished access and didn't mind paying the steep hourly and per-character rates and dealing with the Mac-like, but very sparse, interface.

For many years AppleLink was the only official online access channel to Apple. As software updates were released, they would often be available only on AppleLink (or available much earlier on AppleLink than on the other large services), thus forcing users anxious for the latest software to maintain AppleLink accounts and pay huge transfer fees every time a new update was released.

In 1988, Apple announced plans to release a separate online service geared

toward consumers called AppleLink Personal Edition (see America Online), but they quickly canceled the project for political reasons. Several years later, Apple officially released the eWorld online service as their official channel to Apple customers. Apple had originally intended to move all of its current AppleLink users to eWorld, but as the transformation was about to take place, they changed their strategy and started providing resources and maintaining customer relations over the Internet, eventually shutting down the eWorld service altogether.

Most companies in the Macintosh market have AppleLink accounts and it's sometimes the only way to send email to companies that make Macintosh hardware and software.

AppleLink is perhaps the most expensive of the commercial online services. It also allows only messages under 32KB because that's all the text that fits in the mail software's text box. AppleLink also only accepts incoming messages under 30KB, the headers stealing 2KB or so. AppleLink's email interface is bare, although it comes with a nice address book feature.

If you want to send email to the Internet from AppleLink, first take your Internet address and append @internet# to it. (Remember that AppleLink cannot send mail to addresses longer than 35 characters.) To send email from the Internet to AppleLink, take the userid, which sometimes resembles a name or word and other times is just a letter plus some numbers, and append @applelink.apple.com.

To buy AppleLink's special software, visit an Apple dealer and fill out a form

online that must be sent in on AppleLink by the dealer. You can also call the AppleOnline Services HelpLine at 48-974-3309, or send Internet email to alink.mgmt@applelink.apple.com.

As of this writing, nearly all of the resources of AppleLink are available through Apple's various Internet servers. Thus, except for Apple Dealers (who are still required to maintain accounts), AppleLink accounts are of little use and provide a very poor value for the online fees paid.

See Also
Address Book; America Online; Commercial Online Services; CompuServe; Email; eWorld; Internet; URL

AppleLink Personal Edition

See
AppleLink, America Online

AppleScript

Apple's system-level scripting system.

For years, DOS and UNIX users jeered the Macintosh for its lack of batch files or system scripts that would enable you to control and manipulate other applications. That all changed with the release of AppleScript and Frontier.

Using these scripting systems, you can write powerful scripts to manipulate the Finder or other applications in ways DOS users could only dream of.

AppleScript is included with System 7 Pro and later and works with any version of System 7. The key feature it needs in System 7 is support for Apple events, a special way for programs to communicate with each other and with the System and Finder.

The AppleScript language is somewhat English-like and should look familiar to anyone who has worked with HyperCard's HyperTalk language. A number of different dialects of AppleScript are also available, including several foreign language dialects. Because scripts are stored by AppleScript in a dialect-neutral format, you can view a script in whatever dialect you choose, no matter what dialect in which it was originally written.

AppleScript scripts typically are written using an editor designed for that purpose, rather than a plain text editor. Apple's own editor is called Script Editor and provides a basic level of functionality needed to edit scripts.

There is an area for comments about the script at the top of the script window. Below the comment area are buttons used to begin or stop recording, run the script, or check the script for proper syntax. Finally, below the buttons is the script editing area itself. Notice that each part of the script is styled according to its function. This syntax highlighting is done by the editor when you run the script or check its syntax.

Apple's Script Editor is certainly not the only script editor available.

Scripter, ScriptWizard, and Script Debugger all include excellent editors with many more features than Apple's editor.

Learning AppleScript is more than a simple matter of learning the AppleScript language itself. Because each application responds to Apple events in its own way, you need to be able to determine what behavior to expect from a given application and write your scripts accordingly. Fortunately, AppleScript provides an easy way to find this information. Every scriptable application includes a dictionary of its scripting support. You can view this dictionary in the Script Editor (see figure) or other third-party editors. This example shows the dictionary for Scriptable Text Editor, a small, fully scriptable editor much like SimpleText.

Although AppleScript is fairly easy to learn, there is an even easier way to start scripting: by recording scripts. Not all scriptable applications are recordable, but those that are can be used with AppleScript to create scripts based on your own actions. When you start recording, AppleScript flashes a cassette tape icon over the Apple menu (see the following figure). As you work with recordable applications, all of your actions are recorded to the active script window. When you're finished recording, click the stop button.

You can usually play back your recorded scripts immediately to recreate your actions, but you will probably want to edit the script to remove any unnecessary actions and add error checking.

AppleScripts generally have very limited interfaces, if any. They may display simple dialogs, but otherwise have little interaction with the user.

A

FaceSpan is a user-interface tool for AppleScript that enables you to develop more complete applications based entirely on AppleScript.

From a programmer's perspective, an application can support AppleScript at any of three levels. Scriptable applications can be controlled partially or completely using a scripting language compatible with the Open Scripting Architecture. These applications respond to Apple events sent to them by other applications. Recordable applications send Apple events to themselves in response to user input, enabling AppleScript to record the events as they are sent. Finally, attachable applications are scriptable (and possibly recordable) and provide a way to run scripts from within the application (from a menu, for example). In this way, their internal capabilities are extensible using scripts.

See Also
Apple Events; FaceSpan; Open Scripting Architecture; Scripter; Scripting; ScriptWizard

AppleScript Extension

The AppleScript extension, working with the Apple Event Manager, enables you to create powerful macros that automate routine tasks using a utility application called the Script Editor. In System 7.5 and higher, the Finder is scriptable, enabling you to make scripts for repetitive tasks at the Finder, but not all applications are able to use AppleScripting. (Programs that can use

AppleScript are referred to as "scriptable.") However, more and more applications are now incorporating the capability to use AppleScript to automate tasks. You can, for example, have AppleScript record a series of keystrokes and mouse movements that perform a task, such as selecting Show Clipboard from the Edit menu on the desktop, and then play them back in the exact same order any time you want.

AppleScript also enables you to create mini-programs of your own and have them as icons on your desktop. This way, you can write an AppleScript for a particular task (such as removing the word alias from all aliases), drag a file onto your mini-program, and it runs its script on the dropped file.

See Also
Apple Event Manager; AppleScript; Extension; Keystrokes; Macros; Mouse; Script Editor

AppleSearch

AppleSearch is an application that indexes computer-based information organized by keywords so that users can make search queries and retrieve information they are seeking.

When used with Common Gateway Interface (CGI) scripts, AppleSearch can enable remote users to retrieve information published on the World Wide Web via a computer set up to function as a Web server.

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AppleSearch includes Client and Server software. The Client software lets users make queries based on keywords and retrieve information from documents indexed with AppleSearch Server software. AppleSearch supports up to 50 connected users at a time.

AppleSearch is designed to operate on a local computer network, but can be used on a Web server with CGIs which then use AppleSearch to retrieve information.

AppleSearch indexes images and video as well as text, and also indexes any shared folder or, if the server is connected to the Internet, remote WAIS servers.

For more information, go to

http://product.info.apple.com/productinfo/datasheets/ss/applesearch.html.

See Also
Apple Internet Router; Apple Internet Connection Kit; Apple Internet Server Solution; Internet; MacTCP; Network/Communications; Internet; Web Server; WebSTAR

AppleShare

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See Also
Apple Internet Router; Apple Internet Connection Kit; Apple Internet Server Solution; Internet; MacTCP; Network/Communications; Internet; Web Server; WebSTAR

AppleShare

All Macs running System 7 or higher are capable of peer-to-peer or personal file sharing. Any Mac on a network can become a file server by making one or more files, folders, applications or an entire drive available to others on the network. Although this approach is effective for one or two machines, it's not recommended for larger groups and not when several people need to use the same application at the same time. At this point, a dedicated file server is a better choice.

You dedicate one Mac to act as a file server for the others on the network. AppleShare, which can support as many as 150 users, turns a Mac into a

dedicated file server. Current versions are AppleShare 3.0, which can be run on any Mac that can run System 7 and AppleShare 4.0 which can run on any 68040 Mac (except the AV series). The most powerful version, AppleShare Pro, requires a Workgroup Server 95 CPU. You can save a few dollars by not attaching a monitor to the dedicated file server. Such a configuration is known as a “headless” server.

After you install the AppleShare software on your designated server, use the AppleShare Admin program to create users and groups and to give them access to the files and applications they can work with. You can define each user’s access privileges and set passwords for any items you want to limit access to. You can also specify that passwords will expire after a certain length of time, and you can copy-protect documents and programs so users can’t copy them to their own hard drives or to disks.

AppleShare Extension This extension enables folders on selected disks to be shared with other Macs on a network. With AppleShare, (Apple's dedicated File-Server software) you can share files and folders on a disk, and open applications and files from other Macs on the network. AppleShare is often used in larger networks that require more control, access for more users, and additional security options.

One way to share files is to set up a file server, which is a separate hard disk (or series of disks) that everyone on the network can access. These disks can contain applications, files, documents, and any items that you want to make available to everyone on the network. (AppleShare is required if you want to

share folders from a file server.) One advantage of having a file server is easy backup. All the documents that are used by network users can be stored on the file server, so backing up this one disk keeps all the documents backed up, rather than having to backup every machine on the network. Another benefit of having a dedicated file server, rather than just using Apple's built-in File Sharing feature, is speed. A dedicated machine offer significantly faster access to files and folders on the network.

You can also set up passwords to only enable certain users access to your File Server, and you can grant different levels of access to different users. Some users, for example, you may want to grant full access. Others you may only want to view files but not be able to edit them. Apple Share enables significant control over access privileges for users on the network.

See Also
File Sharing; Extensions; Network; Servers/File Server

Applet

See
Java

AppleTalk Filing Protocol

See

A

Servers/File Server

AppleVision 1710AV

See
Monitors, Common Models

Application Busy or Missing Message

If you try to open a document, but don't have the application that created the document, you will get an Application Busy or Missing message. This can mean one of a few things: You don't have the application that created the document, so your system can't find the application to launch it. (If you do indeed have the application that created it and double-clicking the document doesn't launch it, you may need to rebuild the desktop file as it may have become corrupted, which could result in the document not knowing which application created it.) If the document is a DOS/PC document, you can open a similar application and try opening it from the Open command of the application. (By similar application, I mean if it's a PC word processing document, try opening it in some sort of Macintosh word processing document.)

Lastly, it could be that the file you are trying to open cannot be opened. Many extensions, for example, add functionality to the system but cannot be

opened. They are loaded into the system at startup and have no user interface for setting preferences or options. The Finder file is another example of a file that cannot be opened.

See Also
Customizing; Extensions; Extensions Manager; QuickTime; Rebuilding the Desktop; Restart; Startup; System 7

Application Heap

See
Heap

Application Icons

Applications all have icons, and you can see them when you're in a window viewed by icon that contains applications, but when these application's are open and in use, they also have mini-icons that appear in the Application menu in the upper-right corner of the menu bar. These mini-icons enable you to see which application is the active application, and the Applications menu enables you to switch between applications.

The icon at the top of the Application menu is the icon of the active application. If the icon that appears at the top of the application menu is a Macintosh, the current application is the Finder. You can switch applications

by choosing an application from the Applications menu. When you click and hold the mini-icon in the menu bar, the list of currently open applications (and their mini-icons) appear in a menu. To make one of the listed applications active, highlight your choice and release the mouse button. This application becomes the active application, and it's mini-icon appears on the menu bar.

See Also
Active; Application Menu; Finder; Menu Bar

Application Not Found Message

If you try to open a document without the application that created it, you get an Application Not Found message.

This message informs you that the document cannot be opened because the application that created it is not on the startup disk or any mounted disk. This message also appears when you try to open a document that was created with a newer, updated version of the application. If, for example, you try to open a Word 6.0 document, and you are still using Word 5.1, you receive an Application Not Found message because the system looked for and did not find Word 6.0.

Macintosh computers running System 7 or higher have an extension called Easy Open that tries to avoid the Application Not Found message. If you double-click a document and your Mac can't find the application it was

created with, Easy Open displays a message box alerting you that the application can't be found. Easy Open then enables you to choose from a list of other applications on your hard disk that may open the document.

If, for example, you try to open a document created in WordPerfect but don't have the WordPerfect application, Easy Open gives you the option of opening that document in Microsoft Word because it can open a wide variety of text formats.

There are also third-party commercial translators such as MacLinkPlus from DataViz (55 Corporate Drive, Trumbull, CT 06611, Phone: (800) 733-0030. On the Web at http://www.dataviz.com) and Xtend.

These third-party translators offer some advantages over Easy Open in that they translate a wider variety of files (such as spreadsheets, databases, and graphics) and they hold the internal formatting of these documents (words that are bold, italic, and so on) and handle advanced formatting (such as tables, charts, and graphs) that may be lost when opening a file with Apple's Easy Open.

See Also
Double-Click; Easy Open; Extensions; Message; Mounted; Open; Startup Disk; System 7

Application, Opening

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See
Opening an Application

Application Programming Interface (API)

A well-defined set of function calls a program can use to interact with another piece of software, such as an operating system.

An Application Programming Interface, or API, is the side of an operating system seen only by programmers. Unlike the high-level view seen by users—windows, menus, icons, and so on—this interface exists entirely in one or more programming languages. But there is a similarity between the human interface and the API. Just as the human interface fully defines what you can and cannot do with an application, and how you go about doing it, an API fully defines what a programmer can do with an operating system or other software.

The MacOS provides an extensive API for Macintosh applications to use. This interface is known as the Toolbox and includes routines for every facet of a Mac program, from opening and reading files to playing QuickTime movies. Other operating systems also provide a programming interface for their applications. For example, Windows 95 and Window NT use the Win32 API.

APIs are provided not only by operating systems. Many applications provide

an API for modular extensions to the application's functionality (see the following figure). These extensions are frequently called plug-ins.

Plug-ins make use of an Application Programming Interface provided by the application. Some of the best-known examples are the Photoshop plug-in API, developed by Adobe, and the After Dark screen saver API, developed by Berkeley Systems. By writing to these APIs, any programmer can extend the functionality of these applications.

See Also
Toolbox; Win32

AppMaker

Most interface builders are designed to be used with a single programming framework: AdLib works with Apple's MacApp; Constructor works with Metrowerks' PowerPlant; and Visual Architect works with Symantec's Think Class Library. AppMaker is a different beast entirely. AppMaker can be used to create applications in a wide variety of frameworks, and can even be used with procedural programming projects written in C or Pascal.

Bowers Development, the creators of AppMaker, call it "Your Assistant Programmer," a fitting description. Using AppMaker, you can avoid a large part of the development time normally used for creating a program's user interface. AppMaker enables you to create the interface graphically (see the following figure) and generates the source code needed to make the interface

work.

For many simple projects, AppMaker can generate a nearly complete application from a user interface standpoint, leaving only the details of your own application to be filled in. AppMaker supports procedural C and Pascal as well as the MacApp, PowerPlant, and Think Class Library (TCL) frameworks. In fact, AppMaker even supports the older Pascal versions of MacApp and TCL.

AppMaker is published by Bowers Development:

Bowers Development
97 Lowell Road
Concord, MA 01742
Email: 70731.3710@compuserve.com
Fax: (508) 369-8224
Phone: (508) 369-8175

See Also
AdLib; Constructor; Interface Builder; MacApp; PowerPlant; Procedural Programming; Think Class Library; Visual Architect

Apprentice

Wonderful things can still come in small packages, as exemplified by this painting application. Delta Tao Software's Apprentice has very few bells and

whistles when compared to higher end paint programs. Its tools are few and its focus is narrow, but it does its assigned tasks very well. Its central job is two-fold: to allow you to create some interesting digital paintings in what appears to be natural media and to translate photographic images into natural media. For the second purpose, painting over photos, Apprentice allows you to load in any PICT image as a reference picture. You can toggle between the reference picture and the live painting surface by using the spacebar. Paint colors are chosen from a color wheel, or you may select to use the colors in the underlying photo by selecting “Automatic Colors” from the painting menu. You might think that Fractal Painter would be your only choice for transforming photos into paintings, but Apprentice offers some unique brushes and rendering looks that make it an excellent add-on choice, no matter what other software you are accustomed to.

Tools The Apprentice Toolbox is simple. There are no drawing or fill options, no linear or gradient possibilities, no magnifying glass (although zooming is possible with a zoom selector added to the bottom of the painting and reference picture screens). There are just six options in the Toolbox, and each one is a variant of the paintbrush: Watercolors, Chalk, Oils, Pencil, Sponge, and Custom. Above are another three associated choices: Small, Medium, and Large. That’s it. These are the central operators, the painting media choices offered by Apprentice. There once was a higher end program called “Monet” that has since had most of its features folded into Apprentice.

Brushes After selecting a brush option, you may choose one of the twenty-four brush shapes in the Brush menu. The five media selections in the

A

Toolbox have specific brush shapes connected to them as defaults. If you select another brush shape from the list, you are automatically told that you are now operating with a Custom Brush. So it is possible to take a hard edged brush shape normally reserved for the Pencil tool, and instead attach it to the Watercolor media tool, which instantly alters what the Watercolor media will look like when applied. Each brush shape can also be altered as to Opacity, Scatter, Color Change, Saturation, Smear and Size. All of these six options work via sliders. Taken together, the seemingly limited painting tools become an almost limitless variety of potential media looks.

Apprentice has the expanded capability to allow you to select from its own 24 default brush shapes or a replacement customized brush that fills one or more of the shape slots. To design your own custom brushes, just double click on any of the default shapes.

Other Special Menu Selections What is perceived as the direction of each brush stroke as you paint can be set by a menu command to either obey the brushing direction or not. You can save limitless brush shapes in a disk library. In addition to the documentation, a small booklet called “Making Art with Apprentice” comes with the software. In it, the user is guided through the electronic painting process in an informative and sometimes humorous way.

APR

A

See
Automatic Picture Replacement

ARA

See
Apple Remote Access

Arcade-Style Games

Arcade-Style Games are descendants of the arcade games most of us grew up spending hard-earned quarters on, whether we belonged to the Pinball generation, the Atari Set, or cut our teeth on Mortal Kombat and Primal Rage. Arcade games (also known as twitch games) bypass a complicated storyline to bring you a quick, engrossing, often addictive experience. Simple arcade games, even the non-glorified shareware titles available on the Internet, hold their own because of the sheer energy of their rapid pace against the high-tech special effects of other types of computer games. This is not to say that today's arcade-style games for the Mac lack enhancements. New titles like Dust from GTE Interactive and MacPlay's Descent take full advantage of color, sound and the CD platform to bring you top of the line bleep, shoot and dodge action.

Arcade games can keep you playing for hours. It's also important to get a

good joystick because of the high amount of rapid eye-hand coordination and increased risk of repetitive stress injury.

Arcade games can be broken up into a few specific categories: Pinball wanna-be's, games where you just blow things up, and games where you run around and blow things up. Just about every other form of computer game can be traced back to arcade roots. Games in this category are mainly logical extensions of Pac-Man, Centipede and Asteroids but incorporate new technology such as rotoscoping, used in MacPlay's Flashback Enhanced and Prince of Persia from Brøderbund. Rotoscoping means that the game's graphics are mapped to films of actual human movement to create more lifelike action.

See Also
3-D Ultra Pinball; Crystal Crazy; First Person Perspective Shooters; Lode Runner: The Mad Monks Revenge On-Line; Puzzle Games; Shareware; StarPlay Productions

Archie

An Archie server provides a single interface that allows searching through large numbers of anonymous FTP sites on the Internet so users can locate specific files quickly and easily.

Archie, which was developed in 1991 at McGill University in Canada, works by using normal FTP commands to obtain directory listings of hundreds of

anonymous FTP sites around the world. It then puts these files listings into a database and provides a simple way of searching it.

Access to Archie servers can be made through Telnet, Gopher, the World Wide Web, special Macintosh client programs, and sometimes email. Peter Lewis' Anarchie is the most popular Mac Archie/FTP client.

Archie sites are located around the world. A complete list can be found in the Internet Starter Kit. Connecting to a site near you is usually quicker. The following table provides addresses for a few Archie sites located in the U.S.

Archie Sites in the U.S.

Site	IP Address	Location
archie.ans.net	147.225.1.10	ANS server, NY
archie.internic.net	198.49.45.10	AT&T server, NY
archie.rutgers.edu	128.6.18.15	Rutgers University
archie.sura.net	128.167.254.195	SURAnet server, MD
archie.uqam.ca	132.208.250.10	Canada
archie.wide.ad.jp	133.4.3.6	Japan
archie.kr	128.134.1.1	Korea

To log on to an Archie site you can, of course, connect via Anarchie. To connect via Telnet, type the site's address preceded by Telnet:

telnet.archie.sura.net

Then you log into the Archie program by entering archie as the userid. At the next prompt, type in the name of the file you are searching for.

See Also
Anonymous FTP; Email; Gopher; Internet Starter Kit; Server; Telnet; World Wide Web

Archiving

See
Backup Hardware Options

Are You Afraid of the Dark? The Tale of Orpheo's Curse

Viacom's game tie-in to the popular Nickelodeon Television program "Are You Afraid of the Dark?" is better than some of the more technical attempts at traditional entertainment tie-ins like Blown Away and Johnny Mnemonic. In The Tale of Orpheo's Curse, two teenage siblings get locked into an abandoned theater by a mad magician. You pick one of the siblings and have to get out of the theater by midnight or you'll end up in limbo.

A

The non-violent theme of the game makes up for its lack of hard-core gaming qualities and awkward controls. The game is an exploration style, much like Myst or Eastern Mind. You wander through rooms, each themed with different background music and decor and try to find your way out to the next room. The puzzles are easy enough for kids to figure out and the 3D rendering makes you feel like you are playing around in a cartoon. The Tale of Orpheo's Curse has a lot going for it in terms of the success of the show, but on its own, it is still a great game that steers clear of violence and killing. For a similar sort of non-violent game, check out the Wizard of Oz based family entertainment title, Yellow Brick Road II.

See Also
Family Entertainment; Foul Play; Masterpiece Mansion; Mortimer; Yellow Brick Road II

Aretha

See
Frontier

Arithmetic and Logic Unit

See
Microprocessors

A

ARM (Annotated Reference Manual)

See
C++

ARPANet

See
Internet

ARQ

See
Modem Protocols/Error Correction

Array

In programming, an array is a special kind of variable that contains a series of values rather than just one value.

A program, for example, that reads a text file and counts the number of occurrences of each letter of the alphabet in the file might use an array variable to hold the counts for each letter. This array would contain 26 values, each value corresponding to a letter of the alphabet. Individual

elements of an array can be accessed by using an array subscript; that is, if the programmer called this alphabet counting array “X,” the first value of the array (corresponding to the number of ‘A’s in the text) would be X1, the second value (the number of “B”s) would be X2, and so on, up to X26 (the number of “Z”s).

Array subscripts look different in different programming languages. In C and Pascal, for example, the array subscripts would be written “X[1].” Using an array is much more convenient than using separate variables for each value in a set of related data.

Arrays can also have more than one dimension. Two-dimensional arrays can be visualized like a tic-tac-toe board with varying numbers of rows and columns. The following figure demonstrates a one-dimensional array “X” as in the alphabet example, and a two dimensional array “Y” that has three rows and three columns (3x3).

Arrays are valuable to programmers using the C programming language because C does not have a unique “string” variable type for holding strings of text characters. As a result, C strings are represented using arrays. The first character of the text string is the first element in the array, and so on.

See Also
Programming; Structure; Variable

A

Arrow Keys

The Arrow keys enable you to move the cursor and make selections from lists without moving the mouse. There are four arrow keys: Up Arrow, Down Arrow, Left Arrow, and Right Arrow. They can be used at the desktop level to select items in active windows, and they can be used to navigate the I-Beam cursor in documents. Arrow keys are also popular in graphics programs where precise movements are necessary.

At the desktop level, the Arrow keys can be used to navigate through items in an active window (or even the desktop) without use of the mouse. Arrow keys can also be used with modifier keys to perform various commands, as shown in the following table.

Arrow Keys

Sequence	Result
⌘-Left Arrow	Collapses Expanded Folder
⌘-Down Arrow	Open Folder/Open Next File
⌘-Right Arrow	Expand Folder
⌘-Up Arrow	Go to Previous Folder

A

⌘-Option-Up Arrow	Close to Previous Window
⌘-Shift-Up Arrow	In Open/Save Dialog it Selects Desktop
⌘-Option-Left Arrow	Collapses All Expanded Folders
⌘-Option-Right Arrow	Expands All Nested Folders
Shift-Right Arrow	Selects Character to the Right of Text Cursor
Shift-Left Arrow	Selects Character to the Left of Text Cursor
Shift-⌘-Right Arrow	Selects Word to the Right of Text Cursor
Shift-⌘-Left Arrow	Selects Word to the Left of Text Cursor

See Also
Active Window; Cursors; Down Arrow; I-Beam Cursor; Left Arrow; Modifier Keys; Mouse; Right Arrow; Up Arrow

Arrow Pointer

A

The default cursor for your Mac is an arrow pointer. It allows you to point to objects and select them. If you're using a word processing application, such as WordPerfect, the arrow pointer converts to a text cursor (an I-Beam). But if you move your text cursor over a scroll bar, pull-down menu, or outside the text, the cursor defaults to the arrow pointer.

See Also
Cursor; Pull-Down Menu; Scroll Bar

Ascender

An ascender is that part of a character that sticks up above the rest of the character. Not all letters have ascenders. Lower case b, d, and h are examples of letters containing ascenders.

See Also
Descender; Line Spacing; Typesetting Terms

ASCII

ASCII (American Standard Code for Information Interchange) is a set of standard numerical values for the Roman alphabet.

At the lowest level, computers can deal only with numbers. Characters, such as the alphabet, punctuation marks, and so on, must be translated into

numbers before a computer can work with them. You can think of this translation as a sort of code in which each character, A, B, C, and so on, is represented by a number. Any number of codes are possible. To avoid confusion, the computer industry developed and adopted the ASCII code.

ASCII defines 128 characters. The first 32 (0-31) are control codes for tabs, carriage returns, line feeds, and the like. The 96 printable characters are shown in the following table.

The Printable ASCII Codes

32	space	48	0	64	@	80	P	96	`	112	p
33	!	49	1	65	A	81	Q	97	a	113	q
34	"	50	2	66	B	82	R	98	b	114	r
35	#	51	3	67	C	83	S	99	c	115	s
36	$	52	4	68	D	84	T	100	d	116	t
37	%	53	5	69	E	85	U	101	e	117	u
38	&	54	6	70	F	86	V	102	f	118	v
39	'	55	7	71	G	87	W	103	g	119	w
40	(	56	8	72	H	88	X	104	h	120	x
41	)	57	9	73	I	89	Y	105	i	121	y

A

42	*	58	:	74	J	90	Z	106	j	122	z
43	+	59	;	75	K	91	[	107	k	123	{
44	,	60	<	76	L	92	\	108	l	124	|
45	-	61	=	77	M	93	]	109	m	125	}
46	.	62	>	78	N	94	^	110	n	126	~
47	/	63	?	79	O	95	_	111	o	127	

Because it only takes 7 bits of data to represent all 128 possible characters (27 = 128), every byte has an extra bit that can be used to define another 128 codes (28 = 256). Every type of computer, however, defines these additional codes differently, which is why text files containing special characters, such as curly quotes or accented characters, generally appear incorrectly when they're transferred to another kind of computer.

Although it is by far the most common, ASCII is not the only character encoding standard used on computers. For many years, IBM used an encoding standard called EBCDIC on its mainframe computers. Also, there's no way to specify non-Roman characters, such as Japanese Kanji, using ASCII. Other codes, such as JIS or shift-JIS, are used to encode these characters.

Recently, the computer industry has settled on another standard for character encoding called Unicode. This standard includes all of the ASCII characters, as well as characters for virtually every other written language

in the world.

See Also
ASCII File

ASCII File

A standard format used to exchange data between different computer systems, programs, or computers on a network such as the Internet or text-only commercial online services. Often called a text-only file.

ASCII (American Standard Code for Information Exchange) is comprised of 256 codes, each code standing for a number, letter, or other character you might type in a text file.

Because ASCII is recognized by all kinds of computers, ASCII files provide a means of exchanging text and simple formatting in a document. Many commercial online providers such as CompuServe routinely exchange data in ASCII format.

Virtually all word processing programs, as well as other client software such as Web browsers, allow users to save files in text-only (ASCII) format. Often, “text-only” appears as an option when choosing “Save As...” from the File menu of the program involved.

Many documents downloaded from the Internet are in text-only format. Transporting other kinds of documents on the Net often requires

compressing or encoding them in a format such as BinHex. Saving an HTML document in text-only format is a common way of creating a file to be opened and displayed on the World Wide Web.

If you don't save word processing files in ASCII format before sending them across the Internet, characters may not appear, or may appear as garbage.

See Also
Compressing Files; CompuServer; Encoding Files; HTML; Internet; World Wide Web

ASCII TRANSFER

See
File Transfer Protocols

AskText XFCN

An external routine that displays modal dialogs, modeless windows, and floating palettes from within programs that support XCMDs and XFCNs. The windows AskText displays can have multiple fonts, styles, sizes, and any number of customizable buttons.

Heizer Software
300 Cedar Lane

Largo, FL 34640
Price: $35
Fax: (813) 559-0614
Phone: (800) 888-7667 or (813) 559-6422

Web: http://www.heizer.com

See Also
Director; HyperCard; SuperCard; XCMD

Assembler

See
Assembly Language

Assembly Language

A low-level programming language that is one step removed from machine language.

Assembly language is the lowest-level language used today. Each assembly language instruction corresponds directly to one line of machine code. As such, assembly language programs are inherently processor-specific, meaning that they cannot be made to run on a different family of microprocessors. For example, an assembly language program written for

the Macintosh cannot be made to run on an Intel-based Windows machine without resorting to emulation. This is in contrast to higher-level languages, which can generally be re-compiled to run on another processor.

So what's the advantage of writing a program in assembly language? Well, for most programs, there is no advantage. On the other hand, an experienced assembly programmer can often write code that is more efficient and faster than equivalent code written in a high-level language. For this reason, programmers often write most of a program in a high-level language, such as C, use a profiler to identify the most time-critical sections of code. These portions are then rewritten in assembly to give the biggest "bang for the buck."

Very low-level portions of most operating systems (like the MacOS) are also written in assembly language.

See Also
Compiled; Machine Language; Profiler

Assistant Toolbox Extension

This extensions enables PowerBook users to set preferences for a host of system-level functions, including: assigning keystrokes to put the PowerBook to Sleep; adjusting the movement and display options for your arrow pointer and I-Beam cursor; and selecting screen dimming options to conserve battery power.

A

See Also
Arrow Pointer; Batteries; Cursor; I-Beam; Keystrokes; PowerBook; Screen Dimming; Sleep; System

Astound

Gold Disk's Astound falls somewhere in between a traditional desktop presentation program and a full multimedia production package. Like PowerPoint and Persuasion, it supports outlining and creating overheads and speaker's notes. It also has some fairly sophisticated animation tools, such as a timeline and a sound editor. Astound has a steeper learning curve than PowerPoint, particularly for those users who have no experience with desktop presentation or graphics, but after you've figured out how to use it, Astound can do much more. The program ships on five 1.4 Mb floppies and a CD-ROM that includes templates and clip media. It's accelerated for Power Mac but runs on any Macintosh using System 7.1 or higher.

Astound presentations can include any combination of text, graphics, QuickTime movies, and sounds. These can be imported from AIFF, SND, and WAV sound files, JPEG, TIFF, PICT, EPS, BMP, PCX, TGA, and PhotoCD graphics files, and PIC's animation. You can also add actors, clips of animation supplied with the program, to liven up your presentations. There are 19 animated actors in the program's file and an additional 155 on the CD-ROM. Each text block, graphic, actor, or movie can be made to appear or disappear from the screen using any of 30 transitional effects, including reveal, dissolve, and

fade. Actors also can follow a designated path across the screen. Your slides can contain interactive buttons that play sounds or movies, or allow you to jump between slides, open other presentations, or even launch other applications.

The templates supplied with Astound can be customized to suit your needs, using the tool palette and menu commands. Astound's publisher has hired some very good designers to create the backgrounds and layouts. They're much more interesting than the ones supplied with PowerPoint. There's even a texture generator, so you can create custom backgrounds and fills, and an Extrude function that automatically converts any two dimensional shape into a three dimensional one. Morphing one object into another can be effective, and Astound's Tween command does it automatically. You need only select the two (draw) objects and specify the number of intermediate steps in the transition. You can even specify a color fill for the shapes, and the background and foreground colors will adjust as one object transitions into the other.

The Timeline window enables you to determine the sequence and timing of events and transitions within your presentation. It also controls the timing and duration of recorded sounds that are part of the show. Timelines are used to set the length of time each slide is on the screen, and at what point during that period animation, sounds, or morphs occur. Each object on the screen has its own timeline. Timelines are viewed and edited in the Timeline window, shown in the figure. By default, the timeline extends for the entire period that the slide is on the screen. To make something happen while the slide is

on the screen, you must adjust the timeline, so that it starts and ends when the event is supposed to do so. Drag the ends of the line, or enter values in the duration boxes.

You can add sounds across multiple slides by enabling the Play in background option. It changes the timeline of the sound to an non-editable one and continues the sound from one slide to the next until you designate an end.

Astound is not the easiest program to learn and use. It lacks on-screen help, other than the most basic balloon help for commands. Its manual is confusing, and there's no documentation for the contents of the CD-ROM. The lack of help screens is a major problem for beginners. Nevertheless, if you have the patience to work with it and master its tools, Astound can produce truly astounding results.

See Also
Presentations, Adding Sound with Astound

Asymmetrical Compressors

Compressors can be divided into two broad categories of performance; symmetrical and asymmetrical.

Asymmetrical compressors take a lot longer to compress a movie than to decompress one. That means the video must be captured using some other

compressor (or no compressor) and then compressed using the asymmetrical compressor. This takes quite some time, but once compressed, the video can be played in real time. MPEG and Cinepak are examples of asymmetrical compressors.

See Also
Cinepak; Compressor; MPEG; Symmetrical Compressor

Asynchronous Communication

Transmissions between computing devices can take place either synchronously or asynchronously. Asynchronous communications are very commonly used with personal computers. Nearly all Macintosh modems support asynchronous connections exclusively.

In asynchronous transmissions, the transfer of data is not as strictly moderated as with Synchronous transmissions. To allow the length of time to vary between transmission of each character, asynchronous transmissions use start bits and stop bits to indicate the beginning and end of each byte transmitted. Because of the additional information needed to transmit the start and stop bits, and because of the inexact timing in this type of transfer, asynchronous transmissions are not as fast or efficient as synchronous transmissions.

See Also
Asynchronous Data Transfers; Synchronous Communications

A

Asynchronous Data Transfers

A common mode of communication between computers connected by low- or medium-speed modems to the Internet.

Asynchronous communication between computers means that the computers are not synchronized, and instead, they use start and stop bits to mark the beginning and end of each byte.

Asynchronous transfers are not as efficient as synchronous transfers which are supported by many high-speed modems. However, asynchronous transfers are flexible because the computers involved can end data as soon as they are ready and as long as both sending and receiving computers have been configured to use the same start and stop bits.

Whereas asynchronous transfers "start" and "stop" with every byte, synchronous transfers send data in chunks or packets, thus enabling them to exchange information faster. Synchronous communication is most commonly used between mainframe computers and on local area networks such as LocalTalk.

See Also
Internet; Local Area Network; Modem; Packets

Asteroids

A

See
Arcade-Style Games; Crystal Crazy

AT Commands

The Macintosh sends basic commands such as configuration and dialing numbers to a modem using a language known as the AT Command set. The words in this language are lines of commands which begin with the characters “AT” (for attention). This is also known as the “Hayes Standard” because this type of command set was originally popularized by the Hayes brand modems.

Although the basic commands are the same across modems (see the following table), more advanced commands such as error control, data compression, and selection of high speeds tend to be different for each manufacturer, and even for different models from the same manufacturer. The manual that comes with your modem should describe in detail each available AT command.

Basic telecommunications software such as Zterm will require these commands to configure the modem for dialing. More advanced software, such as Microphone Pro or the America Online client software will simply ask for the type of modem you have and will then send all command strings for you. Other software, such as that used by Prodigy checks the type of modem you have automatically and adjusts the command set as needed.

A

Basic 'AT' Commands

Command	Function	Comments
AT A	Answer phone	
AT DT n,	Tone Dial	n=number to dial, use commas for pauses
AT DP n	Pulse Dial	n=number to dial, use commas for pauses
AT H n	Hook	HO hangs up, Hl answer phone
M n	Speaker volume	MO turns off, Ml turns on
AT Z	reset	sets modem to power-on settings
...	Command	returns modem to command state
0	Online	Returns to online (opposite of off-line)
SO=n	Answer Rings	Sets # of rings to wait to answer phone
S7=n	Wait time	Time to wait for remote modem

You may also combine multiple commands into one line, but there must be only one AT for each line (for example: ATMO DT 555-1234 turns off the speaker and then dials 555-1234).

Manufacturers usually provide a list of the commands to use for various telecommunications software. Check your modem documentation for details.

See Also
Hayes Command Set; Modems

At Ease

At Ease sits on top of the Finder and is designed to allow limited access to certain Macintosh applications and files without allowing access to system files or other critical areas of the Finder. At Ease's simple-to-use interface acts and looks like a giant folder with a large square tile representing each document or application. These tiles act as a launcher for selected documents or applications. At Ease sits on top of the Finder, so items such as the System Folder and the Control Panels folder are hidden from view. Access to the Finder is only gained through a password that is set within the At Ease Setup control panel.

When an application is launched from At Ease, all other applications are hidden, and when you quit an application, you return to the At Ease interface. From the At East Setup control panel, you can configure which applications and documents will be displayed, decide whether a password will be used to access the Finder, and assign where you'd like saved files to be stored.

At Ease is perfect for households with children or schools that want to offer access to the computer but want to protect files that could be removed or deleted, possibly disabling the computer.

A

See Also
Control Panels Folder; Finder Launcher; Hide; Quit; Save; System Folder

At Ease Setup

This control panel enables you to add or delete applications and set the preferences for the At Ease interface, as shown in the following figure. At Ease, which is a separate product from AppleSoft but is bundled for free with many Performa models, sits on top of your Finder, permitting access to certain applications and files without permitting access to system files items such as the System Folder and the Control Panels folder or other areas of the Finder. Access to the Finder is only gained through a password that is set in the At Ease Setup Control Panel. At Ease's simple-to-use interface looks like a folder with square tiles representing each document or application. These tiles act as launchers for selected documents or applications.

When an application is launched from At Ease, all other applications are hidden, and when you quit an application, you return to the At Ease interface. From the At East Setup Control Panel you can choose which applications and documents are displayed, decide if a password is to be used to access the Finder, and assign where you'd like saved files to be stored.

At Ease is perfect for households with children or schools who want to offer access to the computer but want to protect files that could be accidentally removed or deleted, possibly disabling the computer. Network administrators

also use At Ease for Workgroups for limited access to applications over a Network.

To use the At Ease Setup Control Panel, follow these steps:

1. Choose the At Ease Setup Control Panel from the Control Panels submenu in the Apple menu (or the System Folder).
2. Use the pull-down menu in the left window to select an applications folder, and click the application you want added to the At Ease interface. Click Add to enter your selection.
3. The right side window shows a list of applications that you chose to be available in the At Ease interface.
4. When your application and document selection is complete, click OK.

See Also
Control Panel; Control Panels Folder; Finder; Hide; Launcher; Network; Quit; System Folder

At Function

See
Function, Spreadsheet

A

Atkinson, Bill

Bill Atkinson is a brilliant programmer whose influence is felt throughout the Macintosh community. Ironically, his professional career did not start in programming, but in chemistry.

From chemistry, Atkinson began to specialize in neuro-chemistry, the chemistry of the brain. During this time, he became fascinated by the capabilities of computer graphics and began working on programming projects in his field. One of the best known projects involved the creation of a 3D computer graphic of the human brain. The results of that project showed up on the cover of the October 1978 issue of Scientific American.

Shortly thereafter, Atkinson made the tough decision to pursue computers rather than chemistry and soon founded Synaptic Systems Corporation to create medical computer interfaces for use in hospital equipment.

In March of 1978, Atkinson was recruited by Apple to focus on software for the Apple II. He convinced Apple to offer UCSD Pascal for the Apple II, which went on to be a hit among programmers and scientists and earned Apple a great deal of respect.

One of Atkinson's greatest achievements lies at the very heart of the Macintosh. When working on the Lisa project, Atkinson created the software that manages arbitrary updating of regions of the screen. This software enables the Macintosh (and the Lisa) to gracefully handle overlapping windows while enabling each window to be updated independently. This task

is more difficult than it seems. In fact, Atkinson believed he was recreating a part of the Alto system he had seen at Xerox PARC, when in actuality, Xerox had not been able to solve the problem of arbitrary update regions.

Combined with a complete set of drawing routines, this code formed LisaDraw, the drawing package used by the Lisa. When LisaDraw moved to the Macintosh, it became QuickDraw, which remains a vital part of the Toolbox used by programmers today.

To showcase the capabilities of QuickDraw, Atkinson wrote MacPaint, one of the original Macintosh applications. In its day, MacPaint was as revolutionary at the Macintosh itself. Its influence is seen in today's most sophisticated graphics packages.

After the Macintosh was off the ground, Atkinson turned his talents to other projects. In 1988, Apple released his next revolutionary creation: HyperCard. HyperCard's graphical programming method, hypertext capabilities, and English-like programming language (HyperTalk) broke new ground once again.

In 1990, Atkinson formed General Magic with Andy Hertzfeld and Marc Porat. General Magic is creating software for the next generation of computing, including the Magic Cap operating system used by personal digital assistants (PDAs) from Sony and others.

See Also

General Magic; Hertzfeld, Andy; HyperCard; Lisa; Pascal; Toolbox; Xerox PARC

A

Atlases

See
Map and Atlas Programs

ATM

See
Adobe Type Manager

ATM GX

ATM GX is a special version of the popular font utility Adobe Type Manager (ATM) that was introduced in System 7.5 for use with PostScript Type 1 fonts that have been converted to the GX format and with TrueType GX fonts. Like ATM, ATM GX enables a high quality screen display and printing of fonts at any point size. ATM GX also improves the quality of output of QuickDraw-based printers (such as Apple ImageWriters and HP Deskwriters).

A-Train

See
SimCity 2000

A

AT&T/Paradyne SComsphere 3810Plus

See
Modems

.AU File

An audio file format sometimes encountered on the Internet/World Wide Web.

The .AU file format has a variety of aliases, including: U-Law, Mu-Law, A-Lay, u-Law, NeXT audio, Sun audio. All are products of the UNIX operating system. AU files are fairly common as a sound format on Web pages. It's not uncommon to see .AU files served side by side with AIFFs.

See Also
AIFF File, Decoding/Decompressing Files, File Types, Helper Applications, Multimedia, World Wide Web

AU

AU is a UNIX audio format that is used widely on the World Wide Web. Shareware programs, Sound App and SoundMachine, can be used as a helper app with browsers, such as Netscape, to play AU files.

A

QuickTime 2.1 provides support for AU files, provided you have the appropriate applications, such as MoviePlayer or SoundEdit 16. To create a file in MoviePlayer, open the sound file and choose Export from the File menu. Choose Options before saving the new file and choose the mLaw compression format.

Audio Bit Depth

In sound digitizing, bit depth refers to the number of bits used to store a sound sample. While bit depth doesn't define the level of the sample (that's determined by the sample rate), it does determine the accuracy of the sample. Sound is represented by a wave form, and the bit depth of the sample is used to indicate the amplitude of the wave. The lower the bit depth, the fewer number of differences in height of the wave form that can be recorded. The higher the bit depth, the more accurate the measurement. A low bit depth produces distorted sounds.

See Also
Sampling Rate; Sound Digitizing

Audio CDs

See
CD Audio Player or CD Audio (Converting to QuickTime)

A

Audio Interchange File Format

See
AIFF

Audio on the Internet

Sound on the Internet can be presented in formats such as AIFF (Audio Interchange File Format), MPEG (Motion Picture Experts Group), or .AU. Some System 7 sounds might also be found on the Net.

The following table shows the common file formats listed with their sizes, benefits, and drawbacks.

To play sound files you download from the Internet, you need helper applications such as SoundApp, Sound Machine, or MPEG/CD and MPEG Audio for PowerPC. MIDI files downloaded from the Web need to be processed by an application like AllMIDI.

Another kind of sound file is presented by RealAudio. RealAudio files use streaming, that is, they are played by RealAudio as the file is downloaded. To play them, you can use the RealAudio Player application or a RealAudio plug-in that processes the files while you are still in the Netscape Navigator window.

A

Audio XCMDs

A set of external routines that provide additional sound capabilities to HyperCard stacks and other software that support XCMDs and XFCNs.

SpeakText provides support for Apple's PlainTalk Text-to-Speech technology. This routine to adds verbal responses to your software. PlainTalk is not required for speech but does provide the best quality.

PlayMOD plays MOD files and supports 8- or 16-bit sound, stereo, and sound fading.

MODToRes converts MOD files into resources (MODr) that the PlayMOD XFCN can play. This enables you to bundle the MOD files in the application, rather than to distribute them as separate files.

SndVolume XCMD is used to get and set the sound volume of the Macintosh.

No licensing fees are required to distribute applications that contain these routines.

Heizer Software
300 Cedar Lane
Largo, FL 34640
Price: $89
Fax: (813) 559-0614
Phone: (800) 888-7667 or (813) 559-6422
Web: http://www.heizer.com

A

See Also
Director; HyperCard; MOD; SuperCard; XCMD

Audiodeck

A utility that automatically plays CDs in an Apple CD-ROM drive. Options include playthrough (audio is routed to the Macintosh speaker) and shuffle or program mode playback.

The software is available of many online services.

AudioCD Access Extension

This extension adds the capability to play audio CDs in a Macintosh CD-ROM player. Although this extension adds the ability to play audio CD's, to hear the CD, you must use the Apple CD Audio Player that appears on the Apple menu.

See Also
Apple CD Audio Player; CD-ROM

AudioCD Tips

You may already know you can play audio CDs in your CD-ROM player and hear the audio through your internal Mac speaker(s) or through external

multimedia speakers. What you probably didn’t know is that the latest version of the AppleCD Audio Player, shipping with System 7.5 and higher, has been enhanced and offers users a wide range of features and shortcuts to make enjoying audio CDs even easier.

When you insert an audio CD, you can give the CD a name by clicking the title field (or pressing the Tab key) and typing in the name of the CD. There is also a blue triangle that appears on the left side of the Audio Player. Clicking this arrow expands the interface and enables the naming of individual tracks in the same fashion you named the CD, as shown in the following figure. (You can tab from track to track.)

Naming individual tracks has three advantages:

1. You don't have to keep the CD jewel box handy to find out which tracks appear where on the CD.
2. You can go directly to the track of your choice by choosing it from a pop-up menu or by double-clicking the track's title in the list.
3. You can create a custom playlist to play only your favorite tracks on an audio CD, bypassing any tracks you don't like.

After you've entered the names of the tracks on the audio CD, you add tracks to your custom playlist by dragging the track’s name from the Tracks window to the PlayList window. You can drag tracks up and down in the Play List window to put them in your desired order. To hear the tracks on your play list, press the PROG button.

You can eject a particular CD disc and reinsert it days, weeks, or months later, and the Mac will still recognize the disc's name and tracks by storing the information in the AppleCD Audio Player Preferences file.

The default color for the Audio Player is black, but you can change this color by selecting a new color from the Color menu.

A volume slider appears in the Player's interface, but you can also control the volume of the audio CDs by using the up and down arrow keys accordingly.

See Also
AppleCD Audio Player; System 7.5

Audiomedia II

A NuBus card that is used for digital sound recording. The single DSP chip is capable of simultaneously playing 4 16-bit 44.1KHz tracks. While all Power Macs support 16-bit sound, the Audiomedia card features professional connectors that improve the quality of the signal being recorded and played back. The Audiomedia II also includes S/PDIF digital connectors.

In addition to the NuBus card, the Audiomedia II card also is available as a plug-in card for the LC and Performa 400 series.

Audiomedia II comes with Sound Designer II, a sound editing application with an interface similar to SoundEdit. You can also use third-party software with

the Audiomedia II, including Macromedia's Deck II.

Digidesign, Inc.
3401-A Hillview Avenue
Palo Alto, CA 94304-1348
Price: $1295
Phone: (415) 842-7900
Web: http://www.digidesign.com/

See Also
Sound Designer II

Audioshop

A sound recording and editing utility that provides a very stylish interface (which can sometimes be a little confusing, because it sometimes tries too hard to act like a CD player or audio tape recorder rather than just a piece of software).

Supports most common Macintosh audio formats (AIFF, SoundEdit, and resources), as well as Windows .WAV and audio CD tracks. The program includes a play list (for playing multiple files), works on AV and Power Macs, and has simple effects, such as echo, reverb, vibrato and flange. Special tools enable you to adjust the audio waveform. editing the pitch and dynamics.

AutoCorrect

A

Both Microsoft Word and WordPerfect have the capability to catch most common spelling errors and correct them as you type. Word calls it AutoCorrect, and WordPerfect calls it QuickCorrect. It works the same way in both: if you make a mistake that the utility has been taught to recognize, as soon as you finish typing the word, the letters will jump into their correct position. Suppose you frequently type “hte” or “teh” instead of “the.” If it’s been entered into the word list, as shown here, it will change automatically.

You can enter abbreviations to be spelled out, symbols to replace characters you type as placeholders, and words you forget to capitalize, like Macintosh. QuickCorrect comes with more words already installed, while AutoCorrect expects you to contribute your own mistakes.

Automated Mixdown

Sound mixing equipment that records changes made to volume and effects settings during a mixing, and then replays these changes during a subsequent mix. For complicated mixing jobs, this makes it possible to work on one track at a time as the mix is perfected.

See Also
Deck II; DigitTrax; Mixing

Automatic Pagination

A

The dedicated typesetting systems of the past often contained batch paginators: software that, given proper direction at the start, would automatically (and very quickly) make up pages to a specified design.

For book and catalog producers, the advent of desktop publishing and the WYSIWYG phenomenon was in some ways a giant step backwards. While modern desktop publishing software can do many things older dedicated systems couldn't, such as integration of graphics with type, there's a serious speed loss associated with having to make up each page individually.

That's why desktop publishers who work with long documents are always looking for automated pagination software. Two such options for Macintosh users are AutoPage and Pianzhang, both QuarkXTensions.

Both programs can take a pre-styled QuarkXPress document and automatically place graphics and footnotes, adjust facing pages so their depth matches, and create cross-references. There are some differences: For example, Pianzhang can create running headers and footers based on text in the document, such as subheads, while AutoPage can change the number of columns in mid-page, allowing more complex layouts.

AutoPage has the additional ability to work from a coded text file, using XTags, a coding language similar to but more complex than QuarkXPress's built-in XPress Tags.

See Also
FrameMaker; QuarkXPress; XPress Tags

A

Automatic Picture Replacement (APR)

Developed by Scitex America, a leading electronic prepress vendor, Automatic Picture Replacement (APR) is a method for automatically replacing placeholder (or proxy) images in an electronic publication file. In the APR scheme, a low-resolution placeholder image is imported into the electronic publication layout as a for position only (FPO) proxy. This image is then replaced by a high-resolution version when the publication file is output for printing. APR is primarily used with Color Electronic Prepress Systems (CEPS) located at trade shops.

See Also
Color Electronic Prepress Systems; Desktop Publishing Processes

Automatically Hide Open Apps when Switching Between Programs

If you have several applications open and you want to switch to another application, you can have the current application hide (still be open and running, but hidden from view) by holding the Option key and clicking the window of another application. This is a shortcut for going to the Applications menu and choosing Hide Others.

You can use this same shortcut if you want to switch to the desktop and have

the current application be hidden. Just hold the Option key and click anywhere on the desktop, and the current application becomes hidden and the desktop becomes active.

See Also
Applications Menu; Hide Others

Autopage

See
Automatic Pagination

AutoPower On/Off Control Panel

This control panel, introduced in System 7.5, lets you set your Mac to turn on or off at a specified time on a daily basis or on a specified date. This feature is only available to models of Macintosh with soft power (the ability to startup from the PowerOn key on the keyboard).

Using the AutoPower On/Off Control Panel is a great way to protect against accidentally leaving your computer on if you've left the office for the day or for the weekend. It's also handy if you want to have the computer startup to perform a task in your absence. You can, for example, have the computer turn itself on at a specified time, and by using AppleScript, you can have it log on to the Internet, check to see if you have email, download your email,

and then turn itself off. Another use might be to have the computer turn itself on and do a backup of your files, again using AppleScript, and then turn itself back off.

See Also
AppleScript; PowerOn Key

AutoRemounter Control Panel

This PowerBook control panel, first introduced in System 7.1, saves you the trouble of manually remounting a server or shared disk if your PowerBook has gone to sleep and lost its connections. When AutoRemounter is enabled, this control panel remounts the volumes to which you were last connected. There are a number of ways you can have AutoRemounter operate: remounting after your PowerBook has gone to sleep; setting the AutoRemount to remount anytime the connection goes down, or not to remount at all, as shown in the following figure.

You can also specify that a password be used before a server volume is remounted. Let's say you leave your PowerBook, and it goes to sleep, terminating your connection. Someone else can wake your PowerBook and have access to the servers that AutoRemounter connects to. The password feature protects you from unauthorized server access by requiring a password each time a server is mounted.

To use the AutoRemounter Control Panel, follow these steps:

1. Choose the AutoRemounter Control Panel from the Control Panels submenu on the Apple menu (or System Folder).
2. Click the option to remount the server or shared disk.
3. Select how the connection to the server or shared disk will occur: automatically or by password only.
4. Close the control panel for the changes to take effect.

See Also
Apple Menu; Control Panel; PowerBook; Server; Shared Disk; Sleep

Autosync

See
Multisync Monitors

Autotracing Applications

Anyone who deals with Macintosh graphics must also constantly deal with the dichotomy of vector graphics and bitmapped graphics. Sometimes you want one, sometimes the other. And sometimes the one you want isn't what you have.

That's where autotracing applications come in. These programs trace around

the elements in a bitmapped graphic to create a vector graphic of the same image that can then be modified in a drawing application. The result is a graphic with smoother lines and curves, cleaner fills, smaller file size, and the potential to be modified quickly in a variety of ways (such as adding color).

Autotrace tools are a common feature of drawing applications, but they tend to be limited in their abilities. A dedicated application often provides better results and a greater degree of automation.

The original Mac application designed for this purpose is Streamline. It allows users to scan images or import them; retouch them with basic paint-style tools; and adjust contrast, threshold, and levels. Once the bitmapped image is to the user's liking, Streamline traces each element in one of two ways: outline or centerline.

Outline mode traces around the edges of an element, while centerline mode traces along the center of an element to make it into a line. The former is appropriate for images such as logos, while the latter is used for images with lots of lines, such as technical illustrations.

Tracer is a newer application that accomplishes the same tasks as Streamline, but it has a slightly different approach. While Streamline lets users adjust images before they're converted to obtain the best results, Tracer concentrates on more accurate tracing and editing tools to be used on the resulting vector image.

A

Tracer offers more accurate tracing than Streamline, with a proportionate increase in processing time. Once Tracer creates a vector image, it can be modified with a complete set of editing tools that any drawing package would envy.

Streamline can convert color images, maintaining up to 256 colors; Tracer is limited to black and white images, although basic color fills can be applied after the image is converted. Both applications can compensate for crooked images, straightening and smoothing lines.

Streamline can save settings for later use on similar images, and it comes with built-in settings for common image types. For those with a lot of images to convert, it can also do batch processing, converting them all in one session.

See Also
Bitmapped Graphics; Drawing Applications; Vector Graphics

A/UX

Apple's add-on A/UX software allows the Mac to run UNIX software directly. This is accomplished by replacing the standard Macintosh operating system with a hybrid of both Apple's System 7 and the UNIX operating systems. Because the resulting Macintosh has both the UNIX and System 7 operating systems, the computer can run both Macintosh and UNIX software. Once A/UX is running, the Mac speaks TCP/IP internally and it can successfully

communicate with other UNIX machines.

A/UX requires fairly powerful hardware to run: at least a 68020 with PMMU, 8 MB of ram and 160 MB of free hard disk space are required. According to Apple, the following Macs support A/UX:

- Mac SE/30
- Mac II (with PMMU)
- Mac IIx
- Mac IIcx
- Mac IIci
- Mac IIfx
- Mac IIsi
- Mac Centris 610 (with third-party FPU)
- Centris 650 (With FPU)
- Quadra 610, 650, 700, 800, 900, 950
- All Power PC Macs

A/UX is installed from its CD using Apple's standard installer program. This installer program copies all necessary software to your computer and sets up a protected area (partition) of your hard disk to store the UNIX files. Upon

complete installation, you'll see an A/UX icon on your desktop. When you run A/UX, the UNIX partition will mount, and finally A/UX will load and ask you for a name and password, as is standard with UNIX systems.

AV Macintosh

Apple's first AV Macintoshes, the 660AV and 840AV, were both based on the 68040 processor and came with an expansion board containing a DSP chip to handle audio and video tasks. Both Macintoshes could digitize video and record and play back 16-bit stereo audio. At that time, no other Macintosh could do this without additional hardware.

Although the AV machines offered a new approach to handling audio and video, including the new DAV slot, few manufacturers released hardware or software that took advantage of the AV's capabilities, perhaps because they knew the Power Macintosh was just around the corner. When the first AVs came out, the PowerPC chip was in its infancy.

Only eight months after the release of the AV Macs, Apple released the first Power Macintosh. These machines used a new RISC processor, which was much faster than the comparable 680x0 CISC processors found in previous Macs. With the extra speed of the processor, it was possible to perform the AV function without the DSP chip. The new Power Macintosh models all supported 16-bit stereo audio. They, however, did not support video digitizing. Apple sold AV models of the first Power Macintosh computers (the 6100, 7100,

and 8100), but these were actually computers that had an added digitizing expansion board—essentially adding the V (video) functions to the Power Macintosh models.

Now Apple offers AV features in most desktop models and seems to have rejected the AV designation altogether. The latest Power Macs (7500 and 8500) come with both video and audio hardware built in, yet lack any AV designation.

See Also
DSP; Power Macintosh